HISTORY

OF

SCOTTISH MEDICINE

THE WELLCOME

HISTORICAL MEDICAL

MUSEUM

LONDON

History
of
Scottish Medicine

IN TWO VOLUMES

ROYAL INFIRMARY, EDINBURGH

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HISTORY

OF

SCOTTISH MEDICINE

BY

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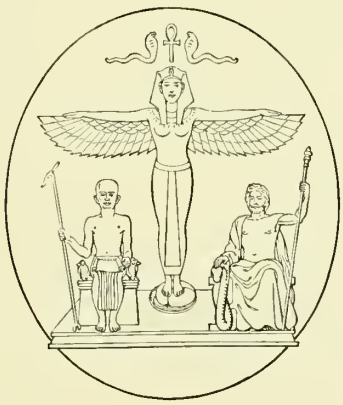

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Edinburgh Pharmacopœia

The Pharmacopœia issued by the Royal College of Physicians of Edinburgh, in 1699, did much to standardise medical prescriptions and the substances used in treatment. Hitherto a knowledge of remedies had been gained from ancient writers, such as Dioscorides, commentaries like that of Matthiolus, and herbals, either preserved in manuscript form, or printed like those of Gerard and Culpepper. The Pharmacopœia is a small duodecimo volume containing a long list of simple medicaments, mostly of vegetable origin, with instructions for the preparation from them of various waters, syrups, powders, lozenges, pills, ointments and tinctures.

Among the more striking preparations contained in it is a compound powder of crabs' claws, which contains various substances such as powdered red coral, crabs' claws, etc., but whose impressiveness is enormously enhanced by the inclusion of bezoar stone and prepared pearls. It must have been a most expensive form of prescription for carbonate of lime. Another noteworthy preparation is the "Mithridatium Damocratis," which contains no fewer than 48 ingredients, chiefly flowers, seeds, gums and oils, of which opium seems to be the most active. It was given in cases of poisoning. There is nothing in this first Pharmacopœia that could be called disgusting, and this official list of medicines stands in marked contrast to the popular medicine of the day, represented, for example, by the receipts of John Moncrief of Tippermalloch, which will be mentioned later. It contrasts very favourably also with the Pharmacopœia of corresponding date issued by the College of Physicians in London.

Second edition

A second edition of the Pharmacopœia was issued in 1722, and a third in 1736. By this time various animal substances had been introduced, possibly as a concession to popular medicine. Thus, a method of preparing dried goats' blood is given. Urine mixed with salt is used to prepare sal ammoniac. Prepared millipedes (slaters) are to be dried at a gentle heat and used as an ingredient of various medicines, probably for the stimulating properties of the formic acid they contained. Dried bees are used in a similar manner. Crabs' claws and pearls are employed as before. One of the most striking additions to the materia medica is "Bufo præparatus," for which the recipe is that "living toads are to be set in an earthen pot, desiccated at a moderate heat and reduced to powder." It seems hard on the toads that they should have been alive at the beginning of the preparation, but it has been found in recent years that the skin of the toad contains a valuable glucoside, having an action similar to that of

digitalis.[1] This was half a century before William Withering, an Edinburgh graduate, who had settled near Birmingham, investigated, in 1776, the medicinal properties of the foxglove.

Irregular practice

There was a great deal of irregular practice in the early part of the 18th century. The country was invaded by mountebanks, who came especially from Germany and the Low Countries, set up stages in the towns and treated people wholesale. Partly owing to the scarcity of doctors and partly perhaps from want of faith in some of those who were provided with university degrees, a great number of books on simple forms of medical treatment were also in vogue.

This general attitude is illustrated by the case of Sir John Clerk, of Penicuik, who, in 1710, fell ill of a great cold, tried several doctors and medicines, and finally rode to Bath "contrary to the advice of Physitians at Edin., for they all agreed that the Bath Water wou'd prove hurtful." He, however, found that the change of air contributed to his recovery, and that he was cured by taking the "Elixir Proprietatis cum spiritu sulphuris." This was a nostrum composed by Dr. George Thomson, who wrote "The Direct Method of Curing Chymically," London, 1675.[2] This book was typical of many others.

Popular books on medicine

A book of simple, harmless and generally useful remedies, which had an enormous vogue in England, and which was occasionally found in Scotland, was "Primitive Physic, or an Easy and Natural Method of Curing Most Diseases," composed by the Rev. John Wesley (1703–1791), and sold at the Methodist preaching-houses throughout England. It had reached its 21st edition by 1785.

In Scotland several books were in use, designed for those who knew a little medicine, such as the clergymen, lairds or great ladies who took an interest in their retainers. Of these books, one of the best known was "The Poor Man's Physician, or the Receits of the Famous John Moncrief of Tippermalloch." This, as its title-page records, is "a choice collection of simple and easy remedies for most distempers, very useful for all persons, especially those of a poorer condition." The first edition was published in 1712, and the third edition in 1731.

Receipts of Tippermalloch

Tippermalloch's little book consists of a long list of remedies divided under diseases of the head, diseases of the nostrils, diseases of the liver, and so on through other parts of the body, taking up the various diseases affecting each part. There is no attempt at explanation, but after each heading is given a selection of remedies. Some of these appear to be quite natural and salutary, and some can be described only as extremely disgusting. No doubt his intention was to mention remedies likely to be favoured by different types of person, so that people who liked heroic or disgusting things could get what they liked. For the scurvy, which was a troublesome disease at the time, he sensibly recommends to "take of clear Juice of Water-cresses and Brook-lime, of each

[1] *See* Abel and Macht: "J. Pharm. Exp. Therap.," Vol. III., 1912, p. 319; and Shimizu: "J. Pharm. Exp. Therap.," Vol. VIII., 1916, p. 347.

[2] "Sir John Clerk's Memoirs, 1676–1755," Scottish Hist. Soc., Edinburgh, 1892, p. 77.

one Ounce, the Juice of Fumitory two Ounces, white Sugar two Drams. Make a Potion." [1] For the itch, another very troublesome disease of the time, he recommends the standard remedy of brimstone, with nitre, rubbed on.

The following is a fair average sample of the book :—

"38. *For the Colick.*

1. The Hoofs of living Creatures are singularly good, being drunk. *Rhasis.* Or dry Oxdung drunk in Broth, or the Juice pressed from the Ox-dung drunk, is better. *Gesnerus.* 2. The Heart of a Lark bound to the Thigh, is excellent against the Colick, and some have eaten it raw with very good Success. *A Spaniard.* 3. This is certain, that a Wolf's Dung, Guts, or Skin eaten, will cure the Colick, or if you do but carry them about you ; for they strengthen the Choler. *Cardanus.*" [2]

Some of his remedies have apparently come down by tradition as old folk-medicine. Others, such as the following, suggest a derivation from some of the ancient classic writers like Scribonius Largus, possibly through old monastic sources. As a cure for the falling sickness in children, he gives the following prescription :—

"8. *Of the Falling-sickness in Children.*

3. Take a little black sucking Puppy (but for a Girl take a Bitch-whelp), choke it, open it, and take out the Gall, which hath not above three or four Drops of pure Choler : Give it all to the Child in the Time of the Fit, with a little Tiletree-flower Water, and you shall see him cured, as it were by a Miracle, presently." [3]

The following are examples of the more rational type of prescription which Moncrief occasionally gives :—

"83. *For a Colick.*

Take an Handful of Oat-meal, as much of the Juice of Celidon as will near by colour the Meal, a good Head of Garlick, cut small ; take Pepper, Cloves, Cinnamon, grosly bruised, mix them with the Meal, and draik all these with the White of an Egg. Make two Bannocks, and apply them one after another to the Patient's Navel, in a Linen Cloth, as hot as the Patient can endure ; and as the one cools apply the other. These Bannocks you may keep for Use a Twelve-month. *Probatum.*" [4]

"52. *A Wonderful good Medicine to cleanse the Mouth, and fasten the Teeth.*

Take Wood-bind-leaves and Sage, of each an Handful, and a Spoonful of fine *English* Hony, and a Piece of Allum of the Quantity of a big Walnut ; boil all these together in a Quart of fair running Water, until the one Half be consumed ; then strain it through a fine linen Cloth, and wash the Mouth and Teeth therewith lukewarm, and it will both cleanse the Mouth of all Corruption and Filth, and fasten the Teeth." [5]

"53. *A Special good Salve or Ointment to cure any Wound or Sore, whether new or old.*

Take half a Pint of Salad-oyl, four ounces of unwrought Wax, an Ounce of Turpentine, four Ounces of Rosin, and an Ounce of Mastic. *Item* Smallage, Wood-bind-leaves, Plantain and Marigold-leaves, of each an Handful ; of the Tops of Hyssop half an Handful : Wash them all well, and dry them at the Sun for the Space of half a Day together, then stamp them in a Mortar, and strain them, and take the Juice thereof, and boil it with all the other

[1] Moncrief : "The Poor Man's Physician," Edinburgh, 1731, p. 40.
[2] Moncrief : Op. cit., p. 182.
[3] Moncrief : Op. cit., p. 4.
[4] Moncrief : Op. cit., p. 193.
[5] Moncrief : Op. cit., p. 206.

Things before-mentioned, except Turpentine, and stir it continually, until you find all the Juice dried up; then put in your Turpentine, and let it boil a Walm or two, then take it from the Fire; then let it stand a while, strain it through a coarse linen Cloth, and keep it in Boxes or Gallypots, until you have Occasion to use it. This Salve cures all Sores both new and old." [1]

Sarcasm of Burns

Towards the end of the 18th century, as regular medicine became more easily available, these ancient recipes passed out of use, and excited a great deal of ridicule, as in the sarcastic poem of Robert Burns on "Death and Dr. Hornbook":

"Calces o' fossils, earth and trees;
True sal-marinum o' the seas;
The farina of beans an' pease,
He has't in plenty;
Aqua-fontis, what you please,
He can content ye.

Forbye some new, uncommon weapons,
Urinus spiritus of capons;
Or mite-horn shavings, filings, scrapings,
Distill'd *per se*;
Sal-alkali o' midge-tail-clippings,
And monie mae."

William Buchan's "Domestic Medicine"

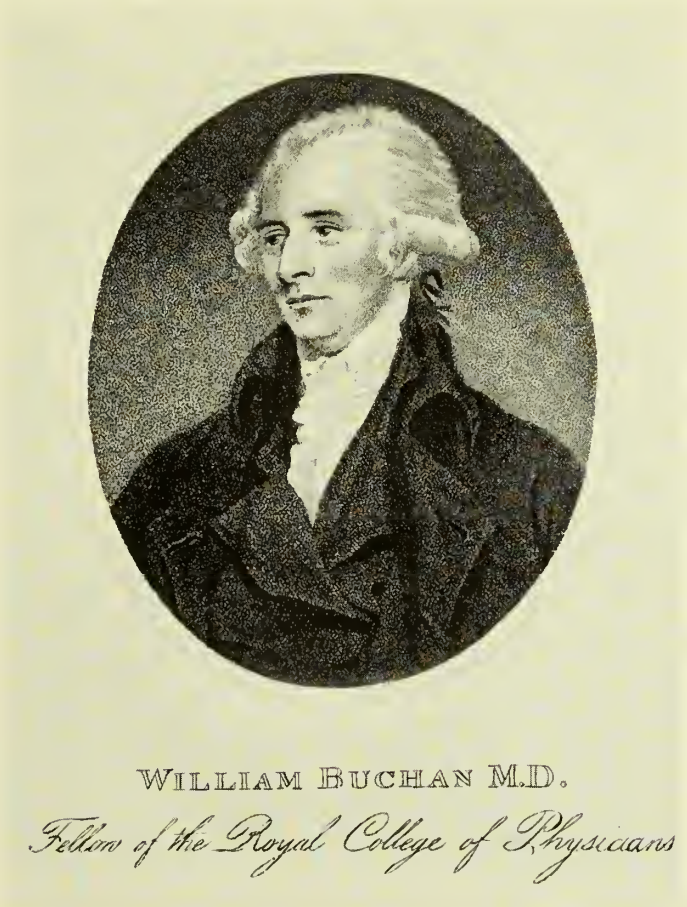
A work of a completely different and more important type was Buchan's "Domestic Medicine," first published in 1769. It had an enormous circulation, no fewer than 19 editions being published during the author's lifetime, and it is still in frequent use among the poorer classes. It was translated into all the principal European languages, and was even more popular on the Continent and in America than in Scotland. So highly esteemed was it in Russia that the Empress of Russia conferred upon the author a gold medal and a letter of commendation.

William Buchan (1729–1805) was born at Ancrum in Roxburghshire, and even as a school-boy he acted as amateur doctor to the village people. His father was a small landed proprietor and farmer, and he sent Buchan to Edinburgh for the study of divinity. Forsaking this, Buchan continued to support himself at Edinburgh University by teaching mathematics with the encouragement of Professor John Gregory. He graduated M.D. at Edinburgh in 1761 with a thesis entitled "De Infantum Vita Conservanda." After nine years in Edinburgh, he went to practise in Yorkshire, but returned to Edinburgh in 1766 and began to lecture to large classes on natural philosophy. He published his great work in 1769, and in 1772 became a Fellow of the Royal College of Physicians. Having contested the chair of medicine unsuccessfully on the death of John Gregory, he removed to London in 1778, where he gained a considerable practice. In London he published several other books dealing with various aspects of the preservation of health, which are less well known than "Domestic Medicine." Dying in 1805, he was buried in the cloisters of Westminster Abbey.

[1] Moncrief: "The Poor Man's Physician," Edinburgh, 1731, p. 206.

" Domestic Medicine " mentions the melancholy fact that in the 18th century " almost one-half of the human species perished in infancy, by improper management or neglect," and appropriately opens with general instructions upon the causes of disease in children and their management. The author gives excellent advice

Infantile mortality 50 per cent.



WILLIAM BUCHAN (1729–1805)

for the regulation of life and work by the laborious, the sedentary and the studious, and deals at considerable length with various matters that may affect the health, such as diet, ventilation, sleep, cleanliness and infection. The greater part of the treatise is taken up with a description of the causes, management and treatment of the commoner conditions of disease, such as fevers, pneumonia, smallpox, whooping-cough, colic, scrofula, etc., in which his remarks are not only of permanent value, but give incidentally a valuable picture of the relations between social conditions and disease in the 18th century.

Occasionally the author recommends heroic remedies, as, for example, when with the remark that "a doubtful remedy is better than none," he suggests that in desperate cases of obstruction of the bowels "it is common to give quicksilver. This may be given to the quantity of several ounces or even a pound, but should not exceed that." He adds that "when quicksilver is given in too large quantities it defeats its own intention, as it drags down the bottom of the stomach which prevents it getting over the pylorus. In this case the patient should be hung up by the heels, in order that the quicksilver can be discharged by his mouth." In general, however, the advice given in the book is simple, practicable and easily followed, and a perusal of it readily explains why it should have become one of the classics of medicine.

Smallpox in 17th and 18th centuries

Among the diseases of the 17th and 18th centuries, which those medical practitioners who happened to be available found themselves frequently called upon to treat, were smallpox and ague.

Smallpox appeared at recurring intervals in epidemics, which were sufficiently noteworthy to be recorded by the historians of the time, although in Scotland this disease does not seem to have attained the universality with which it afflicted England, if we may judge by Macaulay's words. Referring to the death of Queen Mary in 1694, Macaulay says:—

> "That disease, over which science has since achieved a succession of glorious and beneficent victories, was then the most terrible of all the ministers of death. The havoc of the plague had been far more rapid: but plague had visited our shores only once or twice within living memory; and the smallpox was always present, filling the churchyards with corpses, tormenting with constant fears all whom it had not yet stricken, leaving on those whose lives it spared the hideous traces of its power, turning the babe into a changeling at which the mother shuddered, and making the eyes and cheeks of the betrothed maiden objects of horror to the lover."[1]

In Scotland, however, the epidemics of smallpox were sufficiently severe. In 1610, there was a great visitation of the young children of Aberdeen with the plague of the pocks, which was attributed to "the sins of the land." In 1635, the smallpox raged for six or seven months with great severity among the young in Scotland, and, what was remarked as unusual, some persons took the disease for a second time.[2] Again, in August, 1641, Aberdeen was greatly afflicted for:

> "In this month, ane great death, both in burgh and land, of young bairns in the pox; so that nine or ten children would be buried in New Aberdeen in one day, and continued a long time. . . . There was reckoned buried in Aberdeen about twelve score bairns in this disease."[3]

[1] Macaulay: "History of England," Vol. IV., p. 530.
[2] Chambers: "Domestic Annals," Vol. II., p. 85.
[3] Chambers: Op. cit., p. 140.

In April, 1672, it is recorded that smallpox was present in Glasgow, and had raged for six months previously, so that hardly a family escaped the infection, and 800 deaths and upwards occurred.[1] This was extremely serious for for a small town of about 12,000 inhabitants, which Glasgow then contained. Still another record of December, 1713, mentions that in Eglesham parish the smallpox was severe and 80 children died.[2]

Pitcairne's treatment

Dr. Archibald Pitcairne's method of curing the smallpox, written in the year 1704 (that is, before the introduction of inoculation), for the use of the noble and honourable family of March, may be given here as an example of early 18th century medical treatment :—

"If a Child, or any Person grow sick, feverish, or has a Pain in the Back, or Slot of the Breast, Loss of Appetite, Drowsiness, short Cough, Sneezing, watery Eyes or some of these; but always accompanied with some Heat, and frequent Pulse, or Drought. In this case Blood is to be taken at the Arm, or with Loch-Leeches; and if the Fever ceases not, tho' the Pox appear, let Blood a second or third time. Meantime give the Child a Spoonful of Syrup of White Poppies at Night, and in the Night-time, also till Sleep or Ease comes.

"After the Pox appears, and Fever is gone, then steep a Handful of Sheeps' Purles in a large Mutchkin[3] of Carduus-water, or Hysop-water, or Fountain-water, for 5 or 6 Hours; then pour it off without straining, and sweeten it with Syrup of red Poppies. Give of this a Spoonful or two, every 4th or 5th Hour, to make the Pox fill, and preserve the Throat. Always at Night-time, and in the Night, give a Spoonful or two of the Syrup of white Poppies for a Cordial, that keeps down the Fever, and keeps up the Pox.

"If the Pox run together in the Face (which is the only thing that brings Hazard) use the Infusion of the Purles, and the Syrup of white Poppies oftner than in other Cases; also about the eighth Day from the appearing of the Pox, or a little before that, give the Child to drink of Barley-water, sweetned with Syrup of white Poppies; this will make the Child spit, which saves the Child.

"The Child's Drink may be Milk and Water at other times, or Emulsion, but use the first rather.

"Apply nothing to the Face. Use no Wine, or Winish Possets.

"If any Loosness comes before the 4th Day of the Eruption, stop it with Syrup of Poppies, and five or seven Drops of liquid Laudanum given now and then till it be stopt.

"Let the Child's Diet be all along a thin *Bread-Berry* in the Morning, a weak Broth, and soft Bread for Dinner, and Milk and Bread at night, or Sugar-Bisket and Milk, and about the fifth Day from the Eruption, give the Child Water-gruel sometimes.

"*Note.*—If at any time the *Small-Pox* disappear, with a Raving before the 5th, 6th, or 8th Day from the Eruption, then let Blood again, and apply a large Blistering Plaister between the Shoulders, and give an Emulsion.

[1] Chambers : "Domestic Annals," Vol. II., p. 347.
[2] Chambers : Op. cit., Vol. III., p. 387.
[3] A pint measure.

"If the Small-Pox fall down, without Raving, then apply a Blistering Plaister large between the Shoulders, and give an Emulsion, and boyl in a Gill of Water, and as much White or Red Wine, half a Dram or a Dram of Zedoary-Root sliced, 2 Figgs, and 2 Scruples of Theriac or Diascordium; sweeten it with Syrup of Kermes and white Poppies, each half an Ounce.

"In the End of the Disease, that is, about the 10th, 11th, 14th, &c., Day, after the Eruption; if the Child's Defluxion is gross, either apply a new Vesicatory, or give often the Spirit of Hart-horn, in Syrup of Violets, or a Vomitor.

"*Lastly*, When the Pox is blackened sufficiently, or about the 14th Day from the Eruption, let the Child drink Whey, eat Pottage, &c. Broth with Prunes, unless the Child's Belly is open enough of it self.

"But if the Child is so young or unlucky, as not to cough heartily, and force up the Defluxions; or if the Frost thickens it, apply to the *Slot* of his Breast a Pultess of Theriac, Diascordium, Alkermes, Oyl of Rosemary, and Cinammon with warm Claret, in a double Linnen Cloath often.

"And to the Throat apply, in a double Linnen Cloath, a Pultess of Cow's Dung boil'd with Milk, and soft white Bread: Put a little Brandy to as much as you apply at a time.

"For the Defluxion also give inwardly some of this, which has a Dram of *Sperma Cœti*, well mix'd in a Glass-Mortar (not a Brass one) with fine Sugar; to which add at leisure Syrup of Violets, or Balsamick, or Poppy Syrup, with some Spirit of Harthorn.

"If the Pox was confluent or run together on the Face, then, after the Person is recovered, give a Purgative, to bring away the Remainder of the Pox within the Guts."[1]

Inoculation

The practice of inoculation was introduced into London on the recommendation of Lady Mary Wortley Montagu in the year 1721. Dr. Peter Kennedy, a Scotsman practising ophthalmic surgery in London, had already, in 1715, written of the good effects that he had seen from inoculation in Constantinople.[2] Maitland, a Scottish surgeon, who had attended the Embassy in Constantinople, was employed, in 1721, to carry out the experimental inoculations upon condemned criminals, conducted by Sir Hans Sloane at the instance of King George I.[3]

Adopted in Scotland

Inoculation against the natural smallpox, having proved effective in England, was adopted in Scotland some five years later, and appears to have been very successful in diminishing or preventing the epidemics which had occurred in previous centuries. In a statistical account of Scotland, published in 1791, the former ravages of smallpox are declared to be much abated owing to the parish ministers performing inoculation in children. The epidemical disease most dreaded was still said to be the natural smallpox, which occurred about once in every seven years and swept away a number of children. This was attributed to the neglect of inoculation, and there are numerous complaints at this time of the absence of doctors or surgeons in country districts. A plan was proposed that the students

[1] Pitcairne: "The Method of Curing the Small-Pox; Written in the Year 1704. For the Use of the Noble and Honourable Family of March," printed 1715.

[2] Kennedy: "An Essay on External Remedies," London, 1715, Chap. 37, p. 153.

[3] Creighton: "History of Epidemics in Britain," Vol. II., p. 467.

of divinity at the University of Edinburgh should be instructed in the art of performing inoculation, "which the physicians of that city generously and humanely proposed to do, without putting them to any expense." As an example of the success of inoculation, it is mentioned that among 1000 patients inoculated by Dr. Lindsay, in Jedburgh, only two died, and these were believed to have been infected in the natural way.[1]

Cullen's description of inoculation

The method of performing inoculation about 50 years after its introduction is given in a letter by Professor William Cullen to a young practitioner in the south of Scotland, as follows :—

To Mr. Michael Gardiner, on Inoculation,

Dear Sir,—Lord Stonefield proposes to have his son Mr. Willie inoculated this harvest, and as he is to be under your care his Lop. desires me to give you my opinion concerning the best manner of managing this matter. With regard to the ordinary practice, I know that I need not instruct you, and shall therefore say only what relates to the particular patient, or to new and late improvements in the general practice which you may not have had experience of.

I think he should not be inoculated for ten or twelve days after he goes to the country that you may be certain he has catched no cold in changing quarters, and farther that the hot season may be over.

During this time there is to be no change of the diet he has been on for some time past, which is milk, grain and vegetables, and entirely without animal food, and this diet is to be continued during the whole course of the disease.

In the time which is to pass before inoculation you may purge him twice, giving one grain of Calomel overnight and a Senna infusion in the morning. The same purging is to be repeated twice between the Inoculation and Sickening, and in both cases the doses are to be given at the interval of three or four days.

The inoculation is better performed by a Lancet whose point has been dipt in a pustule than by a thread as formerly ; but if you cannot have the opportunity of preparing a lancet within a few days before your intended inoculation, you must employ a thread as usual. In employing the lancet if the matter upon it happens to be dry, you must hold it a little over the steam of warm water before you employ it. In employing it you have only to insinuate it under the cuticle without going deeper, and when you have withdrawn the Lancet you have only to press down again the cuticle, and tie a bit of rag upon it which rather does harm. (*sic.*)

To moderate the disease

Every day both before and after inoculation and every day during the course of the disease, your patient must walk out or be carried out into the fresh air and be very much in it. When rains or high wind render it inconvenient for him to be abroad the windows of his chamber must be kept open for the most part. In short, he can hardly have too much fresh air ; but it is by no means necessary to expose him either to a stream of air or to any moisture, so that these ordinary causes of cold may still be avoided. I say farther that before Inoculation, and from thence to the Sickening, there is no occasion to seek for much cold, and therefor to push him constantly out of the house, but it may be enough to avoid heat, to keep his chamber cool, and to have him often abroad. When the weather is warm he may be cooler within doors than abroad, and this minds to say that when he is abroad he must keep out of the sun and avoid any exercise that may heat him. The less exercise he takes the better. This is the management till he sickens,

[1] Sinclair: "Statistical Account of Scotland," Edinburgh, 1791, Vol. I., pp. 3 and 263, Vol. II., p. 126, and Vol. IV., pp. 527 and 548.

and when that happens there must be more pains taken to cool him. If any fever appears if it is in the daytime let him be carried abroad to sit in the Shade, and if there is a little Stream of air to fan him it is the better. If it rains or he is so sick as to be averse to sit up, let the windows and even opposite windows be open, and while he lies upon his bed if this does not cool him let him be carried near to the window and held in the stream of air. This is to be done also in the night-time, and if it is fair without high wind I think even in the night-time carrying the patient abroad into the open air is safer than keeping him at a window. When by any of these means the heat delirium, or other symptoms of fever are much abated, he is to be laid abed but he must not be immediately covered with blankets but should be for some time with only a single sheet upon him. Let this be observed that the fever is most liable to come on in the Evening and forepart of the night, and therefor at this time the cooling measures are most necessary ; but that after two or three oclock the fever usually declines, and both from this consideration and from the measures employed before, the patient may be covered towards morning and especially during sleep at this time. Upon the whole I think it is found from much experience that external cold is the surest and generally a safe means of moderating the eruptive fever, and in proportion of rendering the small pox few and of a good kind. I have given you hints of the particular execution, but some part of it must be left to your own discretion upon understanding the general plan. I have only to add that these cooling practices are especially necessary during the eruptive fever, and are to be continued if the small pox should after all prove numerous or be attended with any other unfavourable circumstance. But if upon eruption they are very few and of a good kind, hardly any measures at all are necessary, and the patient may go abroad or stay at home as in ordinary health, or as directed above for the time before sickening. In case of any sharp fever at eruption, besides the cooling I have spoken of it is also proper the day after sickening to give such a dose of Calomel and Physic as above mentioned, and this may be repeated during the course of the disease, and once or twice after it. I have thus given you my plan I hope fully enough ; but if any doubt or difficulties remain, you have still enough to have them solved, and I shall be glad to hear from you being very much.—Dear Michael your &ce.

W. C.

EDINR., *8th* Augt., 1771. [1]

The practice of inoculation spread quickly all over Scotland, and Pennant, in 1769, mentions its successful use in Caithness, the Orkneys, and Shetland:—

> "Inoculation," he says, "is much practised by an ingenious physician (Dr. *Mackenzie*, of *Wick*) in this county (Caithness), and also the *Orkneys*, with great success, without any previous preparation. The success was equally great at *Sanda*, a poor isle, where there was no sort of fuel but what was got from dried cow-dung ; but in all these places the smallpox is very fatal in the natural way." [2]

Vaccination

The procedure of vaccination, which completely superseded inoculation, was introduced by Edward Jenner in 1796, and within a few years came into general use in Scotland. One of the earliest persons to publish an extended inquiry into its good effects was Dr. William Pulteney Alison, at Edinburgh, in 1817.

Malaria

Ague or malaria was a disease which occasioned much trouble in the 17th and 18th centuries. It prevailed particularly among the labouring classes, to such a serious extent that frequently the cultivation of the ground in spring

[1] From MS. Letter-books of William Cullen, preserved in the Royal College of Physicians, Edinburgh.

[2] Pennant : "A Tour in Scotland," Third Edition, Warrington, 1774, p. 184.

could not be performed. By the end of the 18th century ague had almost disappeared from Scotland. The records of Kelso Dispensary show that the number of cases treated there in 1781 was 161, after which a gradual fall took place, so that by 1797 they did not exceed ten in any one year, and after 1840, disappeared altogether. This was probably due to the disappearance of bog land by drainage and cultivation.[1]

Sibbens

Two peculiarly Scottish diseases of the 18th century were sibbens and croup. Sibbens was a troublesome infectious disease prevailing in the south-west of Scotland. It appeared first as a sore throat with glandular enlargement, and later produced on the skin pustules, which ulcerated deeply, together with small hard knots of a reddish colour, later developing into excrescences resembling raspberries. It is supposed to have been introduced by Cromwell's soldiers, and to have been identical with yaws, a disease prevalent in West Africa, and carried by negro slaves to the West Indies.[2] It gradually died out.

Croup

Croup was an old Scottish name for an acute disease of the throat accompanied by harsh breathing and hoarse coughing. It had been prevalent in the south-east of Scotland, but had not been described until 1765, when Professor Francis Home, of Edinburgh, published an account of the disease. A little later we find the parish ministers deploring the uncommon mortality due to epidemical sore throat, the fatal issue of which they believed might be prevented by proper care.[3] Dr. Francis Home says that his description is the first account of the disease, which seldom occurred in Edinburgh, but was frequent in Fife, Ayrshire, Galloway and other parts near the sea. He described the "white, soft, thick preternatural coat or membrane" covering the air passages of the children who died, "like the blankets of a bed that has been laid in," and he suggested tracheotomy for its relief.[4] This account was issued more than half-a-century before the celebrated treatise of Pierre Bretonneau, who gave to the disease the name "La Diphthérite," and who is generally regarded as its discoverer.

Scots names for diseases

Scottish medicine had a nomenclature of its own for the commoner diseases. This is well exemplified in the description, given by a schoolgirl of the diseases from which she had already suffered, as mentioned by Dean Ramsay in illustration of Scottish expressions. He says:

> "In 1775, Mrs. Betty Muirhead kept a boarding-school for young ladies in the Trongate of Glasgow, near the Tron steeple. A girl on her arrival was asked whether she had had small-pox. She answered, 'Yes, mem, I've had the sma'pox, the nirls (measles), the blabs (nettle-rash), the scaw (itch), the kink-host (whooping-cough), and the fever, the branks (mumps), and the worm (toothache)."[5]

[1] Ritchie: "Animal Life in Scotland," Cambridge, 1920, p. 510.
[2] G. Matheson Cullen: "Concerning Sibbens and the Scottish Yaws," *Caledonian Medical Journal*, April, 1911.
[3] Sinclair: "Statistical Account of Scotland," 1791, Vol. XXI., p. 75.
[4] Francis Home: "An Enquiry into the Nature, Cause and Cure of the Croup," Edinburgh, 1765.
[5] Dean Ramsay: "Reminiscences of Scottish Life and Character," Edinburgh and London, p. 205.

Dropsy

Dropsy, during the 18th century, was generally regarded as a disease due to liquefaction of the tissues which occurred with disorders of the liver, dysentery and similar conditions. The simple idea that it was, in many cases, essentially a mechanical effect of failing circulation was not generally accepted until after the publications of Corvisart (1806) and Laennec (1819). It was only after the researches of Laennec at the beginning of the 19th century that physicians were able to recognise, during a patient's lifetime, defects in the valves of the heart. Dr. Donald Monro (1729–1792), who was a brother of Professor Alexander Monro *(secundus)*, and for many years a physician with the British armies in Germany and elsewhere, was probably the first person to suggest that some cases of dropsy were due to disease of a heart valve. This he did in describing the following case :—

First association with heart disease

> "In the year 1750, I dissected the body of a man who died of an universal dropsy, in the presence of Dr. John Rutherford, professor of medicine in the university of Edinburgh : we could find no other cause of the disease than the ossification of the valvulæ mitrales in the left ventricle of the heart, by which the orifice of that ventricle was so straitned, that I could scarce force my little finger into it. The heart itself was very large. While the man was alive, all the soft parts of the neck were raised by every systole of the heart, in such a manner that the veins there seemed to have a pulsation." [1]

Medical accounts

Various family accounts for medical expenses have been preserved by the descendants of families living in country districts. For example, in the middle of the 18th century, the family of Lumsden of Cushnie, in Aberdeenshire, had occasion to call Dr. Gregory, mediciner of King's College, and Dr. James Gordon, professor in Marischal College, for attendance in the fatal illness of Mistress Bettie Lumsden. The account of the former amounted to £33 18*s.* Scots, and of the latter to £37 16*s.* The lady's illness also incurred a long bill from Francis Legatt, chirurgeon-apothecary, in which such items are mentioned as 8 oz. of cordial mixture at 4*s.* ; 3 vomits at 2*s.* 6*d.* each ; 2 drachms of cephalick spirit, 4*d.* ; 2 bloodings, 2*s.* 6*d.* each ; eyewater, 1*s.* ; anodyne purgative, 1*s.* ; "blistering plaster for your back," 1*s.*[2]

A good idea of practice in the country from the middle of the 18th century onwards, can be gained from the account-book containing the record of medicines furnished by Dr. William Cullen, at Hamilton, from September, 1737, to October, 1741, which is preserved in the Library of the Royal College of Physicians at Edinburgh. The doctor appears to have obtained some of his drugs wholesale from the "Chymicall Laberatory at Edinburgh," and these included such substances as tinctura antimonialis, sweet spirit of nitre, oil of absinth, oil of cinnamon, oil of lavender, oil of rue, oil of savin, extract of chamomile, extract of Peruvian bark, extract of gentian, flowers of benzoin, white precipitate of mercury, red precipitate, green precipitate, sal ammoniac crystallised, and rectified sal volatile.

[1] Monro : "Essay on the Dropsy," London, 1756, p. 17.
[2] Rodger : "Aberdeen Doctors," p. 18.

A country druggist

Hamilton was a large enough place to possess a druggist, and from Mrs. Johnston, who managed the druggist's shop, Cullen obtained oil of turpentine, spirit of wine, oil of origanon, oil of vitriol, English crocus, white arsenic, borax, hellebore root, white wax, lard, gum benzoin, gum elemi, coral, cubebs, sandalwood, oil of anise, levigating marble, Florence flasks, castor, cinnabar, Venetian treacle, mithridaticum, pepper, gentian root, valerian root, laurel berries, Venice turpentine, etc., etc.

He made up these substances into ointments, elixirs, cordials, draughts, enemata, stomachic drops, apozemata, electuaries, etc., at charges from 3*d.* to a few shillings each. His account to Her Grace the Duchess of Hamilton, from 5th November, 1741, to 15th April, 1742, included such items as 2 ownces of senna, 1*s.*; a glass of specific balsam; a Blistering plaister for ye Ear, 6*d.*; a glass of hysteric drops, 6*d.*; a glass of cordiall mixture, 3*s.*; ane anodyne Draught, 1*s.*, etc. It is noteworthy that "drugs for the horses" came to much more than those for the family. Chocolate was a dear commodity, as two pounds are set down at 10*s.*

The whey cure

A method of treatment which was much recommended by practitioners in Scotland during the 18th century was the whey cure. This, which involved early rising, spare diet, and was carried out in a country district, was of great value at a time when people were apt to exceed both in eating and drinking. The method is concisely expressed in a letter from William Cullen to a patient. The letter is dated from Edinburgh in May, 1768, the year before that in which Cullen first gave a course of lectures in practice of medicine, and runs as follows :—

For Governor Glen.

Goat Whey.

When the stomach is well suited to digest Goat whey, the drinking of this for some weeks at a proper Season is of great service to many constitutions & the best management for a Goat whey course I take to be the following.

Let the milk be taken from Goats that feed in a mountainous pasture & the higher the better.

Let the Goats be milked early in the morning & if possible let the rennet be put to the milk while it is yet warm from the Goat.

Let that part of whey only be taken that parts readily and entirely from the Curd.

In drinking the whey it is always proper to begin with a small quantity about a gill[1] to continue this for two days & afterwards by slow degrees to increase the dose till it arises to a muchkin[2] and half or a Chopin[3] in a morning & above this it is hardly ever proper to go.

Whenever the quantity taken in a morning goes above a gill it is always proper to divide it into different draughts & to take these at an interval of half an hour or more between them.

[1] One quarter-pint.
[2] One pint.
[3] One English quart.

It is always best to take the whey betimes in the morning, but sooner or later according to the habits that people are in of getting up in the morning. The first draught may be taken a bed, but a person should be up to take the second; if the weather allows of it, it is usefull to walk about in the open air between the draughts & for a little after the whole is taken.

When the whey happens to sit heavy or prove windy on the stomach, it may be somewhat corrected by taking a teaspoonfull of Aniseed sugar in the first draught of the whey or by eating a little Sugared Carraway Seed between the draughts.

The whey operates most properly when it keeps the belly regular without purging & when the most part of whey goes of by Urine.

When the whey does not even keep the belly regular, it is proper to take along with it every day or every second day a dose of the Soluble Tartar ordered below. The Dose should be such as to keep the body open & no more, for I think purging might be hurtfull to the Governor.

Breakfast should not be taken till an hour after the whole of the whey is taken.

The Diet along with Goat whey may be the same as at other times, only the stomach should be kept always light. Fish should be taken seldom & very sparingly & much of greens or Roots especially of the Colder or more windy kinds should be avoided.

In drink all kinds of fermented liquors whether wines or Ales are improper & if any Strong drink is necessary the best is water with a little Spirits without any Sowring and with very little or no Sugar. However if this is disagreeable & wine has been usually taken, a little Madeira or Sherry may be taken at dinner & supper.

Nothing secures the good effects of Goat whey more than being much in the Open Air & taking a great deal of gentle Exercise on horseback or in a Carriage.

I should have said above that it is enough to take the Goat whey once a day, for the Evening hardly affords a Convenient time for it unless a person can take it alone for supper.

WILLIAM CULLEN.

EDINR., 30th May, 1768.

For Governor Glen.

Tartar. Solubil ʒ ii
Sacchar. alb. duriss. ʒ i

Terito simul in pulverem & mitte in Phiala patuli oris bene obturata.

Signa. Aperient salts two, three or four teaspoonfulls for a dose to be taken in a draught of Goat whey.

W. C.

30th May, 1768.[1]

Diseases in the north of Scotland

Pennant, in his account of his tour in Scotland in 1769, gives an appendix written by the Rev. Mr. Shaw, minister of Elgin, in which a short account appears of the common diseases in the north of Scotland, with the treatment, at that time, used for them.

"The common diseases in our country are fevers, rheums, cold, scrofula, hysteric and hypocondriac; bites of serpents, and mad dogs. Our natural physicians cure fevers, by making the patient drink plentifully of barley water or wangress, and when the fever rises high the patient drinks a large draught of cold water which brings out a profuse sweat, that ends in a crisis. For rheums, they twice a day bath the part affected, pouring cold water upon it,

[1] From William Cullen's letter-books.

and after it is dried, rubbing it till it is warm, and covering it with plaiding or flannel. For colds, they keep bed for two days, drinking warm, and if they sweat not, they take the cold bath in a river or brook, which produces sweat. The scrofula they find incurable, but in young persons, by washing often with lime water, it cures in a few years. Hysterics and hypocondriacs, in my opinion, are the effects of tea, coffee, sloth and laziness, but these diseases are never known in our highlands. When one is bit by a serpent or snake, if he can reach the wound, he sucks the blood, covers the wound, and often foments the part wounded, and members round it, with a decoction of the buds and leaves of ash trees. When one is bit by a mad dog, as often happens in the highlands, he with a razor immediately cuts out the flesh of the part wounded, sucks the blood in plenty, and covers the wound with a handful of cobwebs; or if he has not courage to cut out the flesh, and thereby to prevent the poison from mixing with the blood, he causes the wound to be well sucked, and then foments it with warm oil or melted butter. I have seen these cures performed with remarkable success. We have had, fifty years ago, a terrible disease called the *Civans* (Sibbens), which broke out into blotches in several parts of the body, and often turned into a gangrene in the face: this disease was brought by the military returning from *Flanders*, and was cured only by a plentiful salivation with mercury, but now we are happily free from it." [1]

Midwifery

The study of midwifery was an early development in Scottish medicine, and Scottish practitioners displayed a special skill in the practice of this department of medicine in the 18th century. The obstetric forceps had been invented by Peter Chamberlen, a French Huguenot, about 1670, and the work of François Mauriceau, published in 1668, was a sort of canon of the midwife's art during the latter part of the 17th century, giving a good account of the conduct of normal labour, the employment of version, and the management of placenta prævia. This, and the similar work of Van Deventer, published in 1701, together with various treatises for the use of midwives, were available for practitioners of the 18th century.

As regards tuition in the subject, Edinburgh was early in the field with the appointment of a professor of midwifery in 1726, the first appointment of this kind in Britain. In Aberdeen, Dr. David Skene had begun a course of lectures in 1758, which was strongly recommended by the Kirk Session of Old Machar on account of the ignorance of midwives. In Glasgow, James Muir, a surgeon of the town, in 1759 announced a course of lectures for the instruction of women in midwifery, and the Faculty of Physicians and Surgeons granted a sum of £80 in 1768 to Thomas Hamilton for the purpose of purchasing apparatus necessary in the teaching of this subject.

[1] Pennant: "A Tour in Scotland," Third Edition, Warrington, 1774, p. 272.

William Smellie

Scottish midwifery, however, was greatly developed by a general practitioner in the town of Lanark, William Smellie (1697–1763). He studied medicine at Glasgow and began to practise at Lanark in 1720, afterwards graduating M.D. at Glasgow University in 1745. In Lanark he practised as an apothecary and surgeon, and is said to have relied chiefly upon the simple remedies of spirits of hartshorn, tincture of castor and liquid laudanum, which he carried in his pocket in separate bottles, and from which he compounded his medicines. At an early date he became impressed with the usefulness of the forceps, and in his practice attained great dexterity in the use of this instrument.

WILLIAM SMELLIE (1697–1763)
Portrait painted by himself in 1719
(Original in the Royal College of Surgeons, Edinburgh)

Finding that Lanark offered insufficient scope for his ambition, he proceeded to London in 1738, spent some time in studying at Paris, and opened an apothecary's shop in Pall Mall, afterwards removing to Gerrard Street and Wardour Street. He immediately began to teach midwifery, and both in Lanark and in London he made careful notes of his cases with a view to later publication. After 20 years of active life in London, he returned to Lanark in 1759, and spent the remaining years of his life in practice and preparing his notes for publication. During his London period he wrote "A Course of Lectures upon Midwifery," "A Treatise on the Theory and Practice of Midwifery," (1752), and prepared "A Set of Anatomical Tables" (1754), the last dealing with various abnormalities of labour. The Treatise on Midwifery ultimately consisted of three volumes, the second of which appeared in 1754 and the third in 1763, after Smellie's death. All three were revised by Smellie's friend and fellow-countryman, Tobias Smollett, and derive a great degree of effectiveness and interest from having received their final cast from this celebrated master of literary craft.

His treatise and his anatomical plates became, during the latter part of the 18th century, the best known works upon this subject. The forceps,

which he improved, and in which he introduced the modern lock, formed the most efficient instrument of the time, and many of the procedures in obstetrics were greatly improved by his directions. He has been called the greatest of British obstetricians.[1]

A country practitioner

The following description of an 18th century Scottish country practitioner is given by Lonsdale in regard to the grandfather of John Goodsir, the anatomist :—

> " Nearly a century ago (1768), Dr. John Goodsir was among the best known men in the East Neuk of Fife. Born in the parish of Wemyss in 1746, he became a graduate of the University of Edinburgh, and settled at Largo. Known at home for his skill, affability and other good parts, his essays in ' Duncan's Annals of Medicine ' gained for him reputation in the Edinburgh circle. This big-nosed, long-headed, large-hearted disciple of Galen and Lucina, was a fine specimen of the eighteenth century country medical practitioner—hatted, coated, booted and spurred, *à la mode*. Wiry in build, thoughtful and successful in practice, aye ready with his ' mull ' (*Scottice* for snuff-box), and aye ready to help a neighbour as well as to uphold the interests and character of ' canny Fife,' he was among the most popular of men.
>
> " The customs of the period were primitive and curious, and the practice of the healing art in rural districts was carried on in pack-saddle fashion and regularity. Dr. Goodsir would start from Largo on Monday caparisoned for the week with drugs and surgical appliances, and not return home till Friday—as itinerant with his physic as the ancient Peripatetic with his philosophy. . . . To obviate the dangers of travelling by night, he carried a lantern, fastened by a strap above his knee. The bull's-eye of the doctor's lantern was often signalled, in moonless nights, heralding the comforting assurance of an obstetric deliverance. His regularity in his rounds vied with the carrier of his Majesty's mails, and the saddle-bags of the one, and surgical accoutrements of the other, were similarly horsed, so that the laird of Largo, scanning the road, used to say : ' It's either the doctor or the post that's coming.' "[2]

Scotsmen abroad

During the latter part of the 18th century young men were coming in large numbers from the colonies to study in Scotland, and as regards medicine, especially at Edinburgh. Many young men of Scottish parentage were also seeking a livelihood or a fortune in distant lands as surgeons to the forces of the Crown, the East India Company and other companies of exploration or settlement. A typical example, and one of the most noteworthy of these, is to be found in Mungo Park (1771–1805).[3]

[1] Spencer : " The History of British Midwifery," London, 1927, p. 43 ; *see also* Glaister : " Dr. William Smellie," Glasgow, 1894.

[2] " The Anatomical Memoirs of John Goodsir." Edited by William Turner, M.B., Edinburgh, 1868, Vol. I., pp. 7 and 8.

[3] *See* Thomson : " Mungo Park and the Niger," London, 1890.

Mungo Park

The son of a small Scottish farmer, Mungo Park was born at Foulshiels near Selkirk, being the seventh child in a family of 13. His father, like many a Scottish yeoman of that time, was anxious to obtain a liberal education for his children, and Mungo Park, after a course at Selkirk Grammar School, was designed for the ministry. He preferred the pursuit of medicine, and accordingly was apprenticed to Dr. Thomas Anderson of Selkirk.

EIGHTEENTH CENTURY DOORPLATE FROM THE HOUSE OF DR. MUNGO PARK AT PEEBLES

(Preserved in the National Museum of Antiquities of Scotland)

After the usual apprenticeship of three years, he betook himself, in 1789, to the University of Edinburgh, where he spent three sessions in attending medical classes. Here he paid special attention to botany, and made a botanical tour in the Highlands with his brother-in-law, Mr. James Dickson, an eminent botanist, who afterwards introduced him to Sir Joseph Banks. In 1792, he made a voyage to Sumatra as surgeon in the East India Company's service, and on his return in 1793, obtained the licence of the College of Surgeons. Observations made by Park on the plants and fishes of Sumatra excited the interest of Sir Joseph Banks, by whom he was introduced to the Association for promoting discoveries in the interior of Africa.

His African exploration

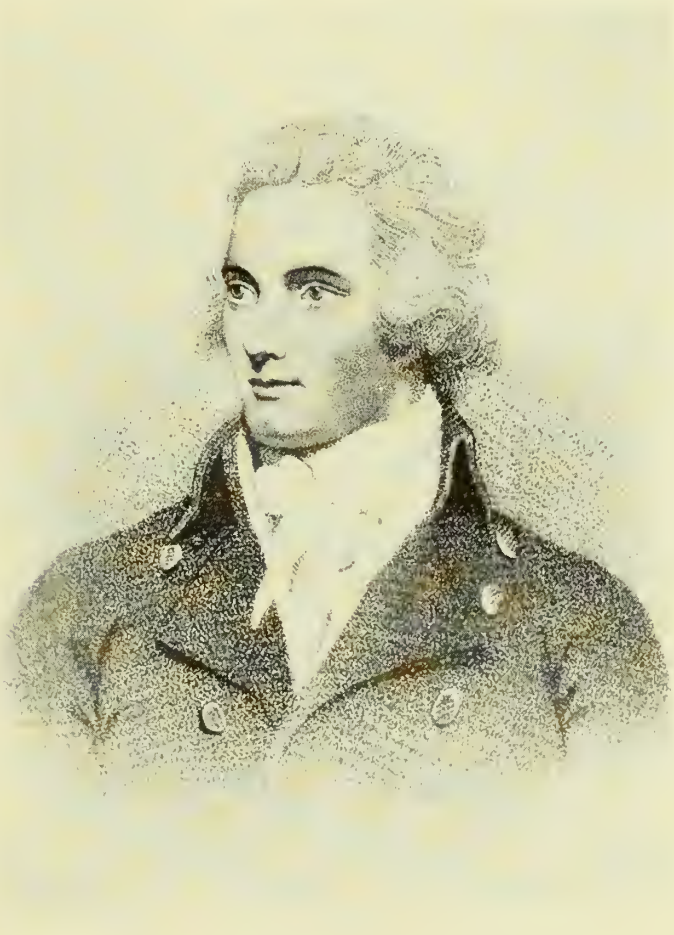
West Africa was then exciting much public attention as a possible field for trade, and it became a matter of prime importance to discover the course of the river Niger and the characters of the people living on its banks. This great river was at the time known to Europe only by native rumour, but the direction of its stream, the fact as to whether it entered the sea or ended in the sands of central Africa, and even its very existence, were matters of doubt to be settled by exploration. Park volunteered his services and was accepted by the African Association, being then 24 years of age.

In December, 1795, he started up country from the mouth of the Gambia, his party consisting only of two negroes and a couple of donkeys. After almost unparalleled hardships, due to the difficulties of the climate and the persecution of the Arabs, who foresaw their trade likely to be infringed, Mungo Park reached the Niger at Segu, found that it was a huge navigable river flowing from west to east, and returned with valuable notes upon the geography and people of the districts he had traversed. His communications to the African Association and his book, "Travels in the Interior Districts of Africa, 1795-97," published in 1799, were of immense value at the time.

Practice at Peebles

Returning to Scotland, he set up practice at Peebles, and married the daughter of Dr. Anderson, to whom he had been apprenticed. Here his daily work involved long moorland rides to attend patients in distant farms, and he

became an intimate of Sir Walter Scott. His ardent spirit, however, rebelled against the monotony of this life, and his thoughts turning always towards Africa, he again offered his services to the African Association for further exploration of the Niger.



MUNGO PARK (1771–1805)

In 1805, he was engaged by the Colonial Office, and, provided with an ample grant, he set off once more for West Africa. His expedition had been delayed, and was overtaken by the rainy season, so that it was involved in one disaster after another. Undeterred by hardship, Park pushed on to Sandsanding on the Niger, from whence he sent back a valuable report that reached the Colonial Office safely; but his party, depleted by disease, was finally overwhelmed by the natives, and news of Park's death only reached England some six years later.

His death

Another example of the men who carried Scottish medicine far afield, and whose work had a permanent influence upon the development of the healing art, is found in James Lind. He did for the British navy very much what Sir John Pringle was doing for the British army about the same period.

James Lind

James Lind (1716–1794)[1] came of an Ayrshire family, but was born in Edinburgh where his family had important social connections. At the age of 15, Lind was apprenticed to an Edinburgh surgeon named George Langlands, but, giving up practice in Edinburgh at the age of 23, he joined the Naval Medical Service and spent the next ten years at sea, chiefly in the Tropics.

Naval service

The conditions under which men lived at sea in those days were appalling; they were crowded in damp, dark and airless cabins; their diet often consisted, in Lind's words, of "putrid beef, rancid pork, mouldy biscuits and flour"; and on long voyages they became from these conditions peculiarly liable to attack of scurvy.

In 1748, Lind left the navy and returned to Edinburgh, where he now graduated M.D., and remained ten years in private practice. During this period, in 1753, he published his "Treatise on the Scurvy." This book attracted a great deal of attention, including that of Lord Anson, first Lord of the Admiralty, and a second edition was published in London in 1757, and a third in 1772. Lind was elected treasurer of the Royal College of Physicians in Edinburgh, but when he had held this post a year, he was appointed physician to his Majesty's Royal Hospital at Haslar.

First physician to Haslar Hospital

In a letter which he wrote, in 1758, to the president of the Edinburgh College of Physicians, he mentions that Haslar Hospital is not yet finished, but that it already contains over 1000 patients; that he has under him two master surgeons, six upper-assistant surgeons at 5*s.* a day, and four under-assistants at 3*s.* 6*d.*, with some 90 women nurses receiving a salary of £12 per annum.

Scurvy

As an indication of the importance then possessed by scurvy as a disabling disease, it may be mentioned that out of 5743 seamen admitted during Lind's first two years of office, 1146 were cases of scurvy. It was quite usual for the channel fleet to arrive at Portsmouth with 1000 or 2000 cases of scurvy aboard, and during the Seven Years' War with France and Spain, Lind had constantly some 300 to 400 cases of this disease under his care in hospital. He adopted an experimental method of treatment, watching and recording the success or failure of different remedies, and his study and trial of all that had been written on this disease was a colossal task. As a result he prescribed what was necessary not only for the cure, but for the prevention of scurvy, and pointed out how, in addition to the lack of fresh vegetables and greens, the over-crowding, dampness and general depression found on board ship, were conducive to the development of the disease.

The Admiralty were dilatory in carrying out his advice, and indeed it was not until 1794, the year in which Lind died, that an order was issued for a ration of

[1] Walker: "Pioneers of Public Health," Edinburgh and London, 1930, p. 23; *also* Stockman, *Edinburgh Medical Journal*, June, 1926.

lemon juice to be supplied to a squadron voyaging to the East Indies. This was entirely successful, and a 23 weeks' voyage to Madras was carried out without a single case of scurvy having occurred. Next year an order for a general supply of lemon juice to his Majesty's ships was issued, and from this time the fleet was rid of one of its greatest terrors.

Lind also wrote a work on general naval hygiene, giving directions for disinfection, destruction of vermin, filtration of water, ventilation, etc. ; this work, published in 1757, with a second edition in 1762, and a third in 1779, was entitled "Essay on the Most Effectual Means of Preserving the Health of Seamen in the Royal Navy."

In 1768, he published an "Essay on Diseases Incidental to Europeans in Hot Climates," which went through five editions in Lind's lifetime. It was one of the earliest treatises on tropical medicine.

Military Medicine

Sir John Pringle (1707–1782) was an important exponent of Scottish medicine about the middle of the 18th century. He was the youngest son of Sir John Pringle, Bart., of Stitchel, Roxburghshire, and after early education by a tutor he went to the University of St. Andrews. In 1727, he came to study medicine at Edinburgh, where a medical faculty had been established in the preceding year. In the following year, anxious to hear the lectures of Boerhaave, he went to Leyden, where he was a fellow student of Albrecht von Haller, and graduated M.D. in 1730. Sir John Pringle

After a short period of study at Paris, he settled in Edinburgh as a physician, and, in 1734, he was appointed professor of moral philosophy in the University of Edinburgh, a subject which, at that time, was regarded as of great importance in Scotland. He continued, however, to practise medicine, in which he attained distinction ; and, in 1742, on the recommendation of Dr. Stevenson, he was appointed physician to the Earl of Stair, commanding the British forces in Flanders, his pay being 20 shillings a day. He was present at the battle of Dettingen, and, in 1744, he was made Physician-General to the forces in Flanders by the Duke of Cumberland. In 1745, he accompanied the Duke in the campaign against Prince Charles Edward, and was present at the battle of Culloden.

After serving for two years longer on the Continent, Pringle returned, on the conclusion of peace in 1748, to practise in London. Here he became physician to the Duke of Cumberland, and, in 1774, physician to the king. In 1752, he married a daughter of Dr. William Oliver, of Bath, whose name is well known in connection with the Bath Oliver biscuits named after him. His career in London does not concern us here further than to mention that his book, "Observations on the Diseases of the Army," published first in 1752, has been regarded as a medical classic, and gained for him the position of the founder of modern military medicine as distinguished from military surgery. His researches on "Septic and Antiseptic Substances," which were later incorporated in this book, were also of great importance in relation to modern surgery. Founder of military medicine

SIR STUART THREIPLAND (1716-1805)
(Original by Delacour in the possession of Colonel W. Murray-Threipland, D.S.O.)

SIR JOHN PRINGLE (1707-1782)

Medical services to be neutral

It is supposed to have been on his suggestion that arrangements were made in 1743, between the Earl of Stair, commanding the British forces in Germany, and the Duc de Noailles, the French commander, that military hospitals on both sides should be regarded as neutral and receive mutual protection, a practice which formed the basis for the subsequent Geneva Convention. Up to the time of this innovation, anyone giving medical aid to the enemy was himself regarded by military law as an enemy or rebel, as the case might be. In later life Pringle settled again for a time in Edinburgh, and presented to the Royal College of Physicians ten volumes of manuscript notes on diseases and remedies, with accounts of illustrative cases, which afford a complete picture of medical practice in the latter half of the 18th century.[1]

Campaign of 1745-1746

Pringle's account of the medical arrangements for the Scottish campaign in the spring of 1746 is of considerable interest, both because it gives a brief account of the medical arrangements for an army in the 18th century, and because, by a comparison with what has been said regarding the somewhat casual medical and surgical arrangements of 1650, it is evident that a great advance had taken place in the course of the intervening century.

The Hanoverian army

"On the 10th of February (1746), the army, under the command of his Royal Highness the Duke (of Cumberland), marched from Edinburgh to Perth. It consisted of 14 battalions of foot and 3 regiments of cavalry, which being too large a number to be all billetted in private houses of that town, two battalions were quartered in the churches. Provisions were in plenty, but the quarters being generally cold, many were seized with the common inflammatory disorders of winter. The hard coughs, in particular, with pleurisies and peripneumonies were the most frequent.

"In the beginning of March, our troops advanced from Perth to Montrose, and from thence to Aberdeen, leaving 300 sick behind, who were well accommodated in the corporation halls, or in the private houses of those towns.

"Till the end of March, the whole infantry was quartered in Aberdeen, but afterwards 9 battalions were cantoned at Inverurie and Strathbogie: at this time, one battalion more landed at Aberdeen and joined the army.

"The weather being all this time sharp, with frost, snow and easterly winds, the inflammatory diseases continued. But whilst the men suffered by cold beds, guards, or out-duties, or by their own misconduct, the officers, having warm quarters, and being less exposed to cold, escaped: only in the beginning of March, when the weather was very cold, a few were seized with the gout.

No hospital fever

"The sick were well lodged in the town-hospital and in other large houses, where, having free air, they were preserved from the hospital-fever. Including those at Inverurie and Strathbogie, about 400 were left behind when the army moved, but of this number a small proportion died.

[1] Pringle: MS. Notes in Royal College of Physicians, Edinburgh, Ab. 4.

SIR STUART THREIPLAND AFTER CULLODEN

Picture painted to commemorate his narrow escape from Hanoverian troops

(Original by Delacour in the possession of Colonel W. Murray-Threipland, D.S.O.)

"On the 23rd of April, the army first encamped at Cullen; next day we crossed the Spey; and on the 27th, after the battle of Culloden, we advanced to Inverness and encamped on the south side of that town.

Pneumonia

"At Strathbogie and Inverurie, the duty had been constant to guard against a surprise, one day's march had been long and rainy, the encampment had been early, and colds had been taken by wading the rivers: these circumstances concurred to occasion some sickness. Before we reached Inverness, about 70 men having been taken ill, were left in the towns by the way. After our arrival, the inflammatory diseases still increased, and were the more severe, as the climate was cold, and the camp exposed in an open country to piercing winds. The pleurisies and peripneumonies were particularly alarming, as tending quickly to suppuration.

Broad-sword wounds

"At Inverness, two malt-barns received the wounded: in all 270. Several had cuts of the broad-sword, which till then were uncommon wounds in our hospitals; but they were easily healed, as the openings were large in proportion to the depth, as they bled much at first, and as there were no contusions and eschars, as in gun-shot wounds, to obstruct a good digestion.

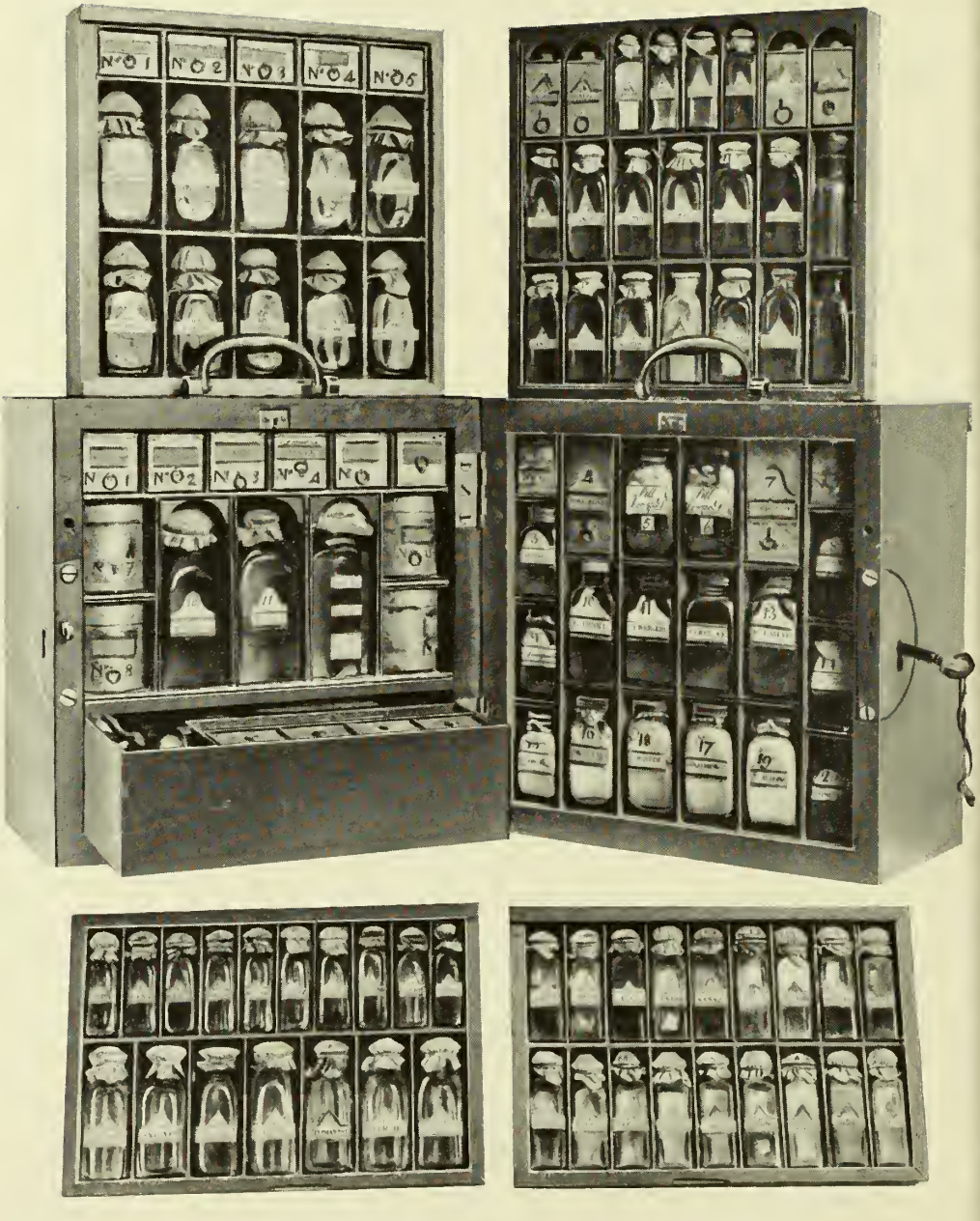
"Besides these barns, two well-aired houses were prepared for the sick. The regimental surgeons had also orders to provide quarters for their men when they were taken ill, with a liberty of sending to the general hospital some of their worst cases, but in such a proportion as not to croud it. By this dispersion of the sick, and the preservation of a pure air in the wards, it was hoped that all contagion would be moderated, if not prevented, though it was more than ever to be apprehended, from the smallness of the town, the jails filled with prisoners, many of them wounded, the prospect of a long encampment and camp diseases, the crouds and filth of a place where the markets of an army were kept; and, lastly a morbid state of the air, from the measles and small-pox which had prevailed in the town before the arrival of the army.

Hospitals and jails cleaned daily

"These circumstances concurred to put us more upon our guard, and, therefore, greater care was taken to divide the sick, and to keep the wards clean. An order was likewise given to clean the jails every day, to remove speedily the bodies of those who died in them; and, to lessen the croud, part of the prisoners were put on board some ships that were lying in the road, with a liberty of coming upon deck for the air.

"In this manner the month of May passed without any infection; and the weather, for the climate, being unusually dry and warm, the inflammatory sickness in the camp had sensibly declined, when an unforeseen accident rendered the infectious fever more general and fatal than had been at first apprehended. . . .

"Not long before, a French ship had been taken on the coast of England, on board of which some troops had been sent to assist the rebels, and among



TRAVELLING MEDICINE CHEST OF SIR STUART THREIPLAND
Commonly known as "Prince Charlie's medicine chest"
(Original in the Royal College of Physicians, Edinburgh)

Jail-fever infection introduced

them a few English soldiers, who in Flanders had gone over to the enemy. These deserters, upon being taken, were thrown into jails in England, where they were kept till the opportunity offered of sending them by the transports, to be tried by a court-martial at Inverness. They were 36 in number, and having brought with them the jail fever, they gave it to this battalion with which they happened to be embarked.

Infected battalion isolated

"In three days after landing, six of the officers were seized with it, and the regiment, in the few days it was at Nairn, left about 80 sick; in the ten following days, while in camp at Inverness, it sent to the hospital about 120 ill of the same fever; and though the virulence of the distemper diminished afterwards, in their march to Fort-Augustus, and from thence to Fort-William, yet that corps continued for some time very sickly. . . .

"On the 3rd of June, four battalions were left at Inverness, and 9, with a regiment of horse, marched to Fort-Augustus, leaving in the hospital about 600 sick, besides the wounded. . . .

Sickness and mortality

"From the middle of February, when the army crossed the Forth, to the end of the campaign, there had been in hospitals upwards of 2000 men, including the wounded; of which number near 300 died, and mostly of this contagious fever." [1]

As the Government forces numbered about 12,000, this gives an incidence of 16 per cent. sick and wounded, with a mortality of 2·5 per cent.—figures which compare favourably with those of later campaigns.

Sir Stuart Threipland

Sir Stuart Threipland, baronet, was the principal medical adviser of Prince Charles Edward, and was with him at the battle of Culloden. He came of a strongly Jacobite family, and his father, Sir David Threipland, had been out in the rebellion of '15. Dr. Stuart Threipland was born at Fingask in 1716, while his father was in hiding, and the house was in possession of the Hanoverian troops. He was christened "Stuart" by his mother at a time when both were expected to die. Taking to medicine, he was one of the original members, in 1737, of the Royal Medical Society, and graduated at Edinburgh University in 1742, with the thesis "De Partu." He was admitted a Fellow of the Royal College of Physicians at Edinburgh in February, 1744.

His escape

Before he had been long in practice, Prince Charles landed in the west of Scotland, and Dr. Threipland, as an ardent Jacobite, joined him. He accompanied the Prince on the march to Derby, and, after Culloden, in the earlier part of his wanderings. He was in hiding with the Prince and, along with Dr. Archibald Cameron, he attended Lochiel, who was seriously wounded, in a cave on the slopes of Ben Alder. After Lochiel had recovered from his wounds, Dr. Threipland made his way back to Edinburgh disguised as a presbyterian probationer.[2] He afterwards escaped to Rouen and joined Prince Charles for a time in Paris.

[1] Pringle: "Observations on the Diseases of the Army," London, 1775, Ch. VI., pp. 42–52.
[2] Forbes: "The Lyon in Mourning," Scottish History Society Edinburgh, 1895, Vol. I., p. 348 n.

About this time his father had died, and he succeeded to the baronetcy. Returning to Scotland under the Act of Indemnity in 1747, he settled in practice in Edinburgh, and, in 1766, became president of the College of Physicians. In 1783, at a sale of forfeited highland estates, he was able to re-purchase his ancestral home, where he died in 1805.[1]

His medicine chest

The Royal College of Physicians at Edinburgh preserves a small 18th century travelling medicine chest, which is traditionally called "Prince Charlie's medicine chest." It appears to be of French origin and may have been brought by Prince Charles Edward to Scotland in 1745. It certainly belonged to Sir Stuart Threipland, by whom it was presented to Alexander Wood, surgeon, well known as "Lang Sandy Wood," and by his son, Dr. George Wood, it was given to Dr. John Smith, who handed it over to the College of Physicians. The chest measures ten inches in every direction and is extraordinarily compact and well stocked. In this narrow compass are included phials and small pewter boxes containing over 160 medicinal substances and preparations. These include various balsams, salts, powders, pills, ointments, essential oils, gums, tinctures and mixtures, as well as writing materials and several simple instruments.

[1] Chambers: "The Threiplands of Fingask," Edinburgh, 1880, p. 40, *et seq.*; *also* Scottish National Portraits, Catalogue of Loan Exhibition, Edinburgh, 1884, No. 190.

Chapter XVIII

The Eighteenth Century Voluntary Hospital Movement and the Royal Asylums

Treatment of the sick poor

The early part of the 18th century in Scottish medicine was specially characterised by the movement for the erection of hospitals. Up to the Reformation, the country had been well provided with hospitals for the treatment of chronic, aged and infirm cases, but most of these foundations had disappeared with the decay and suppression of the religious orders. The 17th century, in consequence, had been very deficient as regards progress in medicine and surgery, apart from attempts to regulate and organise the practice of medicine. It is true that the Faculty of Physicians and Surgeons in Glasgow, and the Royal College of Physicians in Edinburgh, had given advice and medicines gratuitously to sick persons in their halls and had visited the poor at their own homes, but so far as the study of disease was concerned, these efforts had produced little result.

Proposal for hospital at Edinburgh

In the end of the 17th century, some of the Fellows of the Royal College of Physicians at Edinburgh had taken tentative steps for the establishment of a complete medical school in that city, and this involved the idea of building a hospital. The first definite steps were taken by the College of Physicians in 1725, when the foundation of a building, into which the sick could be received for treatment, was proposed. In 1726, the minutes of the College mention that subscriptions had already been set on foot with "pretty good success," and the Fellows of the College were now joined in their scheme by the members of the Incorporation of Surgeons, as well as receiving substantial encouragement from charitable people in many quarters. It was considered that the sum of £2000 was the smallest which would suffice for the purpose, and, this sum having been speedily collected, the Committee charged with the object decided to hire a small house, for receiving sick poor, out of the annual proceeds of the capital sum, and at the same time appointed 20 managers to control it. This "small hired house" stood at the head of Robertson's Close and provided accommodation for six patients. It was formally opened on 6th August, 1729.[1]

The first infirmary

On the following page is a list of the 35 patients who were treated in the first year of the little hospital's existence. It is interesting both as showing the wide area from which patients were received and the diseases from which they suffered. It is noticeable that about one-third of the patients suffered from chronic conditions, and formed the same type of invalid who would have been a bedesman in one of the 15th or 16th century hospitals :—

[1] "The History and Statutes of the Royal Infirmary of Edinburgh," 1778, p. 7, *et seq.*; *see also* Logan Turner: "The Royal Infirmary of Edinburgh," Edinburgh, 1929.

Patients' Names	Parish	Admitted and Discharged 1729–1730	Diseases
Elizabeth Sinclair	Caithness	6. 8.29—19.11.29 recovered	Chlorosis
Barbara Hastie	Edinburgh	7. 8.29—19. 8.29 dismissed	Pain in the Thigh, and Looseness
Hew Richmond	Ochiltry ...	11. 8.29—19. 8.29 dismissed	Cancer in the Face
Isabel Brown	Dunbar ...	22. 8.29—10. 9.29 cured ...	Inflammation of the Eyes
Farquhar Mackinnan, Soldier	.....	25. 8.29— 6. 9.29 cured ...	Pain of the Liver with hectick Fever
John Simson	West-Kirk	25. 8.29—28. 9.29 cured ...	Scorbutick painful Tumor of the Knee
Helen Allan	Edinburgh	12. 9.29—23. 9.29 dismissed	Hysterick Disorders
Mary Dickson	Canongate	23. 9.29—31.10.29 cured ...	Bloody Flux
Hector Morison	Isle of Mull	23. 9.29—30. 9.29 dismissed	Consumption
James Short	Edinburgh	1.10.29— 9.10.29 cured ...	Beginning Consumption
Katharine Macfarline	Edinburgh	4.10.29— 4.11.29 cured ...	Obstructions
Jean Cunningham	West-Kirk	13.10.29—30.11.29 cured ...	Cancer of the Breast
Mary Walker	Congalton	31.10.29—17.11.29 cured ...	Tertian Ague and Sore Eyes
Robert Brown, Dragoon ...	.....	18.11.29— 8. 1.30 cured ...	Quartan Ague
Alexander Lamb	.....	18.11.29—25.11.29 cured ...	Flux
William Lindsay	Edinburgh	28.11.29—22.12.29 dismissed	Pain and Swelling of the Belly
Mary Sheriff	West-Kirk	1.12.29—17.12.29 cured ...	Bloody Flux
Ebenezer Tweedie	Edinburgh	5.12.29—23.12.29 cured ...	Melancholy
Elizabeth Hog	Ormistoun	17.12.29— 9. 3.30 recovered	Dropsy of the Belly
James Ladlie	Arnistoun	23.12.29—27. 3.30 dead ...	Consumption
James M'Naughton	Canongate	8. 1.30—29. 1.30 cured ...	Palsy of the Hand
David Lighton...	Edinburgh	22. 1.30—10. 4.30 cured ...	Universal Palsy
Sarah M'Laughlan	.....	25. 1.30—16. 3.30 recovered	Pthisick and Tumor of the Belly after a Quartan Ague
Mary Bowman...	Haddingtoun	16. 3.30— 7. 5.30 cured ...	Hysterick Disorders
Margaret Doig	Dundee ...	24. 3.30— 2. 7.30 cured ...	Tympany after a most irregular Ague
George Somervile	Gingle-Kirk	4. 4.30— 1. 5.30 recovered	Pthisick with Fistulous Ulcer of the Leg
Margaret Johnston	Canongate ...	13. 4.30—14. 7.30 cured ...	Cancerous Tumor of the Side
Jean Robertson	Peterhead ...	7. 5.30—In the Infirmary ...	Inveterate Scorbutick Ulcer of the Leg
Mary Hood	Canongate ...	7. 5.30— 1. 7.30 cured ...	Fistula lachrymalis and Ulcer of the Toe
Thomas Middleton	Edinburgh ...	1. 7.30—In the Infirmary ...	Old Scorbutick Ulcer of the Leg
Thomas Smart...	South Leith	2. 7.30—28. 7.30 cured ...	Bloody Flux
Margaret Young	Edinburgh ...	2. 7.30—28. 7.30 recovered	Vertigo, Deafness, and other Affections of the Nerves
Helen Waddel	Elie	28. 7.30—In the Infirmary ...	Steatom of the Cheek
William Panton	Queensferry	29. 7.30—In the Infirmary ...	Deep Ulcers of Middle Finger and Palm of the Hand
James Mills	West-Kirk ...	4. 8.30—In the Infirmary ...	Cancer of the Lip

Cured	19
Recovered so as to go about their ordinary Affairs and requiring only some Time to confirm their Health, and to restore their Strength fully	05
Dismissed either as incurable or for Irregularities	05
Dead	01
In the Infirmary...	05
Total this first year	35[1]

Surgeons' hospital

In 1736, the surgeons also opened a small hospital, which they continued successfully for two years; but they then joined the Royal Infirmary, handing over to the latter institution the funds they had collected.

The Royal Infirmary

The Managers obtained a Royal Charter from His Majesty George II., dated 25th August, 1736, in which the hospital is designated the Royal Infirmary of Edinburgh, and, by 2nd August, 1738, the foundation stone of a permanent hospital was ceremoniously laid. This building consisted of a "body and two wings, each of three full stories, and an attic one, with garrets above." The body was 210 feet long and each wing extended 70 feet, with a large theatre where more than 200 students could see operations, and which was also a convenient chapel. The house was designed for 228 sick people "each in a distinct bed," and on the ground floor there were 12 cells for mad people. Round the hospital was an area of two acres, with grass walks for the patients to walk in. The patients previously had the privilege of walking in the neighbouring Physic Garden of the Town's College, which had been leased in 1724 to Dr. Rutherford and some of his colleagues for the purpose of rearing medicinal plants.

Construction

The building of this hospital appears to have commended itself to all classes. The Assembly of the Church of Scotland ordered collections to be made at all church-doors, benefit nights were given at the theatre, most of the societies in and about Edinburgh sent money, merchants sent presents of timber, stone and other materials, farmers and carters supplied carriages, and mechanics and labourers gave so many days' work gratis. In addition, the Managers dispersed copies of their prospectus to England, Ireland and the British Plantations, from all of which countries considerable subscriptions were received. In the credit assigned to the founders of the hospital, one of the most active deserving recognition was George Drummond, Commissioner of Excise, who held the office of Lord Provost of Edinburgh six times. Finally, the Infirmary was fitted up and the sick were received into it in December, 1741.

Opening

In 1745 and 1746, the affairs of the Infirmary, as well as of the whole country, were thrown into confusion by the Rebellion, and the Infirmary was converted into a general hospital for sick and wounded soldiers, of whom several hundreds were attended and dressed by the surgeons. From the commencement of the hospital in 1729, the surgeon-apothecaries had not only attended without fee, but each had furnished the medicines necessary out of his own shop. In 1748, however, the Managers decided to fit up an apothecary's shop in the institution, from which both in-patients and out-patients could be served.

Out-patients

[1] "An Account of the Rise and Establishment of the Infirmary," Edinburgh, 1730.

Cells for the mad

By 1778, when a new appeal was issued, it had been found that the original 12 cells for mad people were unnecessary, and some of them had, therefore, been converted to other uses. On the upper floor, a ward had also been established "for lying-in women, sufficiently separated from the rest of the house, and under the direction of the professor of midwifery," Professor Thomas Young. On the attic storey, and in a remote part of the house, a salivating ward for female patients, containing 12 beds, had also been established. "This ward was fitted up in consequence of a few female patients, who, being sufferers, not by any fault of their own, but by that of their husbands, or from suckling infected children, had applied to be taken under cure in the hospital." By this time, too, it is recorded that "in the west wing are one cold and two hot baths, with their respective dressing-rooms," while in the east wing "is a bath for the patients of the house, so constructed, that it may be occasionally used either as a cold or a hot bath."

Lying-in ward

Baths

The report continues: "Those in the west wing are intended for people of the city; no patient in the Hospital having, at any time, admittance to them." These three baths seem to have been the only provision, in the middle of the 18th century, by which the inhabitants of Edinburgh could carry out complete ablution otherwise than in a stream or in the sea, and the baths were a source of revenue to the charitable institution. At an earlier date, the College of Physicians had established a cold bath in the garden of the Hall near the Cowgate; and, later, the Incorporation of Surgeons also instituted a bath.

Another considerable source of revenue was tapped in 1746, when the Managers of the Infirmary and of the town's workhouse took a joint lease of the hall where the weekly assemblies at Edinburgh for dancing were held. Several ladies of quality and rank undertook to act in turn as directresses of the weekly assemblies, and the profits arising from these brought to the Infirmary a revenue of about £100 per annum.

Payments to staff

It is interesting to note that the Royal Infirmary of Edinburgh in the 18th century affords an example of the modern movement for the payment of hospital staffs. In January, 1751, the Managers elected Dr. David Clerk and Dr. Colin Drummond physicians-in-ordinary to the Infirmary, each with a salary of £30. This was to supersede the old arrangement by which each of the Fellows of the College of Physicians had in turn attended the Infirmary for a month, but this arrangement seems again to have lapsed at a later period. Similarly, all the members of the Incorporation of Surgeons, up to 1766, attended the surgical cases in rotation, but in July of that year, the Managers appointed James Rae, Peter Addis, John Balfour and Andrew Wood as surgeons to the hospital. For a time, also, the practice of having paying patients was introduced, and the charge for these was at the rate of 6*d*. per day.

After the Peace of 1763, a great number of sick and lamed soldiers presented themselves at the Infirmary, and in the same year Dr. Adam Austin was appointed by the Commander-in-Chief to visit the military wards regularly and to report thereon. Every assistance was given by the Managers and staff of the house to Dr. Austin

in the execution of these duties. Excluding the military ward and the wards reserved for special types of case, some 60 beds appear to have been available for ordinary free patients. With these, the Infirmary continued for about half a century, but, in 1829, the old High School, vacated by the transference of that institution to a site on the Calton Hill, was acquired, and this, along with an intermediate building connecting it with the original Infirmary structure, became the surgical hospital. This part of the old Infirmary is still standing, though the original building of 1741 has long since disappeared. Lister's Wards were

Extension

PART OF THE OLD ROYAL INFIRMARY, EDINBURGH

This building was originally the High School, later was occupied by surgical wards (under the charge of Professor Joseph Lister), later was part of the Hospital for Infectious Diseases, and is now (1931) the Engineering Department of Edinburgh University

subsequently situated in the part which had been the High School, and is now (1931) the Engineering Department of the University.

Between 1860 and 1870, much discussion took place as to whether the Infirmary should be rebuilt or whether a new Infirmary should be erected on a different site. The latter alternative was adopted, in great part owing to the advocacy of Professor Syme. The site selected was that of George Watson's Hospital, between Heriot's Hospital and the Meadows. Here, the foundation stone of the present Infirmary buildings was laid on 13th October, 1870. The present Royal Infirmary was opened on 29th October, 1879.

Change of site

One of the most important developments in the relationship of the Royal Infirmary to the Edinburgh medical school commenced when John Rutherford,

Clinical instruction

professor of practice of physic in the university, obtained permission from the Managers, on 1st February, 1748, to give a course of clinical lectures in the Royal Infirmary. He had already, however, according to Bower, given these lectures for two years.[1] These were perhaps the first courses of clinical lectures delivered in this country, and were organised by Rutherford on the model of lectures which he had attended in the hospital at Leyden. Very soon other professors of the Medical Faculty began to co-operate with Rutherford, and the fame of the clinical teaching at Edinburgh increased, especially in the hands of William Cullen, who commenced to give clinical lectures in 1757, and became professor of practice of physic in 1773.

An interesting account is given by Dr. Graves of Dublin, of clinical teaching at Edinburgh when he was a student there in 1819. Two clinical clerks, he said, were appointed for the male and female wards, selected by the physician from among the senior pupils. Their business was to write an accurate history of the cases, to report the effects of medicines and to record the symptoms which might have occurred since the physician's last visit.

At his daily visit, the physician stood at the bed of each patient, and, having received the necessary information from his clerk, he examined the patient, interrogating him in a loud voice, while the clerk repeated the patient's answers in a tone of voice equally loud. This was done to enable the whole audience to understand what was going on, and required an exertion almost stentorian to render this conversation between the physician and his patient audible by the more distant members of the class. Every word was attentively listened to and forthwith registered most faithfully in each student's case-book, and afterwards all the observations of the professors, made in their clinical lectures, were taken down with equal care and fidelity.[2] According to Graves, this method of instruction was indeed very useful and nothing better could be devised for a beginner.

Hospital for children

The Royal Hospital for Sick Children at Edinburgh was the first hospital in Scotland devoted to this special type of patient.

The first hospital for children in Europe had been the Hôpital des Enfants Malades at Paris, erected in 1802, and the first children's hospital in Britain was established in 1852 at Great Ormond Street, London. Seven years later a movement was set on foot for the establishment of a similar institution in Edinburgh, chiefly through the agency of Dr. John Smith.

The *Scotsman*, in 1859, made an eloquent appeal for funds to carry out this project, and, as a result, a small hospital with 24 cots, situated in Lauriston Lane, was opened in February, 1860, for the reception of patients. Meadowside House was acquired by the directors and opened in May, 1864, with 40 beds, increased six years later to an accommodation of 72 beds, and a surgical department was inaugurated there in 1887, Dr. Joseph Bell being the first surgeon

[1] Bower: "History of the University of Edinburgh," Vol. II., p. 213.
[2] Graves: "Clinical Lectures," New Sydenham Society Issue, 1884, Vol. I., p. 5.

to the hospital. The site of Meadowside House was abandoned to the Royal Infirmary in 1890, when the present building of the Sick Children's Hospital at Sciennes Road was erected.[1]

Maternity hospital

The Royal Maternity and Simpson Memorial Hospital at Edinburgh developed out of the attic storey of the old Royal Infirmary, which, under Professor Thomas Young, had been devoted by the Managers of this institution to the treatment

OLD BUILDING OF THE ROYAL HOSPITAL FOR SICK CHILDREN, EDINBURGH
The site is now occupied by the gynæcological block of the Royal Infirmary

of lying-in women. Here practical instruction in obstetrics was given by Professor Young and continued by his successor in the chair, Dr. Alexander Hamilton, under whom, in 1793, a building situated in Park Place was erected as a lying-in hospital. Attendance on this institution and instruction of students there was carried on by his son, Professor James Hamilton, for 40 years. After various transfers,[2] the hospital settled in its present building in Lauriston Place, which had been erected as a memorial to Sir James Y. Simpson in 1879. The proposal to amalgamate this institution once more with the Royal Infirmary is now about to be carried into effect.

The Edinburgh Hospital for Women and Children, which has a female medical and surgical staff, was founded in 1879, in Whitehouse Loan, and in connection

[1] *Edinburgh Medical Journal*, Centenary Number, 1905, p. 74, *et seq.*
[2] *British Medical Journal*, March, 1927, p. 576.

with it, the Elsie Inglis Memorial Maternity Hospital, designed for the treatment of obstetric cases, was inaugurated in 1925.

Dispensaries

The latter part of the 18th century was notable for the development in many cities in England and Scotland of dispensaries or institutions for the treatment of the sick poor who did not require admission to hospital. The first of these in Edinburgh, the Royal Public Dispensary, was founded in the year 1776, mainly

GLASGOW TOWN'S HOSPITAL, ERECTED IN 1733

(By permission of the Glasgow Art Galleries and Museum. From a water-colour drawing by Thomas Fairbairn, R.S.W.)

through the instrumentality of Dr. Andrew Duncan. This institution served the double purpose of affording attendance to the sick poor and of giving instruction and an opportunity for practice to senior medical students. As the town grew, the necessity for another dispensary was felt, and the New Town Dispensary was instituted in 1815 in Thistle Street. Other dispensaries followed at later dates in other parts of the town.

Proposal for hospital at Glasgow

In Glasgow, the Faculty of Physicians and Surgeons, from the time of its inauguration under Maister Peter Lowe, had given gratuitous advice to the poor at its ordinary monthly meetings, and the Town Council had from time to time subsidised various physicians and surgeons to attend those of poorer means. By 1733, the hospital movement in this city had attained so much force that a Town's Hospital was erected by public subscription on the Old Green near the College, a little west from the Stockwell. This hospital was maintained by

Town's hospital

the Town Council, the Merchants' House, the Trades-House and the general Kirk Session, which contributed to it in definite proportions. The members of the Faculty gave their services gratuitously in rotation. No provision, however, was made here for clinical teaching, nor indeed was there a sufficiently large medical school in Glasgow at this time to require it.[1]

Glasgow Royal Infirmary

Towards the end of the century, this Town's Hospital was felt to be insufficient, and, in December, 1794, the Royal Infirmary was opened for the reception of patients. This building was erected on the site of the old palace of the bishop of Glasgow and was in immediate proximity to the College or University of Glasgow, which stood in the High Street.

Opening

On 5th June, 1787, a meeting had been held of persons interested in the foundation of an infirmary, Professors Jardine and Stevenson having been the originators of the scheme. The architect was James Adam, and, the foundation stone having been laid in 1792, the infirmary was opened on 8th December, 1794, for the reception of 150 patients.

Ambulance service

In 1797, two more wards were furnished, and in the same year an ambulance service was instituted in the purchase of two sedan chairs for conveying patients to the hospital. The object of providing special sedan chairs was to avoid infection of the public from using a chair which had possibly conveyed a fever patient to the hospital.

With regard to the staff, an arrangement was made with the physicians and surgeons of the Faculty to act in rotation, each physician for six months and each surgeon for two months.[2]

Early staff and clinical teaching

In 1795, the physicians were Dr. T. C. Hope and Dr. Robert Cleghorn, and the surgeons were Mr. Charles Wilsone, Mr. William Couper, Mr. Archibald Young and Mr. James Towers.[3] Clinical lectures were given from an early date, for in September, 1794, Drs. Hope and Cleghorn applied for permission to deliver lectures on medical cases, and in May, 1797, Mr. John Burns, who was now one of the surgeons, made a similar proposal for lectures on clinical surgery.

Payment of staff

By 1810, the work of the staff had become considerable, and the directors recommended a salary of £50 to be paid to each of the physicians, and £20 to each of the surgeons after they had attended gratis for two years. Gradually the numbers of the staff were reduced, and the tenure of office extended. In 1816, the hospital was found to be much congested, and the north block was built for the reception of fever cases. By 1825, fever cases (especially typhus) were more than one-third of all the patients, and in 1827, a wooden hospital for 80 beds had to be erected in the grounds pending the construction of a central block for fevers. Much trouble was experienced with outbreaks of fever, for in 1831 nearly two-thirds of the beds were occupied by such cases, with a mortality of about one in nine, and resort was had to various expedients of building temporary shelters for these cases.[4]

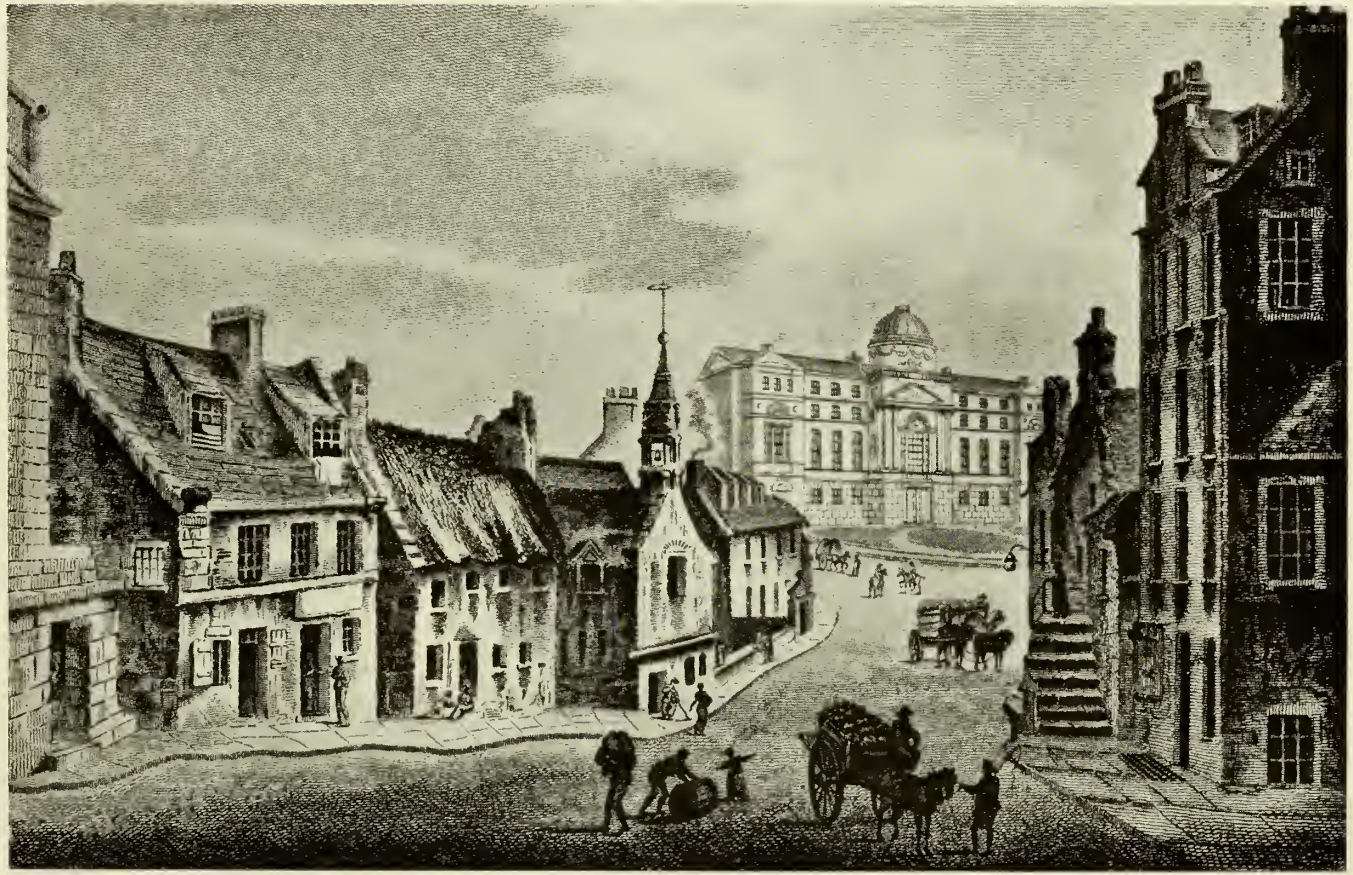
Fever cases

[1] Duncan: "Memorials of the Faculty of Physicians and Surgeons of Glasgow," Maclehose, Glasgow, 1896, pp. 136 and 137.

[2] Duncan: Op. cit., pp. 137 and 138.

[3] "Glasgow Royal Infirmary Club," Glasgow, 1912, p. 31.

[4] Buchanan: "History of Glasgow Royal Infirmary," Glasgow, 1832, Ch. 4.



GLASGOW INFIRMARY

(From an engraving published November, 1801, by W. Miller, London)

The plan was engraved by J. C. Fittler after a drawing by J. C. Nattes. The view shows the Royal Infirmary of Glasgow, which opened its doors at the end of 1794. The quaint little building with the bell-tower and weather-cock on the left-hand side of the street is probably the Chapel of the old Hospital of St. Nicholas

In 1851, smallpox was unusually prevalent, and 163 cases were admitted with 30 deaths. The fever block, containing 220 beds, was completed in 1834, and in 1861 the new surgical hospital (north block) was erected.

The number of the staff had been gradually increasing, and by 1873 there were five physicians and five surgeons, of whom all delivered clinical lectures. Considerable changes in staffing and teaching took place about 1874, with the removal of the university classes to the Western Infirmary, and as it had long been felt that reconstruction of the whole building was necessitated by modern requirements, negotiations for the rebuilding of the Royal Infirmary started in 1897. The foundation stone of the present institution was laid in 1907, and the greater part of it was built before the outbreak of the war.

Western Infirmary

After the opening of the new university buildings at Gilmorehill, in 1870, a transference of teaching took place from the Royal Infirmary to the newly-erected Western Infirmary beside the university.[1] The Western Infirmary was opened for patients and teaching in November, 1874.

Victoria Infirmary

The Victoria Infirmary of Glasgow was instituted only in the closing years of the 19th century. The necessity of an additional infirmary for Glasgow, in view of the growing population on the south side of the river, had been discussed at various periods prior to 1878 by the Glasgow Southern Medical Society, and a meeting of Glasgow citizens to consider the question of a new hospital was called at the instance of this society in April, 1881. The Victoria Infirmary was constituted by Act of Parliament in 1888, and its buildings, with accommodation for 84 patients, were opened in February, 1890. Various extensions subsequently added to the size of the infirmary, and, in 1897, a convalescent home was established at Largs, as well as a dispensary for out-patients at Bellahouston in 1892.[2]

Hospital for children

In Glasgow, a hospital for sick children was opened, in 1882, in Scott Street, formed out of two dwelling-houses, and containing 74 cots. Before 25 years had elapsed, this accommodation had been found quite inadequate for the needs of Glasgow and the West of Scotland. A country branch of the hospital, containing 30 cots, was gifted and opened in June, 1903, and a new hospital on a commanding site at Yorkhill was opened in July, 1914. The new hospital cost about £170,000, and, containing 275 cots, constituted the largest hospital devoted to children in the kingdom. Subsequently, extensions in this hospital and in the country branch provided accommodation for some 450 children, at a total cost of about £350,000.[3]

Maternity hospital

A hospital for lying-in women was opened in Glasgow about 1792, by the agency of James Towers, who had begun to lecture on midwifery. For some reason this hospital was interdicted shortly afterwards by the magistrates, and no further attempt was made until 1834, when, at a public meeting of citizens in September, it was resolved that a public lying-in hospital was necessary for married

[1] Coutts: "History of the University of Glasgow," Glasgow, 1909, p. 586.
[2] The Victoria Infirmary of Glasgow: Historical and Financial Summary, 1878–1895, Glasgow, 1895.
[3] "Report on the Royal Hospital for Sick Children, Glasgow," Glasgow, 1914.

and destitute women. The hospital began in the "second flat and garrets of the old Grammar School in the Grammar School Wynd," but this hospital was unfortunate as regarded deaths from erysipelas and inflammatory attacks and had, after a year's activity, to be closed for thorough cleansing and fumigation.

Before long a smaller house was taken in St. Andrews Square, and though its experience was more fortunate, it had to be twice closed in 1856, on account of "malignant puerperal fever," by which, during part of the year, every case admitted had been affected. Accordingly, in 1860, a house at the corner of North Portland Street and Rottenrow was purchased and converted into a hospital, which was regarded as being "quite adequate to the requirements of the city," with 21 beds. Again, in 1863, the hospital had to be closed for three weeks, and later on it had to be closed three times in one year. It was decided, therefore, to demolish the old hospital, and a new hospital was opened in January, 1881, which continued for many years to serve the purposes of the public and of obstetrical teaching.

In 1908, the present Royal Maternity Hospital was opened, a little to the west of the older building.[1] Here the number of patients treated annually is about eight times as large as in 1860, while some 5000 patients are treated at an antenatal department. A training school for nurses came into operation in 1924, and a research laboratory was established in connection with the hospital in 1926, while a convalescent home for mothers and infants was established at Shandon. The hospital also obtained, in 1926, an affiliation with the Glasgow Parish Council, by which additional beds were made available in Stobhill Hospital.

Eye Infirmary

The Glasgow Eye Infirmary was an important hospital, founded in 1824 by Drs. Monteath and William Mackenzie in North Albion Street. In 1833, the infirmary was removed to College Street, and in 1852 to Charlotte Street, facing the open space of Glasgow Green. When the university was removed to Gilmorehill, a new building was erected for the Eye Infirmary at Berkeley Street, and opened in 1874 with 70 beds. This was the first special hospital of its kind in Scotland, and under William Mackenzie and his successors has been responsible for several important developments in the department of ophthalmology.[2]

The Glasgow Lock Hospital was founded in 1805, with 11 beds in a house in Rottenrow, and greatly increased in 1869, and again in 1906 and 1915.[3]

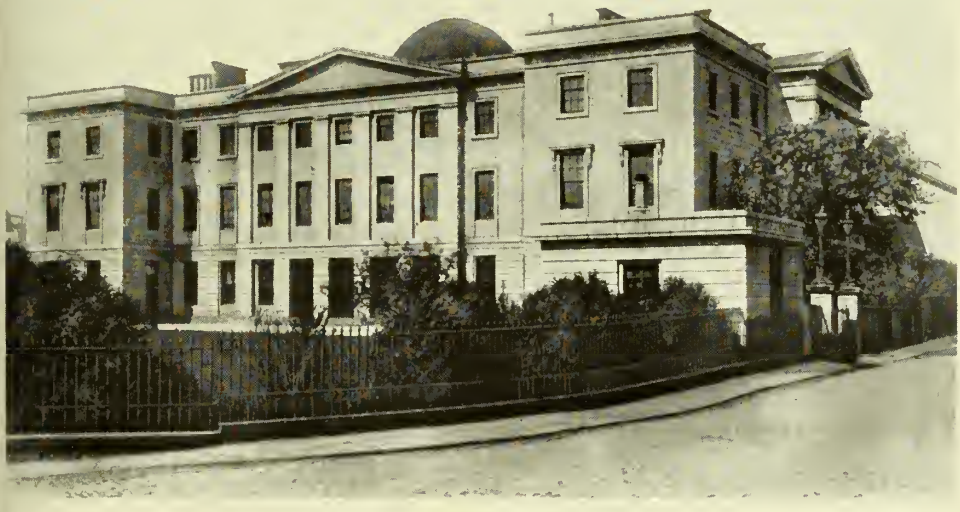
Proposal for hospital at Aberdeen

The Town Council of Aberdeen, in 1739, convened a public meeting of citizens with the proposal to erect an Infirmary and a workhouse within the burgh. The project was approved by the citizens and, in November, 1739, William Christall, Convener of the Trades, was directed to go to Edinburgh and Glasgow in order to see the hospitals there and to prepare the necessary plans and estimates. These having been passed, the foundation stone of the Aberdeen Infirmary was laid, on 1st January, 1740, on a piece of ground at Woolmanhill, gifted by the Town Council.

[1] Fergus: *Glasgow Medical Journal*, January, 1928, p. 178.
[2] Fergus: Op. cit., p. 174.
[3] Fergus: Op. cit., p. 173.

As the building neared completion, it was resolved to make it as extensive and universally useful as possible instead of confining its benefits to the sick poor of Aberdeen. The infirmary was ready for occupation with six beds in the summer of 1742, and Dr. James Gordon was elected physician and surgeon at a salary of ten guineas per annum, he agreeing to supply all the drugs. Opening

The Rebellion of 1745 seriously interfered with the activities of the hospital, which was first seized by the rebels for the treatment of their wounded, and afterwards was occupied till 1746 by the wounded Government troops.



ABERDEEN ROYAL INFIRMARY
Erected in 1840

After the Rebellion, Dr. Burnet of Old Aberdeen was appointed physician and surgeon to the institution at the same salary as Dr. Gordon. In 1748, the Town Council decided to lay out a Physic Garden in the immediate neighbourhood of the Infirmary, but this does not appear to have proved a success and was abandoned in 1800. By 1749, the infirmary had increased to a capacity of 19 beds, and a few years later two wings were added, bringing the number of beds up to 80. Extension

The important step was taken in 1773, of obtaining a Royal Charter for the Infirmary, which henceforth enjoyed the title of the "Royal Infirmary of Aberdeen." Early in the 19th century it was decided to rebuild the institution, and the new building was completed in 1840, with accommodation for 230 patients. Separate wards for medical and surgical cases were now provided, and two wards were set

DUMFRIES INFIRMARY, 1778

DUMFRIES INFIRMARY, 1791

With Lunatic Asylum, which served for mental patients in the south-west of Scotland till 1839

aside for ophthalmic cases, under the charge of Dr. Cadenhead. Four years later a fever-house was established, and finally, in 1892, a new surgical block, and in 1897 a new medical block, were opened in commemoration of Queen Victoria's Jubilees.[1] At the present time (1931) an extensive scheme of reconstruction is under consideration, by which various hospital and public health activities of the city will be concentrated at Forresterhill.

Hospital for children

The proposal to have a Sick Children's Hospital in Aberdeen was initiated at a meeting held on 2nd November, 1876, when it was arranged to take a lease of the premises in Castle Terrace, occupied by the Institution up to 1928. The hospital was opened and patients were admitted for the first time on 14th September, 1877, the accommodation being 14 beds. The property was purchased in 1878 for £1850, and the Directors added 16 beds, making 30 in all. In March, 1886, a further extension was opened, thus providing for 60 children as in-patients in the general wards and 18 children in the infectious ward, making 78 in all. The number of in-patients treated in 1886 was 355, and out-patients 988. In 1927 the in-patients treated were 1014 and out-patients 4352. In 1929, the hospital was transferred to new buildings connected with the Joint Hospital Scheme at Forresterhill, which provided 128 beds at a cost of over £100,000.

Hospital at Dumfries

As in Edinburgh, Glasgow and Aberdeen, the other important towns of Scotland undertook the work of building infirmaries. The Dumfries and Galloway Infirmary was founded in 1776, when a house was opened for eight patients, pending the erection of a special building which was completed in 1778. For this the Town Council granted as a site an acre of the High Dock. The institution of the infirmary was largely due to the activity of Dr. John Gilchrist, a physician of the town, who had graduated M.D. at Edinburgh, in 1774, with a thesis upon an epidemic fever which had occurred in Dumfries in 1767. The original infirmary was a building of three storeys, the upper flat being reserved as a military hospital for the sick of troops stationed in Dumfries. One room in the hospital was set aside and divided into four cells for the treatment of lunatics, for whom, however, a separate building was erected in 1789, and continued in use until 1839, when the Crichton Royal Institution was established. In 1807, the institution received a charter from King George III, and became the "Dumfries and Galloway Royal Infirmary." After considerable additions, the hospital was removed to its present site, in 1873.

Provision for lunatics

Hospital at Montrose

The Montrose Royal Infirmary and Dispensary was founded in 1782. It had a curiously inverted origin for a hospital, having first of all formed part of the Royal Asylum for the Insane housed in a building on Montrose Links, and occupying a portion of the building not required for asylum patients. In 1810, the conjoint institution received a Royal Charter as the "Montrose Royal Lunatic Asylum, Infirmary and Dispensary." A considerable amount of inconvenience resulted from this arrangement, and the present Royal Montrose Infirmary was established separately in Bridge Street, Montrose, and opened in 1839.

[1] "History of the Aberdeen Royal Infirmary," Leng, Dundee, 1904

At Dundee

Dundee Dispensary was founded in 1782, the foundation stone of the Infirmary laid in 1793, and the Royal Infirmary was finally opened for the reception of patients, in 1798.

At Paisley

At Paisley, a Dispensary was instituted in 1786, to which a house of recovery was added and in-patients admitted in 1805. After several enlargements, the name of Paisley Infirmary was adopted, and finally the style of the Royal Alexandra Infirmary was used from 1901, when the new building at Barbour Park superseded the old infirmary.

At Inverness

The Northern Infirmary at Inverness was founded in 1799, and opened for patients in 1804. It undertook the care of both physical and mental disease, the number of beds available for the former being about 25, and for the latter about 12.[1] This infirmary, which, with additions, served the needs of the northern part of Scotland for over a century, was greatly extended in 1927.

At Greenock

At Greenock, a house of recovery was added to a previously existing Dispensary in 1807, and opened for the reception of patients in 1809; this hospital was largely extended, and the new house was opened in 1868.

At Elgin

At Elgin, Gray's Hospital was founded by the endowment of Alexander Gray, Surgeon on the Bengal Establishment of the Honourable East India Company, a native of Elgin, who, in 1807, left a bequest of £20,000 for establishing a hospital in the town of Elgin for the benefit of the sick poor of that town and the county of Moray. The hospital was built and opened for the reception of patients in 1819, and since then has been enlarged and improved from time to time. In recent years private wards were established for the treatment of patients who could afford to make suitable payment. This was one of the first hospitals in Scotland to institute private wards, which proved both of great value to the community and of substantial financial assistance to the hospital.

At Perth

At Perth, the County and City of Perth Royal Infirmary was founded in 1834, and opened for patients in 1838.

At Stirling

The Royal Infirmary at Stirling was acquired and opened in 1874.

Towards the end of the 19th century numerous small hospitals for special purposes were established in the larger towns, and some 17 cottage hospitals, containing from six to 20 beds, in the smaller burghs.

The Royal Asylums

Movement for hospitals for insane

The movement to erect asylums for the humane treatment of the insane followed upon the movement to establish hospitals for physical disease. The earliest of the seven Scottish Royal Asylums to be founded was that at Montrose in the year 1779, and the other six followed during the next half century.

The attitude of the public in Scotland is summed up by Lord Fountainhall in 1681, to the effect that "in Scotland, having no Bedlam, we commit the better sort of mad people to the care and tameing of chirurgeons, and the inferior to the

[1] *Inverness Courier*, January 1, 1926.

scourge." In the latter part of the 18th century a movement which had come originally from France for the more humane treatment of the mentally afflicted was gaining ground in Scotland. In regard to Montrose it is said that "The position of the Tolbooth, in which lunatics were usually immured, was a source of daily grievance to the compassionate inhabitants of Montrose, more especially during an age that slowly recognised the supremacy of benevolence as a remedy in mental diseases."

Royal Asylum at Montrose

The Royal Asylum of Montrose was founded in 1779, the buildings completed in 1781, and the first patients admitted early in 1782. In this year James Booth was appointed "keeper" of the Asylum, and held the post for 40 years, although over 50 years elapsed before a physician was placed in charge of the institution.

MONTROSE ASYLUM IN 1779
(From Poole's "Royal Lunatic Asylum of Montrose")

At Aberdeen

The idea of founding an asylum for the insane at Aberdeen originated in the 18th century, and the property of the old leper hospital was diverted to this purpose. The asylum was founded in the year 1798, and opened for patients in 1800, a Royal Charter being obtained in 1852.

At Edinburgh

The Royal Edinburgh Asylum for the Insane received a charter in 1807, its foundation stone was laid in 1809, and it was opened for patients a few years later. The founding of this institution was largely the outcome of a suggestion by Dr. Andrew Duncan, who had been greatly impressed by the miserable death of Robert Fergusson, the poet, while confined in the common madhouse in 1774. Professor Duncan obtained a Royal Charter and a Government grant for £2000 towards the erection of this lunatic asylum on modern humane lines at Morningside,

Edinburgh. This money was obtained from estates sequestrated after the rebellion of 1745. Here instruction by lectures on mental disease was given from a very early date, and has continued ever since.

At Glasgow

The Faculty of Physicians and Surgeons of Glasgow, in 1810, took a great interest in the promotion of an asylum for the insane, which was opened in 1814 in Parliamentary Road, Glasgow, near the Royal Infirmary. Prior to this time, persons who were unfortunate enough to be mentally afflicted, whatever their social condition, were kept in cells at the Town's Hospital, on the banks of the Clyde.

In the earliest rules, dated 1814, there are indications that occupational employment was largely used in treatment, and that restraint was absent to a noticeable degree. The " keepers " were enjoined " to treat with equal tenderness those who give the most and those who give the least trouble." " Harmless amusements, wholesome exercise and useful labours " were recommended, and it is stated that " two rooms had been erected for the patients' use, and spinning, knitting and sewing are engaged in," while it is further stated that patients " will be permitted to enjoy the greatest degree of personal liberty consistent with the necessary treatment."[1] In 1842, the Glasgow Royal Asylum was transferred to Gartnavel.

At Dundee

Dundee Royal Asylum was founded in 1812, and opened for patients in 1820.

At Perth

James Murray's Royal Asylum, Perth, was endowed in 1814, received a Royal Charter in 1827, and in the same year was opened for patients.

At Dumfries

The Crichton Royal Institution at Dumfries was erected between 1835 and 1839, out of a bequest by Dr. James Crichton of Friars' Carse. It had at first been proposed to use this money for founding a fifth Scottish university at Dumfries, but, owing to opposition, this project fell through, and the money was used for the amelioration of the condition of the insane, for whom at that time insufficient provision could be made by the Dumfries Royal Infirmary. The institution was opened for patients in 1839.

First institutions for mental defectives

An important new development in the provision of institutions for the feeble-minded, as distinct from the insane, took place shortly after 1850, with the founding of Baldovan Asylum for Idiots (1854), the Edinburgh Idiot Asylum at Gayfield Square, Edinburgh (1855), and the Royal Scottish National Institution at Larbert (1859). Baldovan Institution still continues, and that at Larbert, opened for patients in 1862, at the present time (1931) is in process of undergoing great extension in the establishment of a colony for mental defectives.

Scottish treatment of insanity

A note on the general treatment of mental disease in Scotland during the earlier part of the 19th century may be given here. With regard to the first Royal Asylum to be established at Montrose, it appears that the patients, in 1793, were confined in individual " cells," for a meeting of managers, considering an application from Dundee regarding the admission of a patient, agreed that she should " have the first vacant cell, unless in case of an application from any of the inhabitants of the town of Montrose."

[1] Fergus : *Glasgow Medical Journal*, January, 1928, p. 175.

Proposed Lunacy Bill

In 1817, a Lunacy Bill was before Parliament, and reports were prepared by several sheriffs, although the Bill was subsequently thrown out. Sir William Rae, Sheriff of Edinburgh, after inspecting the 25 private mad-houses and three public asylums in the county of Edinburgh, remarked that no pains were taken towards affording employment to the patients, that the keepers received too many patients for the accommodation they possessed, that no attempt at classification was made, that these unhappy persons were constantly locked in their own apartments without exercise, employment or society, and that there was a total want of medical attendance either for mind or body, while the keepers seemed to ridicule the idea that medical aid could be beneficial in a mental disorder and never thought of employing it.

The same observer, speaking of the Bedlam attached to the City of Edinburgh's Charity Workhouse, where the poet Fergusson had died in 1774, said :—

Lunatics in workhouses

"Twenty cells, on the ground floor, are damp, and where the Patients in winter must suffer severely from cold. Part of these, attached to the old City Wall, have no fire-places or means of heating them, nor any building above or below them. They are lighted and aired solely by openings in the doors by which they are entered, and which doors open into the court-yard in which the Patients walk. The noise and cries which issue from these cells must thus be dreadfully distressing to the other patients."[1]

Speaking generally regarding the subject of treating lunatics, he remarks : "In general, the Keepers of such houses are not possessed either of the knowledge or the feeling requisite to such a charge. The idea that anything ought to be done, calculated to bring about recovery, hardly ever seems to enter into their minds ; neither is it obvious that they consider the attending to comforts as a matter of much importance. The whole attention of the Keepers is directed to the safety of the persons of those under their care ; and if, by inducing them to be almost constantly in bed, or if, by means of bolts or bars, with the aid occasionally of chains, and in some cases of total darkness, they can keep their lodgers in safety without injury to themselves or to the apartments occupied by them, the whole object in view seems considered as attained."

This unflattering picture of the treatment given to patients of unsound mind in Edinburghshire early in the 19th century applied less to some other places.[2] Thus the Sheriff of Aberdeenshire, in a report of 1816, refers to the two asylums of the county : the Aberdeen Lunatic Hospital or Asylum under the management of the Infirmary of Aberdeen, and the Spital Lunatic Asylum, also near that city, superintended by the senior minister of the parish. These he found to be very clean and in good order, while the former was attended daily by a physician, and a case-book regularly kept.[3]

[1] Poole : "Memoranda Regarding the Royal Lunatic Asylum of Montrose," Montrose, 1841, p. 63.
[2] Poole : Op. cit., p. 61.
[3] Poole : Op. cit., p. 75.

Abolition of restraint

About 1830, a movement began in England, initiated by Hill and Conolly, for the abolition of all forms of restraint by strait waistcoats, chains, confinement in the dark, etc., but these forms of treatment appear to have been largely abandoned in Scotland even before the agitation for their removal took place further south. The diminution of methods of restraint was effected by increasing the staff of asylums, and especially the staff doing duty during night-time.

Whole-time medical superintendent

Attempts had been made at Montrose, from 1799, to provide a salary for a physician to attend the lunatics, but this plan was repeatedly rejected by the managers. In 1834, however, public opinion had so far altered that a medical superintendent of the asylum was elected at a salary of £200 per annum, to devote his whole time to the duties of the office.

Treatment after 1830

A report of 1835 is of interest in showing, by incidental references, the general treatment of the insane at the time. It mentions, as a novelty for separating furious and vindictive patients from the docile and good tempered, that four large cells had been erected at some distance from the main building, where the patients received frequent visits from the keeper, superintendent, etc., and from which the patient, when he manifested a disposition to become reasonable and gentle, was "again admitted, as a reward, to the Common Hall."

Various attempts, such as by music and dancing, were made for the diversion of the patients. It was proposed for the first time that the whole of the house should be heated, and a strange commentary upon the manners of the time is afforded by a rule that "No visitors, whose motive is curiosity, are allowed to see the Patients," because "it can neither be claimed as a right, nor is it expedient, that the idle, the ignorant, the curious, and perhaps the callous, should indiscriminately be admitted to gaze on their fellow-men, as they would on the inhabitants of a menagerie."

By 1836, it was noted that "Several of the Patients were weaving at looms, several picking oakum, and several of the females were engaged at clothes-washing and other domestic works." This absence of restraint and employment of occupational treatment had been in practice for several years.

Board of Lunacy set up

Great improvements, both in the management of asylums and in the treatment of mental patients, followed the establishment of the Board of Lunacy by Act of Parliament in 1857. Under the Scottish Act considerable freedom of action was entrusted to medical superintendents of asylums, and to this is due much of the success which has attended the Scottish system of lunacy administration. As a recent writer has said: "While one made a special feature of the occupations and amusements of his patients, another of their food or clothing, a third of the extreme limits to which freedom could be accorded them, a fourth of the excellence of their nursing, yet another devoted himself to medical treatment, to clinical research or to laboratory work." [1]

[1] Robertson: "Hospitalisation of the Scottish Asylum System," London, 1922, p. 4.

Still further advance along this line was the granting of parole to patients who promised not to attempt to escape, and who consequently enjoyed complete freedom of movement within and even outside of the grounds of the asylum.

Parole and boarding-out systems

SIR ALEXANDER MORISON (1779–1866)
(Original portrait by Milburn)

This feature of "the open door," which relied upon reposing confidence in suitable cases, was especially advocated and developed by Dr. James Rutherford from about 1875. Another important feature introduced in the Scottish system was that known as the "boarding-out system," under which harmless patients were removed from asylums and placed in private dwellings in the country under the care of selected guardians.

Hospitalising of asylums

An important movement, of which Sir Thomas Clouston was the chief pioneer, began with the establishment of a hospital at the Royal Edinburgh Asylum between 1877 and 1882. Other asylums followed, on the recommendation of the Commissioners, by erecting hospital blocks capable of affording treatment to at least one-third of their inmates.[1] An attempt was then made to give asylums the character of hospitals for mental disease, by organising them on the same lines as general hospitals, and in this, one of the chief features was the increasing tendency to employ female nurses in the treatment of insane patients —male as well as female.[2] The latter development in nursing, to have female nurses for male patients, was initiated in 1896 at the Fife and Kinross District Asylum by Dr. Adam Robert Turnbull.[3]

Alexander Morison

The inquiry into the nature of mental disease in Scotland was greatly helped by the teaching of this subject, which was introduced at an early date in Edinburgh. Dr. (later Sir) Alexander Morison (1779–1866) had been apprenticed for five years to Dr. Alexander Wood ("Lang Sandy Wood") at Edinburgh, and in 1822, being employed as private physician to a wealthy lady in London, and having ample spare time, he devised a plan to establish a chair in mental diseases of which he should be the occupant. He had been greatly interested in the clinical lectures on mental disease established by Esquirol at Paris in 1817, and had visited Esquirol on numerous occasions.

First lectures in Britain

The plan for a professorship did not find sufficient support, and Dr. Morison finally commenced a course of nine lectures to an audience of six persons at Edinburgh on 21st November, 1823.[4] This was the first course of lectures on mental diseases given in Britain, and the course was continued annually by Dr. Morison for a period of 30 years. In 1826, Dr. Morison also began to lecture in London, and continued these lectures over about the same period. When he retired in 1852, the Edinburgh lectures were taken up by Dr. David Skae, physician superintendent of the asylum at Morningside, under the ægis of the Royal College of Physicians at Edinburgh, and were continued annually till his death 20 years later. Professor Laycock, in 1859, had also commenced a special course of lectures on medical psychology, a subject in which he was particularly interested. About the same time lectures also began to be held in the extra-mural school at Edinburgh, which were attended by large numbers of students.

Thomas Laycock and psychology

Lectureships on mental disease

After the death of Dr. Skae, in 1873, a somewhat similar arrangement was carried on by his successor, Dr. Clouston, but, in 1879, on the recommendation of the Scottish University Commissioners, that lectureships on mental diseases should be established at Glasgow, Aberdeen and Edinburgh, the senatus of the University of Edinburgh resolved that it was desirable to institute a lectureship on mental diseases, and to this post Dr. Clouston was appointed, and in it continued

[1] Thirty-fourth Annual Report of the General Board of Commissioners, Edinburgh, 1892, p. xliii.
[2] Robertson: "Hospitalisation of the Scottish Asylum System," London, 1922, p. 8.
[3] Thirty-ninth Annual Report of the General Board of Commissioners, Edinburgh, 1897, p. 67.
[4] Robertson: "History of the Teaching of Psychiatry," *Edinburgh Medical Journal*, April, 1928, p. 195.

for over 30 years. In 1910, he was succeeded by Dr. G. M. Robertson, who, in 1919, was appointed professor in this subject, a chair having been endowed, largely by the efforts of the management of the Royal Asylum at Edinburgh.

The University of Glasgow also founded a lectureship on mental diseases in 1880. At Aberdeen the subject was taught by an extra-mural lecturer, the superintendent of the Royal Asylum, until a lectureship was founded in 1927.

The infrequency with which any legal trouble arises in connection with lunacy cases in Scotland has been attributed to the teaching which students receive in this subject from the lectures held in the asylums that are situated close to the medical schools.

JAMES GREGORY (1753–1821)

(Original by Sir Henry Raeburn in the possession of Lord Leith of Fyvie)

Chapter XIX

Medicine at Edinburgh Early in the Nineteenth Century

During the last decade of the 18th century most of the professors in the medical faculty were changed, and the 19th century accordingly opened with new ideas and new modes of teaching at this medical school. The extra-mural medical school also developed very considerably a little later.

Changes in professors

In the chair of practice of medicine James Gregory succeeded Cullen in 1790, and Andrew Duncan was appointed to the chair of institutes of medicine, vacated by Gregory in 1789. In medicine and botany Daniel Rutherford had succeeded John Hope in 1786. The chair of anatomy passed from Alexander Monro *(secundus)* to his son Monro *(tertius)* in 1798, although the former remained nominally conjoint professor. In the same year, James Home succeeded his father, Francis Home, in the chair of materia medica. In 1795, Joseph Black had retired from chemistry and had been succeeded by Thomas Charles Hope, and finally, in 1800, James Hamilton succeeded his father, Alexander Hamilton, in the chair of midwifery. Shortly after the opening of the century a chair in clinical surgery was established in 1803, of which James Russell became the incumbent ; in 1806, a chair of military surgery was founded to which John Thomson was appointed, and, in 1807, a chair of medical jurisprudence was instituted, with Andrew Duncan *(junior)* as the first professor.

The extraordinary amount of nepotism prevailing in Edinburgh at the time may be judged from the fact that out of these ten appointments, eight went to sons of previous professors in the University of Edinburgh. In several of the cases the appointments proved later to have been unsatisfactory.

James Gregory

James Gregory (1753–1821) was the most striking figure in Edinburgh medicine after the death of Cullen. He was born and received his early education at Aberdeen, and after his father, Dr. John Gregory, had become professor of medicine at Edinburgh, James commenced the study of medicine at this university. After graduation at Edinburgh in 1774, he spent some time at Leyden, where Gaubius was then the most distinguished professor. The manner in which the appointment to the chair of institutes of medicine was kept vacant till he should be ready to fill it has been mentioned in Chapter XIV. He was the fifth of his family to occupy a professorial chair in the University of Edinburgh.

His 18th century text-book on physiology

Shortly after his appointment as professor of this subject, he published a text-book for the use of students, entitled "Conspectus Medicinæ Theoreticæ ad Usum Academicum." This was regarded not only as a concise and useful exposition

of the physiology of the time, but was considered to be a model of latinity, and for both reasons attained to a very wide circulation.

As it gives a good idea of the theory of medicine that existed a century and a half ago, it may be worth while to translate a few paragraphs here. After devoting thirteen chapters to general considerations, such as muscular action, the influence of the nervous system, etc., he goes on to deal with the circulation :—

411. The circulation of the blood has occupied the next and indeed in man and in smaller animals a place hardly second to the peculiar function of the brain itself ; indeed, the organs which propel the blood have so great an intercourse with the brain, and the motion of the blood is so necessary to the excitation and fitting of the brain for its duties, that these two functions mutually bring and seek support, nor can the one be performed without the aid of the other.

412. That the blood is circulated through the whole of the body is shown by the great and sometimes fatal loss of it from a small wound in any part of the body.

413. The circulation of the blood in an adult person is performed in this way. The blood returning from all parts of the body, passes into the sinus venosus and right auricle of the heart ; distends, stimulates and excites this to contraction : the auricle, contracting itself, delivers the blood to the right ventricle ; but this, distended and irritated in like manner, contracts itself, and drives the blood into the pulmonary artery, by the branches of which it passes through both lungs. . . .

414. The valves in the heart, placed both in the mouths of the arteries and in the veins, preventing the return of the blood, prove this course ; ligatures put on the veins or arteries which cause the latter to swell on the near side, the former beyond, the ligature, also show it ; lastly, this course of the blood is easily seen in transparent animals.

415. But it must not be supposed that the several cavities of the heart contract themselves in this order ; the contraction of both auricles is performed at the same time, both ventricles being then relaxed ; and these again contract themselves at the same moment, the auricles at the same time being relaxed.

416. In dying persons, the left ventricle first ceases, then the auricle of the same side : that is, the blood as it were on account of want of air, being devoid of stimulating properties, and perhaps now transmitted more sparingly through the lungs : afterwards the right ventricle, and lastly the right auricle ceases to contract. Hence it sometimes happens, that the blood is forced, in some measure, to come back through the great cavae, ascending and descending ; and produces a slight motion in them. . . .

419. The smallest branches of the arteries (never the larger) bending back become veins ; or are injected into veins already formed in this way by anastomosis as it is called ; and the smallest veins receiving others and others, gradually enlarge, and at length form the cava. . . .

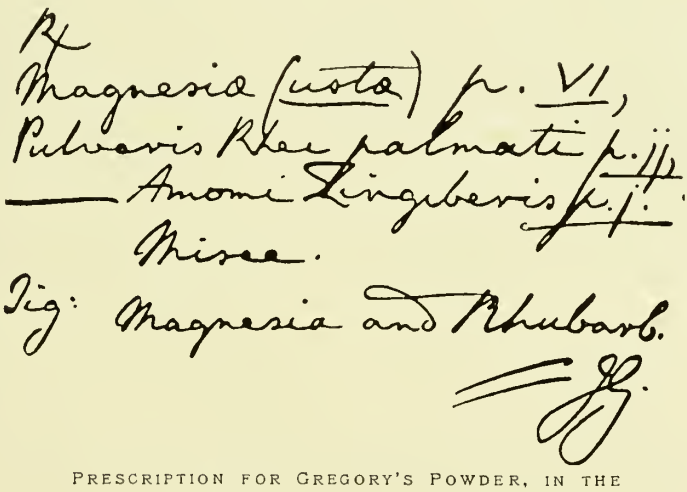
423. Moreover, the powers which expedite the circulation of the blood are first of all the contraction of the heart, which drives the blood into the arteries with remarkable velocity : but it must not be supposed that this force, although it is sensibly felt as far as the extreme parts of the body, can suffice to maintain the motion of the blood ; the pulse and heat failing in an arm affected with paralysis prove this.

424. Besides the action of the arteries helps, not only by their great elasticity, but by their own muscular power of contracting themselves ; the wave of blood driven from the heart, propels the blood, which was already in the arteries, and, at the same time, because it is the property of a fluid to press on all sides, distends the artery itself. This

distention is the pulse which we feel with the finger. But the arteries distended in this manner, are excited to contraction in like manner as the heart itself; and the contraction of them is performed with so great velocity, that an exceedingly small interval only can be distinguished between the stroke of the heart, or of the carotid artery which is nearest to it, and the pulse in the remotest part of the body.[1]

After teaching institutes of medicine with great success for some twelve years, Dr. James Gregory was appointed, on the death of Cullen in 1790, to the chair of practice of medicine. In this chair he was also very successful, developed an extensive practice in Edinburgh, was a great favourite with the students, and contributed largely to the reputation of the university over a long period. In the last 20 years of his life he had repeated attacks of inflammation of the lungs, from one of which he ultimately died in 1821.

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 his hat throughout his lectures, after an apology to the students for doing so.[2] His most abiding monument in the temple of fame is a powder containing rhubarb, magnesia and ginger, His peculiarities



PRESCRIPTION FOR GREGORY'S POWDER, IN THE HANDWRITING OF JAMES GREGORY

which has been perhaps more universally employed than any other pharmacopœial preparation. He was brilliant and witty as a teacher, and one of the great polemic writers of his day, so that Lord Cockburn,[3] 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 great lecturer, a great Latin scholar

[1] Gregory: "Conspectus Medicinæ Theoreticæ," Edinburgh, 1782.
[2] "Life of Sir Robert Christison," Edinburgh, 1885, Vol. I., p. 79.
[3] Henry Cockburn: "Memorials of his Time," Chap. II., p. 97.

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."

Quarrel with Hamilton

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, on paying the damages, is said to have remarked that he would willingly pay double for another opportunity.

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 regime, 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.

He published a set of philosophical and literary essays in 1792. The rest of his writings are all connected with various disputes about infirmary management and similar subjects. A manuscript copy of notes of his lectures on the practice of medicine, taken down by Sir Robert Christison, when the latter was a student, is preserved in the library of the Royal College of Physicians at Edinburgh.

M.D. examination a century ago

An examination for the degree of M.D. at the beginning of the 19th century was a matter very different from that of the present day, and the proceedings were conducted entirely in Latin. Sir Robert Christison, who graduated in 1819, gives a vivid account of his appearance before the faculty of medicine for this purpose. He says :—

> "As 1819 wore on, it became time for me to prepare for graduation. At that period three years of University attendance were sufficient ; but as I was in no haste, I took four. I had not been an idle student at any class, and my Infirmary pursuits gave me enormous advantages. I went, nevertheless, to be polished by a 'grinder,'—much for the same reason which led me to treat my first fevers with tartar-emetic—because everybody did it."

He had an unfortunate prelude to the examination, because two days before his appearance, taking a walk with three companions in the country, he got into a fray with the inhabitants of the village of Liberton, where, as he says :—

" I was struck down by a heavy blow on the outside of the left eye from one man, while I was defending myself from the attack of another. I took my bloody and dust-covered companions to my Infirmary room, where they were well washed and brushed into respectability before going home. I then became alive to the horrors of my probable appearance before my examiners on the following Monday with a black eye. I therefore determined to lie

OLD QUADRANGLE, EDINBURGH UNIVERSITY VALENTINE
(Begun 1789, completed 1828)
Compare this (taken towards the end of the 19th century) with the views on *page* 116 and *page* 290

awake all night, with cold wet cloths constantly over my bruise. I succeeded till morning approached, when I dropped asleep. But instantly I started broad awake, dreaming that I was before my examiners, and that Dr. Gregory's first question was : ' Dic mihi, domine, unde venit hicce oculus coeruleus ? ' I was delighted to find, however, at dawn, that though there was great stiffness, soreness and tenderness over the whole anterior temporal region, there was little swelling and no discoloration. But I cannot remember ever to have spent such a night of anxiety and apprehension.

" The custom then was for the Medical Faculty to meet for the examinations successively at one another's houses, and for the host to bear the chief brunt of the duty. Dr. Gregory examined me for an hour on the anatomy, physiology and diseases of the stomach—their treatment, and the chemistry of some of the remedies mentioned. I have not since heard so masterly an examination

—so thorough, and yet so fair a scrutiny. Each of the five other professors then put a few question on desultory subjects. Of these I recollect only Monro's and Rutherford's. Monro chose for his subject concretions in the stomach. Never having heard of such a thing—I have never met with a case of the kind, but once saw at a Medico-Chirurgical Society meeting a large ball of human hair which had been taken after death from the stomach of a hysterical girl—my answers were given from acquaintance with intestinal concretions, a favourite study both of Dr. Monro himself and of his father. The Doctor was satisfied, although assuredly no such concretion has ever been formed in the stomach; but as I knew intestinal concretions well, my answers were accepted until he arrived at the treatment. This I had to spin out of my own brain; and on being pushed by him for more remedies, I proceeded, with the aid of my old engineering propensities, to invent an instrument for the extraction of the offending intruders. Monro thereupon wound up the dialogue by asking: 'Vidistine unquam, domine, tale instrumentum usitatum?' To which I replied, somewhat coolly, and in doubtful Latin, too: 'Nec vidi, nec audivi.' Dr. Rutherford, who followed last of all, probably regarding me as too confident and easy, resolved, as it seemed to me, to cool my conceit with a subject very much out of a tyro's way. Throwing botany aside, which it was said he never cared for, he asked me the symptoms of the descent of a calculus from the kidney. But fortune had favoured me by presenting a characteristic case of the kind about a fortnight before, so that I had the needful answer at my finger-ends.

"The subsequent acts of examination consisted of a written commentary on an aphorism of Hippocrates, a consultation on a case drawn up by a professor, and the defence of a thesis. But as these exercises were all written at home, they were actually often the composition of the candidate's grinder. Mine, however, were all done by myself, and I even composed the Latin of my thesis, which indeed was never put into English, and was merely purged of a few errors by my father.

An M.D. thesis

"I do not recollect whether, on the graduation day, my thesis, which was on the epidemic fever of Edinburgh, and had at least the merit of being original—received commendation or not. But I remember the reception which that of Dr. Stroud on gout met with from Gregory. Stroud, afterwards a physician in moderate practice in London, was a grave, formal Englishman, very prolix in conversation, and extremely addicted to punning. He spent much time for two years in reading every book upon gout which was to be found in the Edinburgh libraries; and he contrived to make his thesis a condensation of them all, so that he could quote them all as references. The analysis was in one division of the treatise and the references were in another. The candidates were curious to hear what Stroud would get for his wonderful pains as a compiler—especially as gout was well known to be the forte of his examiner; but all that Gregory said, after calling out 'Domine Stroud,' was: 'Librum scripsisti, domine, haud thesin.'" [1]

[1] "The Life of Sir Robert Christison, Bart.," Edinburgh and London, 1885, Vol. I., pp. 157-161.

This Dr. Stroud, in the year after graduation, published a "History of the Royal Medical Society," of which he was then president.

Andrew Duncan

Andrew Duncan (1744–1828), often called Andrew Duncan *(senior)* to distinguish him from his son of the same name, after graduating in Arts at St. Andrews, studied medicine at Edinburgh from 1762 to 1768. During his student days he was a prominent member of the Royal Medical Society, and after returning from a voyage to China in 1769, he enjoyed the unusual distinction of being five times successively elected to the office of president, and of carrying through the building of the Society's Hall. In 1775, he was appointed to teach the class of institutes of medicine, and to give clinical lectures in the Infirmary in place of Professor Drummond, who had been appointed to the chair of institutes of medicine, but failed to take up his duties.

When this chair was again declared vacant in 1776, James Gregory was appointed, and Duncan, being disappointed by his failure to obtain it, commenced to lecture extra-murally on medicine, and attracted a large number of students to his class for 15 years. In 1789, he was chosen to succeed James Gregory as professor of the institutes of medicine, a post which he held for 30 years.

He was, however, more celebrated for his social activities than for his didactic powers. From early life he had been noted for his pleasantness of manner and kindliness of disposition, being known in his birthplace, St. Andrews, as "the smiling boy." He thus readily drew his confrères round himself and developed a hobby for founding convivial societies and other institutions.

A founder of clubs

The Æsculapian Club was projected by Dr. Andrew Duncan and four medical friends, and was inaugurated on the first Friday of April, 1773, with, as its chief object, the holding of conventions for supper. Dr. Duncan continued to act as its secretary from its foundation till 1827, and the club, which consists of equal numbers of Fellows of the Colleges of Physicians and Surgeons, has continued as a dining club with increasing prosperity to the present day.[1]

An association on a wider basis, formed by Dr. Duncan in 1782, was the Harveian Society, intended to include general practitioners and naval and military medical officers. The society was called indifferently the Harveian Society and the Circulation Club, and was intended to celebrate the birthday of Harvey, upon which its annual meetings were held. This society also had the purpose of encouraging scientific medicine by offering annually an essay prize—a practice which was continued for many years.

The annual Harveian festival was a dinner held at three o'clock in Sommer's Inn, West Register Street, and the dinner consisted of three courses, a bottle of port being allowed for each person present. As this amount of liquid refreshment was far from sufficient for the *bons vivants* of the time, it was supplemented by bets of wine between the members on all kinds of jocular and trivial matters. When the society had existed for 21 years, the novelty was introduced of issuing

[1] *Edinburgh Medical Journal* December, 1873, p. 563.

ANDREW DUNCAN (1744-1828)

(Original by Sir Henry Raeburn in the Royal College of Physicians, Edinburgh)

Harveian diplomas to distinguished members, who were by these created "Doctors of Mirth." The first recipient was Mr. Alexander Wood ("Lang Sandy"), who was styled in the document as "a promising youth now in the 77th year of his age." The spirit of the club may be judged from the first four lines of the diploma, which run :—

"Evectus nunc, sit Sandy Wood,
Honestus vir, both wise and good,
Doctor of mirth, nos hunc creamus,
And to you all, nunc commendamus." [1]

This society still continues to hold a successful annual festival on Harvey's birthday, at which an address is given by a prominent member.

In 1786, Dr. Duncan became dissatisfied with the amount of physical exercise taken by his medical confrères, and it was decided to found a Gymnastic Club, which at first enjoyed extreme popularity, holding an annual festival at Leith Golf House, where sports took place and prizes were awarded in golfing, bowling and swimming. After the resignation of Dr. Duncan, shortly before his death in 1828, the society declined, and its property and records were handed to the Æsculapian.[2]

Much more important than these social activities of Dr. Duncan were his efforts to found societies for the public good. The Medico-Chirurgical Society of Edinburgh, initiated in 1821, owes its origin largely to him. Founder of public institutions

This society is not to be confounded with the Medico-Chirurgical Club, which was founded by Dr. Beilby in 1822, as a kind of offset to the Æsculapian Club, for monthly social meetings with supper, and which still exists as a dining club of 22 members.

Duncan's exertions were chiefly instrumental in obtaining charters for no fewer than four royal institutions, the Royal Medical Society, the Royal Public Dispensary, which was entirely his creation, the Royal Caledonian Horticultural Society, and the Royal Edinburgh Asylum for the Insane. In regard to the last, one of his first acts on being made professor of the institutes of medicine was to agitate for the erection of a public lunatic asylum in Edinburgh, and to induce the College of Physicians to take up the matter. He had been convinced of the need for this by the miserable death of Robert Fergusson, the poet, while confined in the common madhouse in 1774, and, after persistent exertions on Duncan's part, the Royal Asylum at Morningside was finally opened in 1813.

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, Patron of young men

[1] *Edinburgh Medical Journal*, August, 1874, p. 101.
[2] Op. cit., p. 100.

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.

Character

Dr. Duncan's vigour was prolonged into extreme old age, although he resigned the chair of institutes of medicine in 1819. Sir Robert Christison refers to him at this time as :—

ANDREW DUNCAN *(senior)*
(1744-1828)
(From Kay's "Portraits")

"An aged, most amiable, benevolent, but by this time rather feebleminded man. He chose in his lectures *stare super vias antiquas*, and, 'by some devilish cantrip slight,' contrived to make it appear as if the physiology, pathology and therapeutics of Gaubius and the previous century were the physiology, pathology and therapeutics of the present day, and the existing doctrines those of the historical past. Little, therefore, was to be learned from him. But he was so kindly and warm-hearted a man in manner, had done so much practical good in his day, and was so attentive to his students, whom he invited in succession once every week to a dull enough tea-and-talk party, that he was universally respected and respectfully listened to." [1]

He died in 1828, in his 86th year.

Chemistry
T. C. Hope

In the chair of chemistry and medicine, Thomas Charles Hope (1766–1844), had been appointed colleague and successor to Joseph Black in 1795, having come, like Black, from a professorship in the University of Glasgow. Chemistry at the beginning of the 19th century 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 of experimental demonstration," for not a single failure to attain exactly what he announced occurred during all the experiments of a session.[2]

As an investigator in pure chemistry, his name is associated with two discoveries. In 1798, he published "An Account of a Mineral from Strontian, and of a Peculiar Species of Earth which it contains," in which he announced the

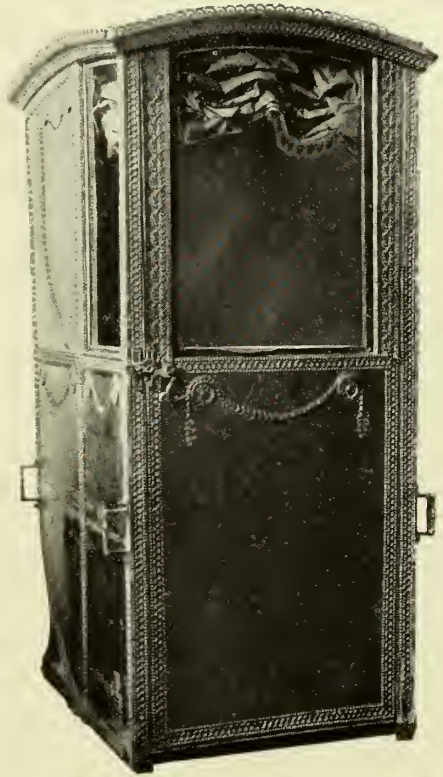
[1] "Life of Sir Robert Christison, Bart.," Edinburgh and London, 1885, Vol. I., p. 75.
[2] Op. cit., Vol. I., p. 57.

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 he demonstrated the curious property that it attains its maximum density at 39·5°. The actual point of maximum density was afterwards fixed by Sir Lyon Playfair

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

and Dr. Joule, with the help of more delicate thermometers, at 39·1°, but this does not invalidate Hope's discovery of the important fact. This principle explains the bursting of pipes when the water freezes in them, and also the fact that ice floats on the surface of water instead of sinking to the bottom of lakes and rivers, for if this happened, waterways would gradually become frozen solid and the surface of the earth ice-bound.

After these researches Hope abandoned investigation, and gave himself up to perfecting his lectures, in which he achieved extraordinary success. He also



SEDAN CHAIR OF
PROFESSOR JAMES HAMILTON
The last used in Edinburgh
(Preserved in the National Museum of Antiquities of Scotland)

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

initiated popular lectures in chemistry about 1826, as this subject was at that time attracting great general interest. When Hope died in 1844, the attitude towards chemistry having changed, largely as the result of the activities of Black and himself, the chair ceased to be one of chemistry and medicine, and his successor, William Gregory, was appointed professor of chemistry.

Midwifery

James Hamilton

The chair of midwifery was filled from 1800 onwards by Dr. James Hamilton (died 1839), son and successor of Dr. Alexander Hamilton. He was reputed to be a man of great energy and alertness, and a powerful lecturer. 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.

His quarrels

Hamilton, although a man of great ability in his own department, was of an extremely pugnacious, uncompromising disposition. His temperament and mode of speech kept him in constant friction with the other professors, and he had lawsuits not only with Professor James Gregory, as already mentioned, but also 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.

Attempt to make midwifery compulsory

Dr. James Hamilton, in the year 1824, raised a question which produced great trouble for the university, and which had far-reaching effects, resulting ultimately in the benefit of all the Scottish universities after the reforming Universities' Act of 1858. He, as well as the two previous professors of midwifery, had conducted regular courses of instruction for students, which, however, were not compulsory for graduation, although almost universally attended by the students. In this year he petitioned the Town Council to make his subject necessary for graduation. The Town Council, who took a very active and direct interest in the university, intimated that they considered that a full course of lectures in midwifery should be made necessary for the degree of M.D.

Hesitation of Senatus

The Senatus, irritated by Hamilton, and annoyed at the interference of the Town Council on his behalf, could not view the matter dispassionately, and at a meeting on 3rd June, 1824, they passed a resolution to the effect that while they were anxious to comply as far as possible with the wishes of the Town Council,

it was " their own exclusive right to originate and carry into execution all arrangements for the graduation system." In resolving this the Senatus were strangely oblivious of the fact that the Town Council had founded the university, and that the professors were its servants, while the Town Council had been pronounced by a high legal authority, in 1703, to be absolute masters of the college in all things. The Town Council rejoined that the Senatus had no rights arising from the essential character of a university, and that in the College of Edinburgh the constitution depended upon the will of the original founder, the government being vested entirely in the Lord Provost, Magistrates and Council.

The Senatus, next recognising that it was desirable for the public good that midwifery should be made a necessary subject for graduation, resolved to give effect to this, but, in order to maintain their dignity, they decided that the change should not take effect for three years, and, in 1825, they attempted to make an appeal to the Crown by praying that His Majesty would appoint a Royal Commission to inquire into the rights belonging to the university and to the Town Council respectively. The Town Council having failed to achieve their purpose by pacific means, now resolved to refer the matter to a legal decision by bringing an action of declarator against the Senatus.

Demand of Town Council

The Town Council next wrote announcing a " visitation of the College " to take place on 10th November, 1825, and on this date the Lord Provost and Council, with all the panoply of mace, chains and robes, appeared in the Senate Hall of the university and read a statement enacting and declaring that from that date midwifery was a necessary subject for degrees in medicine, and also that no degree should henceforth be conferred by the Senatus except in accordance with the terms of this Act.

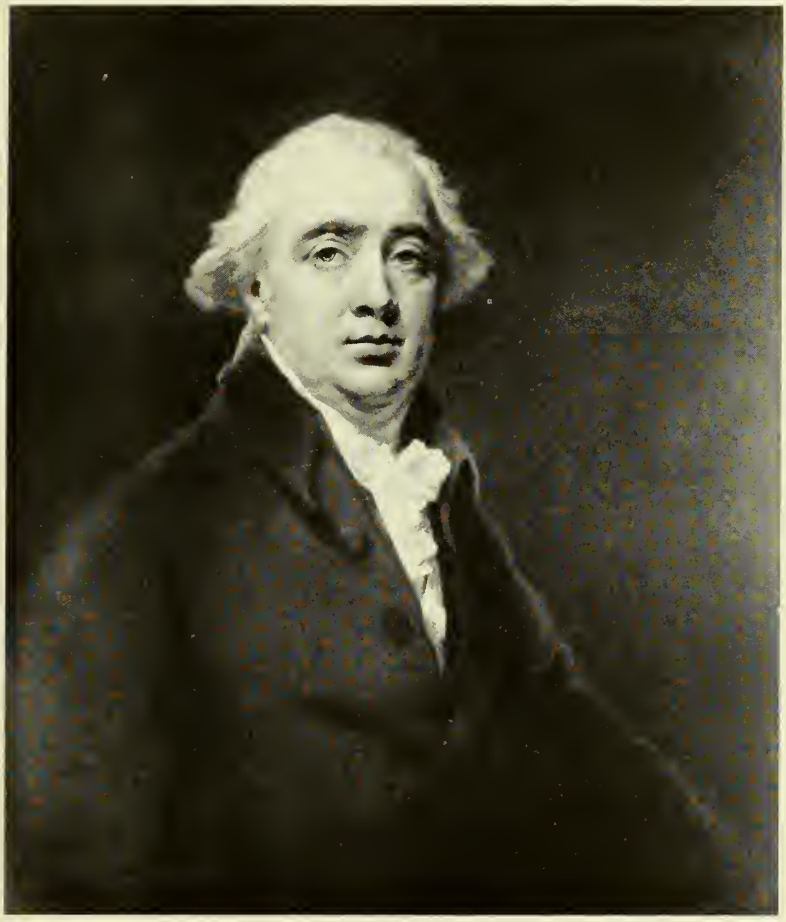
On 25th August, 1826, the Senatus must have fancied that their deliverance from the Town Council was at hand, for on that date they received a letter from the Solicitor-General announcing that a Royal Commission had been appointed to meet in the college at Edinburgh for the purpose of holding a visitation of the universities and colleges of Scotland. The Commissioners, however, refused to pronounce any opinion on the matter at issue while the legal decision was pending, though they drew up important recommendations on other matters, such as that surgery should be made into a chair separate from that of anatomy, that there should be a chair of mental diseases, and that the examinations in the medical faculty should be conducted in English.

Legal decision

In November, 1827, it was decided in the Court of Session that the Town Council had the right of making regulations for the College of Edinburgh, and that the Senatus had no such right in contradiction to the Town Council. The case was appealed, but the judgment of the Lord Ordinary was unanimously confirmed by the Judges of Appeal. The Senatus were also finally obliged to obliterate several pages of their minutes which had included votes of censure passed upon Dr. Hamilton.

Attendance on the class of midwifery was made compulsory for students after 1833, and, at the same time, practical anatomy, clinical surgery, medical jurisprudence and natural history became obligatory classes for all candidates for the degree of Doctor of Medicine.

Other classes made compulsory



JAMES HAMILTON *(senior)* (1749–1835)

(Original portrait by Sir Henry Raeburn in the possession of the Right Hon. Lord Moncrieff)

Sir Robert Christison describes Hamilton as follows :—

" His voice was harsh, and his intonation Scotch, pure and unsophisticated. Nevertheless, he was a man of great energy and alertness, and a powerful lecturer. His delivery, though plain, was forcible and easy ; and his information was inexhaustible, drawn as it was from the stores of vast experience as long the acknowledged head of Obstetrics in Scotland. His personal means

Hamilton's character

for teaching were in fact so unbounded that he had scarcely to seek for resources in any other treasury but his own. Nor did he—unless to criticise. As a critic he seemed to be in his favourite element, and a snarling, unfair, unfeeling critic he was. For Dr. Hamilton was always in the right—dissentients ever in the wrong—so wrong, too, that no terms were to be kept with them. His language was apt to be unmeasured, whence quarrels arose." [1]

But the same pupil dwells on his humanity in supporting the Lying-in Hospital at his own expense, on his kindliness to his patients, and on his refusing to desert his town patients in order to dance attendance on great ladies expecting confinement in the country.

JAMES HAMILTON *(senior)*
(1749–1835)
One of the last wearers of a cocked hat
(From Kay's "Portraits")

Hamilton's treatise, "Practical Observations on Various Subjects Relating to Midwifery," was a record of his great knowledge of this subject, and a very important book in his time. It appeared in 1836. He died in 1839, and was succeeded by James Young Simpson.

James Hamilton, the professor of midwifery, 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." So much engrossed was he in this subject that he published, in 1805, a book, "Observations on Purgative Medicines," which went through seven editions. James Hamilton *(senior)* was painted by Raeburn and by William Dyce, 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.

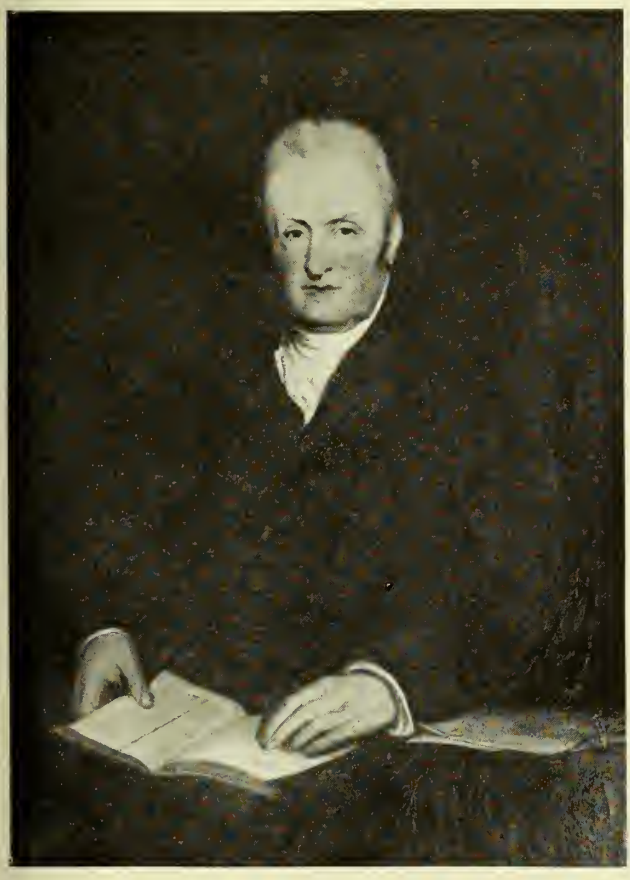
Materia Medica

James Home

Dr. James Home (1758–1842) 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

[1] Quoted by Grant: "Story of the University of Edinburgh," London, 1884, Vol. II., p. 417.

death in 1842." According to Christison, his success in one 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]



JAMES HOME (1758–1842)
(Original portrait in possession of Fleet-Surgeon Home, R.N.)

John Abercrombie

John Abercrombie (1780–1844),[2] was born at Aberdeen, and had graduated A.M. at Marischal College, subsequently taking the M.D. of Edinburgh in 1803, and studying for a short period at St. George's Hospital, London. He commenced general practice in Nicholson Street, Edinburgh, and became surgeon to the Royal Public Dispensary in 1805, this being the only appointment to a public medical institution that he ever held. The custom of obtaining a medical education by apprenticeship to an established practitioner was at that time still in vogue, although it was becoming much less common by 1830, and had become almost obsolete by 1850, when the system had come into general use of attending medical classes and hospital practice, and afterwards obtaining a degree from one of the universities or a licence from one of the medical corporations.

His practice and apprentices

Abercrombie quickly developed a very large practice among all classes, and worked this with a number of apprentices, who remained with him for several years. In one year he entered no fewer than five new apprentices. He divided the town into five districts, assigning the patients in each of these to a certain

[1] "Life of Sir Robert Christison, Bart.," Edinburgh and London, 1885, Vol. I., pp. 76–78.
[2] *Edinburgh Medical and Surgical Journal*, Vol. LXIII., 1845, p. 225.

number of his more advanced pupils, and thus he had a kind of private medical school of his own. It was said that few masters did for their pupils as much as Abercrombie, and none could well do more, and the apprentices held a kind of medical society in his house. At the Dispensary he conducted what is known in Germany

JOHN ABERCROMBIE (1780–1844)
(Original portrait by Sir John Watson Gordon, P.R.S.A.)

as a "poliklinik" long before this method of teaching was introduced in the latter country.[1] Here he was surrounded by a great number of students in addition to his own apprentices. Not content with this large practice, he laboured hard at pathological anatomy in its connection with clinical research, and made many important and comprehensive communications to the medical literature of his time.

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

In 1823, Abercrombie became a Fellow of the Royal College of Physicians, and conducted work as a consulting physician, and in 1828 he became physician to the king in Scotland. So widely was his eminence in medicine recognised, that, in 1835, Oxford University conferred upon him an honorary M.D. degree, and in the same year he was elected Lord Rector of Marischal College, Aberdeen, delivering an address on "The Culture and Discipline of the Mind," which has often been reprinted. He died in 1844 from rupture of the heart.

His works

The titles of his writings indicate the importance of his influence upon the knowledge of pathology in the earlier part of the 19th century. In 1818 he published "Observations on the Diseases of the Spinal Marrow," which was one of the first attempts to systematise spinal diseases, and he continued this by the publication of "Researches on the Pathology of the Brain." In 1820 he commenced to publish a series of essays on the Pathology of the Intestinal Canal, with an attempt to systematise diseases of the abdominal organs as he had done diseases of the brain, and, in 1821, there followed papers on the Pathology of Consumptive Disease and on the Pathology of the Heart, the latter of which formed a systematic grouping of over 30 cases, and was a mine of valuable facts in relation to the general signs and complications of cardiac disease. It should be remembered that there was no chair in pathology nor any systematic teaching in the subject at this time in any of the Scottish universities. Some ten years later, however, the first chair in pathology was founded in Edinburgh University.

Andrew Combe

Another well-known physician and publicist of this period was Andrew Combe (1797–1847).[1] In 1812, he was apprenticed to Mr. Johnston, surgeon, Princes Street, and he became a licentiate of the Royal College of Surgeons in 1817, later studying under Dupuytren and Esquirol at Paris. At this time, Spurzheim was lecturing in Paris on the anatomy and pathology of the brain, and introducing the science of phrenology, by which Combe was greatly impressed. He was one of the founders of the Phrenological Society, and in 1823, he inaugurated an historic discussion on phrenology at the Royal Medical Society of Edinburgh, which occupied the whole of two nights, although the society finally decided against the admissibility of this method of regarding the mental faculties. He acquired an extensive practice in Edinburgh, which, however, he had to leave for a time owing to ill-health.

Returning to Edinburgh, he became a Fellow of the Royal College of Physicians in 1832, and at a later period was physician-in-ordinary to the Royal family of Belgium and physician-extraordinary to the queen in Scotland. He is chiefly remembered now as an early devotee to the science of hygiene and a publicist in the matter of general education in regard to health. Three of his most important popular treatises were "The Principles of Physiology applied to Health Education," "The Physiology of Digestion," and a "Treatise on the Physical and Moral Management of Infancy," and he republished Dr. Beaumont's unique researches on the stomach of Alexis St. Martin.

[1] Thin: "Portraits in the Hall of the Royal College of Physicians of Edinburgh," Edinburgh, 1927, p. 45.

J. S. Combe

James Scarth Combe (1796–1883) was a practitioner in Leith and Edinburgh. He was a distant relative of Andrew Combe, and enjoys distinction because he was apparently the first person of modern times, in a paper which he read before the Medico-Chirurgical Society of Edinburgh on 1st May, 1822, to give a description of "A Case of Anæmia," with post-mortem appearances, which was clearly

ANDREW COMBE (1797–1847)

(Original portrait in the Royal College of Physicians, Edinburgh)

pernicious anæmia; he also suggested that the condition was primarily one of the digestive system. This preceded Addison's description of the condition by almost 30 years.

Anatomy

As regards the chair of anatomy, 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 25 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 regime 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)*

Alexander Monro *(tertius)* (1773–1859) showed himself an unsuccessful teacher, his students very commonly paying the university fee and getting their instruction from outside teachers, while his voluminous writings are dull and devoid of any initiative or novelty. A recent writer says of him: "He used to read his grandfather's 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."[1] 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."[2] The chief regret about 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.

ALEXANDER MONRO *(tertius)* (1773-1859)
(From "Modern Athenians")

Monro *(tertius)* had to encounter the formidable rivalry of John Barclay, a successful extra-mural teacher on anatomy, and, after his retirement, that of the still more popular teacher Robert Knox, whose class for a time rose to over 500 students. Monro wrote a number of works which did not, however, attain much success, the largest being "Outlines of the Anatomy of the Human Body," published in 1813. He resigned the chair in 1846, and died in 1859.

John Barclay

John Barclay (1758–1826) filled an important place as a teacher of anatomy in Edinburgh. He had studied at St. Andrews with a view to the ministry, and was licensed to preach, but after a few years he resolved to embrace the medical profession, and graduating M.D. at Edinburgh in 1796, he immediately afterwards

[1] "Edinburgh University: A Sketch of its Life for Three Hundred Years," Edinburgh, 1884. Quoted in Miles: "Edinburgh School of Surgery before Lister," London, 1918, p. 84.
[2] "Life and Letters of Charles Darwin," 1887, Vol. I., p. 36.

repaired to London to study anatomy. At the somewhat ripe age of 38 he became an assistant to John Bell, and in 1797, began to teach anatomy on his own account. In 1804, when Charles Bell departed for London, Barclay's course of lectures was "recognised" by the College of Surgeons. Barclay was probably

JOHN BARCLAY (1758-1826)

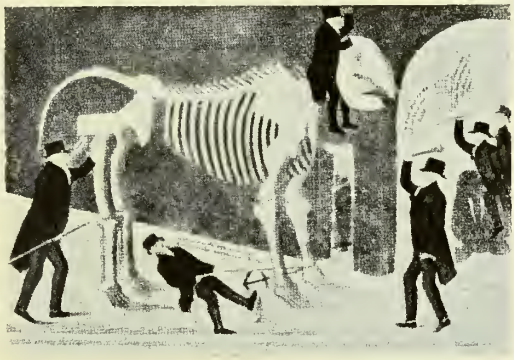
encouraged to take up lecturing as an extra-mural teacher by the success of his acquaintance, Mr. William Nelson, who had been educated in the Church of England, had become a methodist, and afterwards came to Edinburgh, where he began to lecture on chemistry in 1790, and obtained so much success that he lectured twice a day in winter to different sets of students, and also gave a summer course.[1]

[1] Struthers: "Historical Sketch of the Edinburgh Anatomical School," p. 58.

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.

Interest in comparative anatomy

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]



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)

Barclay lectured twice daily, at 11 a.m. and 6 p.m., to different sets of students, because his class-room was unable to accommodate all those who attended. His lectures consisted largely of demonstrations from dissections, and at the end of his course he showed the various surgical operations. Practical dissection by the

[1] 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] Kay: "A Series of Original Portraits and Caricature Etchings," Edinburgh, 1837, Vol. I., p. 448.

students was not at this time compulsory, and, on account of the expense and other difficulties, was not general. Subjects were obtained in the neighbourhood, but as the medical school increased in numbers and the supply became deficient, bodies were obtained from London at greater expense. They also came from Ireland in considerable numbers by way of Liverpool.

Resurrectionists

The process of resurrecting, that is, of robbing churchyards for supplying dissecting-rooms, was carried on with great vigour in the early part of the 19th century. In Edinburgh the resurrectionists were chiefly the assistants of the several teachers of anatomy, helped by students who were enthusiastic in the study of this subject. The time chosen in the dark winter nights was from six to eight o'clock, before a watch was set in the churchyard and the city police commenced their rounds. A hole was dug down to the coffin at the upper end, the loose earth being received on a canvas sheet to prevent any of it from being scattered on the grass. The digging was done with short flat dagger-shaped implements of wood to avoid the noise of iron striking stones, and the whole process could be completed in an hour, because the digging was done rapidly by relays of active men.

When the head of the coffin was reached, two broad iron hooks under the lid broke off sufficient from the head end to allow the body to be extracted. The grave clothes were stripped off and scrupulously buried, as it was supposed that taking them away would render the depredators liable to indictment for theft. The surface of the ground was carefully restored to its original condition, the body was secured in a sack, transferred over the churchyard wall, and, once in the street, the carrier of the sack drew no attention at the early hour of the evening.

It was an understood thing that the followers of one teacher did not invade the territory of another, and so long as Drs. Monro and Barclay were the only teachers of anatomy, resurrecting went on smoothly. But when Liston also became an anatomical teacher, he paid no heed to these prudent arrangements, so that competition and often fights arose between rival parties of resurrectionists.

As the public became better informed regarding these practices, more effectual measures were taken to prevent graves from being disturbed, such as burial in a heavy mortsafe until a sufficient time had elapsed to make the body useless to the anatomists, securing the coffin by iron bars rivetted across it or on the surface of the ground, etc. There gradually arose in consequence professional corps called body-snatchers, consisting usually of the greatest scoundrels in the community, and thus originated the crimes of Burke and Hare in Edinburgh and of Williams in London.

Liston's prowess

In the lifting of bodies, strategy and foresight were quite as necessary as brute force, and men of intelligence often succeeded where the resurrectionists failed, as in the following instance :—

> " A country lad whose disease had excited large interest, and upon whose case numerous medical men had been consulted, at length succumbed to hydrocephalus, and his body was buried in the exposed cemetery of a fishing burgh on the shores of the Firth of Forth. Having strong suspicions of the

doctors, the friends of the deceased engaged trustworthy watchers of his grave—men who, for night after night and week after week, resisted every overture of bribes and whisky offered them by the resurrectionists. The agents of Monro and Barclay and others were all intent upon what, in the language of the schools, was termed a ' rare osteological specimen ' ; money was abundantly lavished, and every artifice and intrigue put in force to obtain the subject ; but all to no purpose. Weeks had gone over, and the excitement of the contest between the ' watchers ' and the besieging force of resurrectionists had passed away, when one evening at dusk two well-dressed gentlemen, smoking their cigars, drove up in a dog-cart to the chief hostelry of the little burgh ; they alighted, and requested that their horse might be taken care of for an hour. The ' whip-hand ' gentleman told the ostler that he expected a livery servant to bring a parcel for him, which could be put in the box part of the conveyance, to which the key was attached. In a short time a man in smart livery came to the stable-yard, deposited a bag under the seat of the dog-cart, pocketed the key, and walked off—' a canny silent man, or dull o' hearing.' Presently afterwards the two gentlemen returned to the inn, ordered out their ' trap,' and trotted off at a brisk pace. The sharp-eyed stable-boy could not help remarking that the ' liveryman ' who brought the bag was deuced like the off-side gentleman, and fancied he saw a bit of the scarlet lining under the said gentleman's brown overcoat. ' Haud yer tongue, Sandie,' said the lad's superior ; ' ye're aye seeing farlies.' Whilst the unknown gentlemen were trotting homewards at full speed, the watchers of the night, or rather the guardians of the hydrocephalic body, were approaching their post of duty. As usual on entering the cemetery, they looked at the grave to see that all was right, but to their astonishment found that it had been disturbed ; nay, more, that the coffin was broken, and that the body was gone. What ! Abstracted in daylight—impossible, yet too true ! The reader will have surmised that the ' dog-cart gentlemen ' were the depredators, and most expert ones, too ; for they had done a piece of work that had baffled the ingenuity of the most experienced resurrectionists of Scotland. Availing themselves of the twilight just before the watchers appeared on the ground, they succeeded in disinterring the body and carrying it off in thirty minutes. Two such accomplished artists, in their own line, as Liston, the Edinburgh surgeon, and Crouch, the London resurrectionist, the world never saw before. . . .

A terrible hue and cry was raised in the burgh, that soon extended to Edinburgh ; detectives, search-warrants and all the agencies of the law were put in force, but no clue could be had to the den of Cacus, and, of course, *non habeas corpus*." [1]

Other anatomical classes

Contemporary with Barclay was Dr. John Gordon, who lectured at No. 9 Surgeons' Square, from 1808 to 1818, to a class of about 100 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

[1] Lonsdale : "Sketch of the Life and Writings of Robert Knox," London, 1870, p. 66.

and Spurzheim to Discovery in the Anatomy of that Organ." This attempt to 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 60 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 had been prosector to Breschet in Paris, and lectured in John Bell's old class-room in Surgeons' Square to about 100 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 on 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.

Anatomical text-books

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 illustrated the scientific work of Monro *(secundus)* and other teachers. Fyfe's "System of Anatomy" (published

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

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 already been 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 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 copies 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 of 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]

Museum of the College of Surgeons

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.[3] In 1702, Pitcairne presented to the college a body showing an elaborate dissection of the muscles, still preserved, though sadly gnawed by the moth 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 18th century Barclay commenced his

[1] Struthers: "The Edinburgh Anatomical School," Edinburgh, 1867, p. 38.
[2] "Engravings of the Arteries, with Explanatory Reference by Dr. Knox," 1831, preface.
[3] Miles: "The Edinburgh School of Surgery before Lister," p. 15.

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.

JOHN GAIRDNER (1790–1876)
(Original in the Royal College of Surgeons, Edinburgh)

In 1832 the new hall of the Royal College of Surgeons in Nicholson Street was opened, and here the museum was housed. The president at this time was John Gairdner, M.D. (1790–1876). He took much interest in the history of the College of Surgeons, and produced several valuable pamphlets on this subject, including an "Historical Sketch of the Royal College of Surgeons," a "Sketch of the Early History of the Medical Profession in Edinburgh," and a "List of Fellows of the Royal College of Surgeons, 1581–1873." He was the father of Sir William Tennant Gairdner.

Robert Knox

When Barclay retired in 1824, Robert Knox (1791–1862) 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.

Burke and Hare

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 16 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, 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]

ROBERT KNOX (1791-1862)

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

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 to practise 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]

Struthers sums up the respective merits of the various anatomical teachers of this period as follows:—

[1] Henry Cockburn: "Memorials of his Time," Edinburgh, 1856, p. 426.
[2] Lonsdale: "Life and Writings of Robert Knox," London, 1870.

The lecturers on anatomy

"The chief among the lecturers of this period, I need hardly say, was Dr. Robert Knox, the direct successor of Barclay, who taught anatomy in Edinburgh for sixteen years, the attractiveness of whose lectures was so great that his class attained a number unprecedented even in Edinburgh. Before he had lectured four or five years, his class was larger than that of the second Monro had ever been. Dr. Knox introduced a new aspect of anatomy. The characteristics of the Edinburgh Anatomical School had varied in the different periods with the science of the time or with the characters of the men, who, though successors or rivals, were far from being copies of each other. The first Monro was not so much either kind of anatomist as all kinds in a primitive time. The second Monro was a descriptive anatomist in a more minute age, and his comparative anatomy was either special or, like Hunter's, physiological. John Bell originated the school of surgical anatomy. Charles Bell was the teleological, and especially the artistic anatomist. Barclay set the example of making the teaching of anatomy an occupation; his anatomy was descriptive, was scientific enough to enable him to see and teach the outlines of homology. Gordon, again, was the physiological and minute anatomist, not only of the organs, but of the tissues, as far as the instruments of the day could carry him. Fyfe was the plodding practical demonstrator and text-book maker, the provider of daily common anatomical food. Knox, lastly, was the morphological anatomist. Building on the comparative anatomy of his predecessor, and familiar with the work of the then brilliant French school, with the descriptions and inductions of Cuvier, and the then despised philosophy of Geoffroy St. Hilaire, Dr. Knox was able to invest human anatomy with a new interest. His *forte* as an anatomist was, not in detail or the relation to surgery and medicine, but in bringing comparative anatomy to the explanation of human anatomy. I have heard men who have since risen to eminence say with enthusiasm, that in Knox's lectures they were not only taught but stimulated. In the lecture room the ridicule which he cast on the opinions, and too often on the men, of the time, did not on the whole help him. It was to his having early mastered and appreciated the great facts and ideas of morphology, together with—as we may see by his writings—his wonderful command of the most powerful and felicitous language, that Dr. Knox's lectures owed their value and their attractiveness." [1]

Practical anatomy

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 12 months in 1838.

[1] Struthers: "Historical Sketch of the Edinburgh Anatomical School," Edinburgh, 1867, p. 81.

Separation of surgery

In 1831, the university 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, and instead Monro received a new commission in 1777, appointing him professor of medicine, and "particularly of anatomy and surgery." From this year, 1831, anatomical instruction and surgical teaching entered upon the modern epoch in Edinburgh.

Clinical surgery

The subject of clinical surgery was, however, introduced in the following way: In 1802, Mr. James Russell, surgeon, petitioned the Town Council that he might be made a professor of clinical and pathological surgery in the university, since he had given 20 courses in clinical and practical surgery since the year 1786. The Senatus Academicus was not opposed to this, provided the rights of the professor of anatomy and surgery (Monro) were not interfered with, and that the professor of clinical surgery did not give courses of systematic surgery. The Town Council accordingly obtained from the Crown an endowment of £50 per annum for the chair of clinical surgery and elected James Russell (1755–1836) as the first professor.

James Russell

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 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 78, 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.

The surgeons institute a professorship

The appointment of a professor of clinical surgery did not settle the vexed question of the separation of surgery from anatomy, and, in 1804, the Royal College of Surgeons decided to take the matter into their own

[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. I., p. 89.

hands, and they accordingly appointed one of their Fellows, John Thomson, to be "professor of surgery of the Royal College of Surgeons." The Senatus Academicus of the university were at once up in arms against the establishment of a professorship outside their own walls. After all, however, the word "professor" only means "teacher," and has never been the monopoly of a university. Moreover, the Senatus Academicus, who wanted to take legal proceedings on the grounds that the rights of the Town Council were being infringed, were warned by their legal advisers not to do so, as instances of such appointments had already occurred, and the restraining clause in the Royal Charter of 1582 had not in their case been acted upon, and would probably not be enforced by a court of law. Thomson accordingly continued to lecture with success as a professor in the College of Surgeons, and in spite of the opposition of the university.

Military surgery

The Senatus were still meditating other means of stopping Mr. John Thomson from holding this extra-mural professorship of surgery, when suddenly, on 7th November, 1806, they were informed that a commission had been received from King George III. erecting a professorship of military surgery in the University of Edinburgh with an endowment of £100 annually, and appointing John Thomson to be the first incumbent of this new chair. This appointment was received by the Senatus under protest, which was, of course, quite unavailing.

Chair in pathology and surgery

Again, in 1831, the Crown intervened to establish two new chairs in surgery and pathology respectively. The commissioners of 1829 had recommended the establishment of a separate chair of surgery, and Monro *(tertius)* had vigorously protested against this as an infringement of his rights; but the matter was cut short when, on 11th October, 1831, commissions were received by John Thomson and John William Turner, appointing them respectively professors of pathology and of surgery in the University of Edinburgh.

The Senatus again protested against interference by the Government, but were briefly told by Lord Melbourne, then Home Secretary, that if they felt themselves aggrieved, they might go to law with the Government. The Town Council was also inclined to protest against this infringement of its patronage, but became complaisant in the institution of the two chairs when the Government intimated that future appointments to the chairs would be left in the hands of the Town Council. In this somewhat forcible way the medical faculty of Edinburgh University was completed, and the Royal College of Surgeons, after a controversy lasting 55 years, gained its point in the establishment of a chair of surgery.

The chair of military surgery, founded in 1806, by King George III., three years after the institution of the chair of clinical surgery, had been advocated a number of years previously by John Bell, in a memoir to Earl Spencer, then First Lord of the Admiralty. Some years, however, were allowed to elapse, but in 1806, John Thomson (1765–1846), who was already professor of surgery to the Royal College of Surgeons, was appointed to be the first professor of military surgery. He was a man of unusually wide knowledge, and was extraordinarily active in different directions for the advancement of the Edinburgh medical school.

John Thomson

The son of a silk weaver of Paisley, he had served an apprenticeship of seven years to his father, and afterwards, in 1785, desiring to devote himself to medicine, was apprenticed to Dr. White of Paisley. He entered Glasgow University for a year in 1788, afterwards coming to Edinburgh, where he was president of the Royal

JOHN THOMSON (1765–1846)
(Original in the Royal College of Surgeons, Edinburgh)

Medical Society in 1791. He next proceeded for a year to London, where he worked in the school of John Hunter, and, in 1793, returned to Edinburgh and joined the College of Surgeons. In addition to practising as a surgeon, he taught a class in chemistry, and in 1800, was appointed one of the surgeons to the Royal Infirmary. His appointment as professor of surgery to the Royal College of Surgeons, which has already been mentioned, followed in 1804, and in 1806 he was appointed the first professor of military surgery of the university.

Professor of military surgery

His lectures on inflammation, published in 1813, giving the doctrines, pathological and practical, of surgery, was considered in its time a very important work and had a wide circulation. As professor of military surgery, he paid two visits to the Continent in 1814 and in 1815, to study the treatment and progress of the

wounded after the battle of Waterloo. On his return to Edinburgh, the lectures on military surgery were eagerly attended, his class numbering about 280, out of whom some 80 members were officers belonging to the army and navy. The foundation of the New Town Dispensary in Edinburgh, designed to care for the poor in the newly-developed part of the city, as Andrew Duncan's Royal Public Dispensary cared for those in the old town, was largely due to Thomson.

In 1821, on the death of Dr. James Gregory, Thomson was one of the candidates for the chair of practice of medicine, but, being disappointed when James Home was transferred to this chair from that of materia medica, he became an extra-mural lecturer on practice of medicine, assisted by his son, William. In 1831, he had addressed a memorial to Lord Melbourne pointing out the advantages which would result from the establishment of a chair in general pathology, and when the Government immediately afterwards founded chairs in surgery and pathology, Thomson received a commission as the first professor in the latter subject. The fact that he was the first holder of no fewer than three professorships led Robert Knox to refer to him with sarcastic humour as "the old chairmaker."[1]

John Thomson professor of pathology

He continued to teach pathology till 1842, when he resigned on account of ill-health, and died in 1846. His chief works were a text-book on Chemistry, his lectures on Inflammation, and his life of Cullen; but he enjoyed a great reputation for general erudition, and appeals were constantly made to him by his colleagues for assistance in various matters. In the developing medical school of Edinburgh he formed a general agent of activity and promoter of useful enterprises, much in the same way as his sons, William and Allen, at a later date, did in developing the medical school of Glasgow. Thomson, in 1821, resigned both the chair of military surgery in the university and the chair of surgery in the Royal College of Surgeons, having decided to devote himself to teaching medicine. Dr. (afterwards Sir George) Ballingall (1780–1855) was appointed professor of military surgery in 1823.

George Ballingall

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

The following extract from Ballingall's Military Surgery, published in 1833, gives a good idea of the extreme poverty in resource exhibited by surgeons at that time in regard to the surgery of the abdomen. It forms a marked contrast to the immense field that opened up some 50 years later in this department of surgery, when aseptic methods came to be generally practised:—

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

Wounds of the abdomen in 1833

"Wounds of the small intestines are, for the most part, either primarily or secondarily fatal, while those of the large intestines sometimes heal without difficulty. This fact has not escaped the notice of the older writers, for they pronounced wounds of the latter dangerous in the highest degree; those of the former, without exception, fatal. . . . No man in his senses would think of enlarging the external wound, for the purpose of searching out and sewing up the wounded part of the gut—a practice, the propriety of which is not universally admitted, even when the wounded intestine protrudes externally. Extravasation of the contents of the bowels within the peritoneum is by no means so liable to occur as speculative writers would lead us to imagine, and, when it does happen to any extent, the case may, for the most part, be abandoned as hopeless. . . .

"It must ever be recollected, that bleeding from the arm is the best preservative from internal bleeding and peritoneal inflammation—the two great sources of danger in wounds of the abdomen. . . ." [1]

John William Turner

Although John Thomson was appointed professor of military surgery in the university two years after he had been appointed professor of surgery to the Royal College of Surgeons, he was permitted by the latter body to carry on the duties of his extra-mural professorship in surgery, and continued to do so until 1821, when he resigned and was succeeded by John William Turner (1790–1836). The latter was an Englishman by birth, who had received his medical education in Edinburgh and graduated M.D. in 1809. After a voyage to India, he became for ten years assistant to John Thomson in the class of military surgery, acted as conservator of the Royal College of Surgeons' Museum, and, in 1821, when Thomson retired from the professorship of surgery, Turner was appointed professor of surgery to the Royal College of Surgeons. When, ten years later, Thomson was appointed professor of pathology, his friend Turner at the same time received a commission from the Crown as the first professor of surgery in the newly-instituted university chair. His tenure of this office was short, for he died in 1836, as a result of pneumonia contracted in the course of his infirmary duties.

When Turner, in 1831, passed to the newly-created chair of surgery in the university, Mr. John Lizars was appointed to succeed him as professor of surgery to the College of Surgeons. He held this post for eight years, but on his resigning in 1839, the College of Surgeons decided to discontinue their professorship in view of the fact that the chair of surgery within the university, for which they had been striving through more than half a century, had now been established.

Edinburgh Medical Journal

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

[1] Ballingall: "Outlines of Military Surgery," Edinburgh and London, 1833, p. 339

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 (20 volumes); and

JOHN WILLIAM TURNER (1790–1836)
(Original portrait in the Surgery Department, Edinburgh University)

"Annals of Medicine," which had been issued in 1796 under the editorship of 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.*

During the year 1804, preparations were made by Archibald Constable, the publisher, for the publication of the *Edinburgh Medical and Surgical Journal,* which appeared as a quarterly magazine in January, 1805. Andrew Duncan

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

(junior) continued to act as editor for 22 years, and was succeeded in 1827 by Dr. Robert Christison and Dr. David Craigie as co-editors. Craigie acted as sole editor from 1832 to 1853, when he was succeeded by Dr. William Seller.

In January, 1841, a new publication, the *Edinburgh Monthly Journal of Medical Science*, had appeared under the editorship of Dr. John Rose Cormack, and, in July, 1848, this, on Cormack's retiral, was edited by Drs. George Edward Day, Alexander Fleming and William Tennant Gairdner. On their resignation in 1852, Dr. John Hughes Bennett became editor, and continued in this post until July, 1855, when the *Edinburgh Monthly Journal* was amalgamated with the *Edinburgh Medical and Surgical Journal* under the title of the *Edinburgh Medical Journal.*

The first editor of the united journal was Dr. Henry Duncan Littlejohn, who was followed in the editorial chair successively by Dr. Daniel Rutherford Haldane, Dr. George William Balfour and Dr. Joseph Bell. In 1897, the journal came out under new management and the co-editorship of Drs. G. A. Gibson, Alexis Thomson and Harvey Littlejohn.

In the latter year a new periodical, the *Scottish Medical and Surgical Journal*, appeared under the editorship of Dr. William Russell, to whom Sir Norman Walker was later added as co-editor. At a later date the editors were Sir Norman Walker and Sir Harold Stiles, but this periodical came to an end in June, 1908, when it was merged with the *Edinburgh Medical Journal.*

It is interesting to note some of the great achievements in medicine and surgery of which early notices have appeared in this journal, that has always occupied a pre-eminent position among the medical journals of this country.

Disorders of the heart

In 1814, rheumatism of the heart is first mentioned by Russell, who says that the tendency for carditis to be associated with rheumatism had recently been learned, while, in 1822, a new era as regarded Scotland in the history of cardiac lesions was inaugurated by a long review of Laennec's recently-published treatise on auscultation.

In 1832, one of the most important papers ever written on heart disease, that by Corrigan on aortic incompetence, was communicated to the journal. In 1852, Quain, writing on fatty heart, differentiated infiltration from degeneration, and described the symptoms of the two conditions. Between 1855 and 1861 had appeared a series of articles by Dr. W. T. Gairdner on pericarditis, dilated heart, contraction of the pupil in aortic aneurysm, and other matters which are at the present day familiar. Between 1871 and 1876, Dr. George William Balfour communicated his classical lectures on heart disease, and in 1877 Gibson produced a study on auricular impulse, and Bramwell one on aortic aneurysm ; while, in 1898. Dr. James Mackenzie began to write on movements of the heart and to elaborate his work on the venous pulse.

Of the nervous system

Laycock, to whom present-day medicine owes its conception of hysteria and subconscious mental states, began to contribute to the journal on this subject, in 1838, while he was house-surgeon in the York County Hospital, and recurred to it in papers at subsequent intervals. In 1852, the journal published Lockhart Clark's researches on the structure of the spinal cord, in which he described the

discovery of the column that bears his name. In 1863, Greenhow published an account of post-diphtheritic paralysis, and thereafter followed a large number of neurological studies, contributing to the knowledge of aphasia, disseminated sclerosis, paraplegia, cerebral tumour, etc., by Sanders, Wyllie, Bramwell, Charcot, Grainger Stewart and others.

Disorders of the lungs

In regard to diseases of the lungs, Hughes Bennett, in 1845, published his important paper on the cure of phthisis by fibrosis and calcification, his observations being based on 500 post-mortem examinations, and in 1856 Edward Smith described the curability of phthisis in its early stages. Christison, in 1829, confirmed the view of Bright, then two years old, upon the variety of dropsy which depended upon disease in the kidneys, and in 1850, Bence-Jones published his well-known paper giving "Some Account of a new Animal Substance occurring in the Urine of a Patient labouring under Mollities Ossium." From 1860 onwards, Grainger Stewart contributed several papers dealing with Bright's disease, in which he described the diagnosis of waxy kidney, and expounded the view that all forms of nephritis led ultimately to the contracted kidney. The sarcina ventriculi was first described in a paper by Goodsir in 1842.

Of the kidneys

Fevers

The early volumes of the journal contain many articles on fevers and infectious diseases, as well as numerous references to yellow fever, guinea-worm, Egyptian ophthalmia and other tropical diseases which the Edinburgh graduates who took part in the building of different regions of the Empire had ample opportunities of studying. The clinical thermometer appears to have been regarded much in the light of a scientific toy until Wunderlich's monograph is reviewed in 1862, and thereafter, in 1864, Bartlett and Ringer published temperature observations in ague. In 1868, T. J. Maclagan described the temperature curve in typhus, typhoid and pneumonia, and in 1873 Joseph Bell gave charts of surgical cases, after which the thermometer apparently came into general use.

The differentiation of typhoid and typhus fever was a subject of much discussion in the pages of the journal from 1820 to 1840. In 1820, Abercrombie recorded cases of ulceration of the bowels, and in 1827 Alison insisted upon the contagious origin for such cases; but the valuable paper by Stewart, in 1840, clearly demonstrated the non-identity of these two diseases. The first mention of diphtheria in its pages is in 1826, when Robertson described an epidemic at Kelso under the title "cynanche laryngea." An early paper, in 1812, gives a description by Cooke of "A Case of Singular Torpor," which is a clear picture of an extreme case of myxœdema, although this name was not applied till 65 years afterwards by Ord. On 1st October, 1845, appeared the historic paper by Hughes Bennett on leucocythæmia, which formed the first disease of the blood to be definitely recognised.

Venesection

The venesection controversy in the middle of the century was virtually fought out in Edinburgh. There was then a tendency to withdraw less blood than previously, and Bennett, in 1856, pointed out that the mortality of pneumonia had diminished with this practice. In the same year, Bennett published his important paper laying down that blood-letting is opposed to a sound pathology and

cannot cut short an inflammation, and the discussion was continued mainly between him and Alison in the journal for several years. Finally, a historical sketch of the subject is contained in Balfour's "Hæmatophobia," contributed in 1859.

Surgery

In regard to surgery, one of the objects of the journal was stated to be "to cultivate Medical Surgery, to improve the Operations of Surgery and to simplify its apparatus," and in 1809 John Bell is found lamenting that "operations have come at last to represent, as it were, the whole science, and a surgeon, far from being valued according to his sense, abilities and general knowledge, is esteemed excellent only in proportion as he operates with skill." It may be said that many persons share his opinion 120 years later. The early papers are remarkable for a vividness of description that leaves a clear picture on the mind. They deal, however, to a large extent with the treatment and results of individual cases. Many articles in the early days deal with the vexed question of the best method of performing lithotomy.

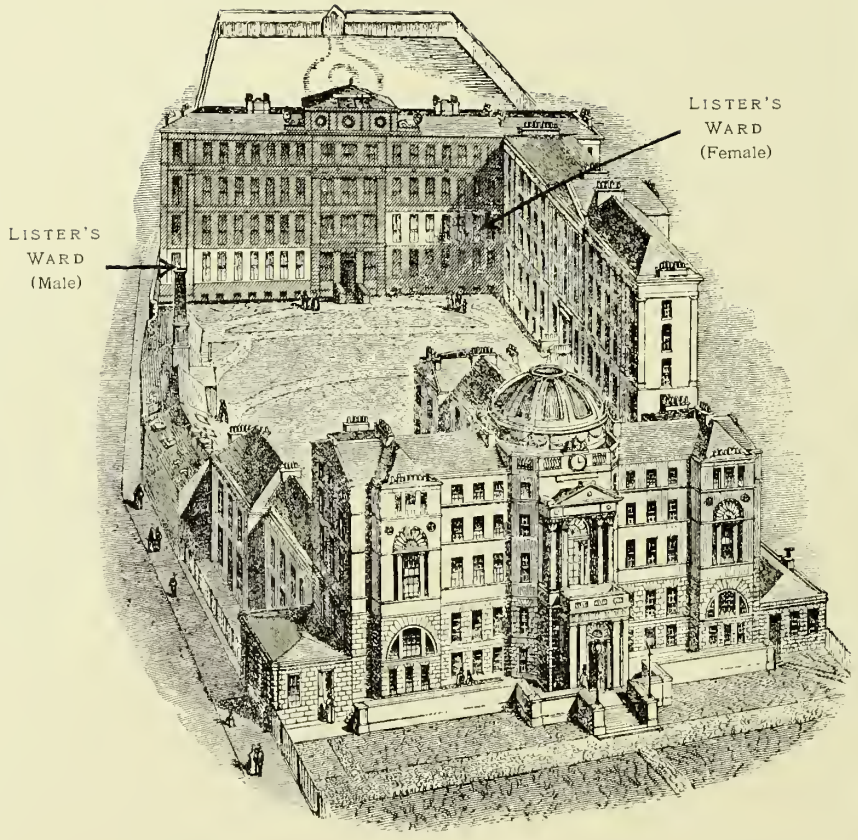
A striking contribution was the paper by Robert Liston in 1820, which recorded five cases of aneurysm with which the writer had dealt. In 1821, the same author published his paper on "The Treatment of Cases of Diseased Bone," and, in 1824, his "Observations on Amputation" in the same issue which contained Syme's equally famous "Remarks on Amputation." Many subsequent numbers of the journal contained surgical papers of the first importance by these two writers. About the same period numerous other valuable surgical papers were appearing from the pens of Lizars, Miller, Fergusson and R. J. Mackenzie. In 1858 and 1859, important early papers by Joseph Lister on the Coagulation of the Blood were contributed, and in 1860 appeared Sir J. Y. Simpson's paper on "Acupressure as a Means of Arresting Surgical Hæmorrhage," which attracted great attention at the time, although the method has now passed out of use.

In 1865, Thomas Keith contributed his important paper on the results of ovariotomy by means of his clamp, and recorded 35 cases with only nine deaths, although later, by improved methods, he again published 72 cases, among which there had been only six deaths.

Forensic medicine

In the domain of medical jurisprudence, Christison made numerous contributions: thus, in 1827, he published an important paper on the detection of minute quantities of arsenic in mixed fluids. In 1829 he dealt with what was then a new form of crime, the disfigurement of the countenance with sulphuric acid, and in the same paper he reviewed the points of medical interest in the Burke and Hare trial, including his important observations upon infliction of bruises. These medico-legal observations on other important points were continued in subsequent numbers.

About 1840, special interest appears to have been taken in the subject of medical jurisprudence, to judge by the large number of papers that appeared. Among these may be mentioned that by Professor Guy, dealing with the static lung tests, and an account of poisoning with hemlock by Hughes Bennett. In 1852, an important article appeared, by Alfred Swaine Taylor, entitled "Remarks on Death by Strangulation," which has been of permanent importance. The celebrated trial of Madeline Smith, in 1857, gave rise to another communication from Christison upon murder by poisoning with arsenic.



GLASGOW ROYAL INFIRMARY IN 1861

The original Adam building (medical house) is to the front; the fever-house (later surgical) to the right; and the newly-erected surgical block to the rear. Lister's Wards are those on either side of the door in the rear building: the Male Ward on the ground floor, to the left, and the Female Ward on the first floor up, to the right.

Chapter XX

The Glasgow School in the First Sixty Years of the Nineteenth Century

One of the most important steps in connection with the development of the Glasgow Medical School was the foundation of a hospital where clinical teaching could take place. Glasgow, in 1712, was a small burgh with a population of 14,000, but during the 18th century, in consequence of the development of trade with the American colonies, the population rose rapidly, and in 1801 had reached 83,000, while 30 years later a still more rapid rise brought the number of inhabitants of the city and its suburbs to about 200,000 in the year 1831. Situated in the Old Green, the Town's Hospital, which corresponded very much to a modern workhouse, subserved the needs of the city in the early part of the 18th century.

Development of Glasgow

A movement, begun in 1787, to provide a general hospital, which was an indispensable adjunct to a medical school, took shape, so that in December, 1794, the Royal Infirmary was formally opened for the reception of patients. The site of this hospital was that of the old Archbishop's Castle, adjoining the cathedral and close to the university buildings in the High Street, and, as originally built, its capacity was for 150 patients.[1] The Western Infirmary was not inaugurated until 1874, when another hospital became necessary, partly because of the increase of the population in the city and partly because of the migration of the university to Gilmorehill in the western part of Glasgow. The Victoria Infirmary was opened for the reception of patients in 1890.

Glasgow infirmaries

By the beginning of the 19th century, the Faculty of Physicians and Surgeons had been engaged for 200 years in maintaining and improving the standard of practice in the west of Scotland, but it had done little or no teaching. The prosecution of quacks had by this time become less necessary, and it was falling into desuetude. Its gradual abandonment was due to two factors: in the first place, the summary powers conferred in the 16th century by which the Faculty summoned delinquents before them and fined them 40 pounds Scots, could hardly be exercised in the 19th century; and, secondly, a penalty of 40 pounds Scots, in its modern equivalent of four pounds sterling, held no terrors, in fact, provided a useful advertisement, for a successful quack. The early part of the 19th century saw a still more serious invasion of the Faculty's privileges by the developing University of Glasgow.

Position of the Faculty of Physicians and Surgeons

There had always been a doubt whether the doctors in medicine whose diplomas were inspected and who were then sanctioned to practise by the Faculty, could also practise surgery. It had been the habit for any doctors of

[1] John Fergus, M.D.: "Glasgow Royal Infirmary: Past, Present and Future," Glasgow, 1927.

medicine who wished to practise surgery in or near Glasgow to submit to examination in that craft by the examiners of the Faculty. A decision of the Court of Session was obtained by the Faculty in 1815, that a degree in medicine did not entitle the holder to practise surgery within the bounds of the Faculty. Accordingly, in 1816, the University of Glasgow astutely resolved to add to its list of degrees that of Chirurgiæ Magister (C.M.).

By 1826 there were 23 persons in the western counties practising surgery by virtue of holding the C.M. of Glasgow, and against the whole of these the Faculty raised an action of interdict in the Court of Session. This action dragged on with various suits, counterpleas and appeals until 1840, when judgment was given by the House of Lords in favour of the Faculty. This judgment was, however, practically nullified by the Medical Act of 1858, when all territorial restrictions regarding medical practice were abolished.

The rise of the Glasgow Medical School is well seen from the number of students enrolled in the anatomy class of the university between 1790 and 1860. The statistics were compiled by the late Professor Allen Thomson :—

Growth of university anatomy class

Year	Number
1790	54
1800	113
1810	232
1820	162
1830	167
1840	61
1850	130
1860	256

Various causes operated to produce the great fluctuations in the numbers of students. Immediately after the battle of Waterloo there was a great diminution in the number of entrants, who had been steadily increasing during the French wars with the demand for surgeons which they occasioned. From 1797 to about 1828, there were several private lecturers on anatomy who went by the general name of the College Street School, and who attracted large classes to their dissecting-rooms. Also, Anderson's College taught anatomy to steadily increasing numbers of students till about the 'forties, when its numbers were almost double those of the university. From 1830 to 1844, there was also a school in Portland Street with a considerable attendance In the university, from 1790 to 1848, Professor James Jeffray held the chair of anatomy and although he had been successful as a teacher during the earlier part of his tenure, the failing health and lack of energy of his late years were probably largely responsible for the diminution in the number of students. During Professor Jeffray's tenure of office there were some ten teachers of anatomy in the Andersonian and Portland Street Schools Immediately on Professor Allen Thomson's appointment, in 1848, the figure of the university class rose again.[1]

[1] Duncan : " Memorials of the Faculty of Physicians and Surgeons of Glasgow," pp. 172 and 173.

Hunterian museum

An important factor in the development of the Glasgow Medical School was the bequest of Dr. William Hunter, who died on 30th March, 1783, and directed by his will that his museum should be made over to the University of Glasgow, together with a sum of £8000 to erect a building at Glasgow for the reception of the museum and to keep the collection in proper order. In early life, Hunter had taken a course in languages and philosophy at Glasgow University, had been apprenticed to William Cullen at Hamilton, and had studied medicine for one session at Edinburgh. He had afterwards gone to London, where he rose to eminence as a practitioner in medicine and obstetrics and as a teacher of anatomy, and where he gained great wealth. His museum was transferred to Glasgow in 1807, at the time when great efforts were being made to develop the medical school in this city.

This museum included specimens of geology and natural history, pictures, valuable manuscripts, paintings, coins and archæological relics, as well as a great collection of carefully prepared and mounted anatomical specimens, partly collected by himself and partly presented to him by former pupils. As this collection was a lifelong work, the museum is of great value, and, in 1807, Hunter's directions were fulfilled that it should ultimately be given to the University of Glasgow, when his nephew, Dr. Matthew Baillie, and his partner in the anatomical class, William Cruikshank, should have finished with it.

His younger and more famous brother, John Hunter, was ten years younger than William, and the youngest of a tolerably large family. Somehow, his early education was neglected, and he, unlike his cultured brother William, was at the age of 17 able neither to read nor write. His boyhood was entirely spent in his native parish of Long Calderwood, near Glasgow,[1] where his father was a small landed proprietor. In early manhood he settled in London as assistant to his brother William, and, afterwards becoming one of the greatest anatomists of Europe, attained a last resting-place in Westminster Abbey. His collection, as is well known, is preserved at the Royal College of Surgeons in London.

John Anderson

A profound influence was exerted upon the Glasgow Medical School during the 19th century by the Andersonian College. This institution was founded, on the death of Professor John Anderson in 1796, as an educational establishment, designed to supply courses and means of instruction in general and scientific branches of study, and to be a rival to the university. Various scientific departments originally included in it have been merged in the Glasgow and West of Scotland Technical College founded in 1886, but the Medical School of Anderson's College is still conducted separately.

John Anderson (1726–1796) was appointed professor of oriental languages in 1755. In 1757, he was appointed professor of natural philosophy, which he

[1] Freeland Fergus: "Origin and Development of the Glasgow Medical School," *Glasgow Medical Journal*, November, 1911, p. 9.

taught with great acceptance to the students and to his fellow-townspeople.[1] He was an ingenious man, and, as an example of his inventive skill, he presented to the French National Convention, in 1791, a gun, of which the recoil was absorbed by an air-chamber. In his zeal for reforming abuses in the university, he quarrelled with most of his fellow-professors.

Anderson's college or university

Failing in an attempt, made in 1784, to obtain a Royal Visitation of abuses in the university, with a view to reform, which seems to have been very necessary, he conceived the idea of leaving his property to found the college which bears his name, as an opponent and stimulus to the university. Anderson's College Medical School has proved a valuable training-ground for young lecturers, from which the professoriate in Glasgow University has been to a large extent recruited. In the century and a quarter of its existence, it has also frequently provided competent instruction in various departments, when the professors of corresponding subjects in the university happened to be inept.

JOHN ANDERSON (1726-1796)
(Original in the Scottish National Portrait Gallery)

According to the design of the founder, there were to be four faculties, viz., arts, medicine, law and theology, besides an elementary school o academy, and each faculty was to consist of nine professors. The faculties o law and theology were never formed. The institution began in a small way i 1796, with a single lecturer (Dr. Thomas Garnett) upon natural philosophy an chemistry. He was succeeded in 1800 by Dr. George Birkbeck, and he, in 1804, b

[1] Addison : " Roll of Graduates of the University of Glasgow, 1727–1897," p. 18.

Dr. Andrew Ure, who introduced a course of lectures upon chemistry and pharmacy. The medical school began in 1799, when John Burns was appointed to lecture upon midwifery and surgery, as well as being professor of anatomy. A lecturer upon botany was appointed in 1816.

The institution continued to prosper and, in 1827, the building in John Street, which had been used up to this time, was advantageously sold, and new premises

Increases in prosperity

ANDERSON'S UNIVERSITY

(formerly the old Grammar School) in George Street, from 1828 to 1877

acquired in George Street. Here a number of new professors were added, so that the Andersonian University was even better equipped at this time with medical teachers than Glasgow University itself. The number of medical students attending the institution about 1830 is given as over 700. It received various benefactions, and in 1877 the name of the institution was altered from Anderson's University to Anderson's College, under an Act of Parliament. In accordance with the scheme by the Commissioners under the Educational Endowments (Scotland) Act, 1884, which created the Glasgow and West of Scotland Technical College, the Medical School of Anderson's College became a separate and distinct

institution, and was incorporated as Anderson's College Medical School, under the Memorandum and Articles of Association of 1887.

Develops into Anderson College of Medicine

The school was continued on a site which had been acquired for new buildings on the Dumbarton Road, close to the gate of the Western Infirmary, where the classes are now held.[1] In 1913, the dental curriculum was completed, and at the same time the name of the incorporated body was changed to Anderson College of Medicine, with the sanction of a special resolution and the approval of the Board of Trade.

Medical societies

Another important factor in the development of the Glasgow medical school early in the 19th century, was the foundation, in 1802, of the Glasgow University Medico-Chirurgical Society for undergraduates. This society, formed on the plan of the Royal Medical Society of Edinburgh, has had a long and prosperous existence.

A little later, on 27th October, 1814, three physicians and three surgeons of the city met for the purpose of forming a society, which they agreed to call the Glasgow Medical and Surgical Society. The Faculty of Physicians and Surgeons immediately granted the use of its hall for the meetings of the society, which at first met twice in each month throughout the year. At a later date, the meetings of the society were held on the second Tuesday of each month from March to October. In 1866, the society amalgamated with another medical society and changed its name to the Medico-Chirurgical Society of Glasgow, of which Dr. Allen Thomson was the first President. An important meeting was held on 17th April, 1868, at which Professor Joseph Lister described the results of his investigations on the treatment of wounds with antiseptic dressings, this being believed to be the first occasion on which Lister gave a public demonstration of his researches on this subject. The society continued to prosper, and has had an important influence on the development of medical opinion and teaching in the Glasgow medical school.[2]

Botany

Provision for botanising and instruction in botany had been made in Glasgow from an early date. In 1704 it had been decided that a portion of the great garden of the college should be converted into a physic garden, and John Marshall, a surgeon in the city, was appointed as keeper of the garden and to give instruction in botany to students at an annual salary of £20. In 1708, Queen Anne allocated a sum of £30 a year to the professor of botany. This botanic garden existed in the grounds of the university for a century.[3] The gardener who looked after the plants in the physic garden held the rest of the college garden rent free on condition of keeping both in order. Professor William Hamilton, from 1784, took great interest in the botanic garden, stocking it with new plants, erecting a conservatory at his own expense, and teaching in the garden. Professor Jeffray also taught here, and, in all probability, William Cullen.[4]

Gardens

[1] Christie: "Medical Institutions of Glasgow," Handbook for the B.M.A. Meeting, Glasgow, 1888, p. 28.
[2] Downie: "The Medico-Chirurgical Society of Glasgow," 1908.
[3] Coutts: "History of the University of Glasgow," Glasgow, 1909, p. 483.
[4] Coutts: Op. cit., p. 502.

The physic garden had been augmented in 1753 by the purchase of a neighbouring property to the south of the Blackfriars church, and it contained numerous rare plants, such as a banana tree. After Professor William Hamilton's death in 1790, his plants, hot-houses, etc., were sold, and some 20 years later, the development of buildings in the neighbourhood having rendered the site unsuitable for its purpose, the garden was closed. For a few years the university lacked this means of teaching botany, but the difficulty was removed by the establishment, in 1817, of the Royal Botanic Institution, to which the university contributed £2000.

This garden, eight acres in extent, was situated between Dumbarton Road and Sandyford Road (now Sauchiehall Street), and was bounded on the east by Claremont Street. It stood then in open country, but the city rapidly extended round it, and in 1840, the institution purchased 22 acres of land on the north side of the newly-formed Great Western Road, to which the garden was transferred in 1842, under the care of Professor Balfour.[1]

After 1800, Dr. Thomas Brown and Dr. Robert Graham successively taught the class of botany, and the latter in 1818, when the chair was instituted, was made professor of this subject. In 1820, Professor Robert Graham was elected by the Town Council of Edinburgh professor of botany in this university, and he superintended the transfer of the Edinburgh botanic gardens from Leith Walk to their present site in Inverleith Row. The next professor of botany at Glasgow was William Jackson Hooker, who afterwards became Director of the Botanic Gardens at Kew in 1841, when he was succeeded at Glasgow by John Hutton Balfour, who four years later succeeded Graham as professor of botany in Edinburgh. Professor Balfour was succeeded in Glasgow by George Walker Arnott, who held the chair till 1868.

He was succeeded by Alexander Dickson, who went to Edinburgh as professor of botany in 1879, when he was succeeded by Dr. (later Sir) Isaac Bayley Balfour (son of Dr. J. H. Balfour), who transferred to Oxford, and in 1888 to Edinburgh. In 1885, Frederick O. Bower was appointed professor in Glasgow and held the post till 1925, when he was succeeded by Professor J. M. F. Drummond.[2]

Anatomy

James Jeffray

As regards anatomy, James Jeffray (1759–1848) had been appointed professor of anatomy and botany in 1790, and he held the chair of anatomy for 58 years, which is the record for tenure of a medical chair in a Scottish university. Beginning as a student under Cullen at Edinburgh, where he graduated M.D. in 1786, he lived to see anæsthetics established in surgery. He began, immediately on his appointment, to improve the conditions under which anatomy was taught, by obtaining increased accommodation for the dissecting-room and by establishing a library for his students. He was not unmindful that botany formed a part of

[1] Murray : " Memories of the Old College of Glasgow," Glasgow, 1927, p. 247, *et seq.*
[2] Coutts : " History of the University of Glasgow," Glasgow, 1909, pp. 531–533.

the subjects to which his chair was devoted, and he lectured for several years on this subject in the garden established by William Hamilton. From 1800, however, the subject of botany was treated by lecturers till a professor of botany was appointed in 1818.

Resurrectionists

The students in Glasgow appear to have participated only to a very slight extent in the resurrectionist activities which were a notable feature of other schools, although, in 1803, a party of soldiers had to be requisitioned for the protection of the college, in fear of an attack by the mob. The medical school of Glasgow was, apparently, very well supplied with anatomical material, due, no doubt, to the easy means of communication with Ireland.

About the year 1813, however, several notable scandals occurred at Glasgow in connection with the resurrectionists. A vessel on one occasion arrived from Ireland at the Broomielaw of Glasgow with a number of large bags, supposed to contain cotton or linen rags, addressed to a well-known huxter in Jamaica Street. He refused to accept the supposed rags, which were charged some £50 or £60 payable on delivery, because he had not received an invoice for them and the charge was excessive. The carters who had brought the bags to him were therefore ordered to take them back to the quay. This was done and, in consequence of a suspicious smell, the Broomielaw officers opened a few of the bags, and were horrified to find that they were packed with dead bodies.

It afterwards transpired that these bodies were intended for the anatomy classes in Glasgow and Edinburgh, and that the rag merchant would gladly have paid the charge demanded had the notification of the consignment not been delayed in the post. The bodies were, however, seized and interred by the sheriff and magistrates.

On another occasion two students were deputed to exhume a body in a case of doubtful diagnosis from the parish of Mearns, and bring it to Glasgow for examination. The toll keepers had been warned to be on the outlook for anything suspicious in carriers' carts and other vehicles, and the students, knowing that their chaise would be inspected at Gorbals toll-bar, had to take precautions. They accordingly purchased an old suit of clothes with a respectable hat, decorated in crape, and in this dressed their prize. At the toll they declared that the friend sitting between them was feeling very sick, and the toll-keeper looking in, lantern in hand, remarked: "O, puir auld bodie, he looks unco' ill in the face; drive cannily hame, lads—drive cannily." After this they whipped up the horse and arrived at the dissecting-room in safety.

A prosecution

A more serious case was that of Mrs. M'Alister's body, for which Mr. Granville Sharp Pattison, a lecturer on anatomy and surgery in the Andersonian School, and three students, were brought to trial before the High Court at Edinburgh in 1814. It was discovered that the grave in which this body had been buried had been rifled and search was immediately made by the town officers through the various anatomy rooms. After some difficulty, parts of the

body, which had been dissected, were found, and the jaw-bone was identified by a dentist as that of Mrs. M'Alister, whose teeth he had repaired shortly before her death.

The accused were defended by John Clerk, a skilful advocate, who put to the various witnesses for the prosecution the simple and apparently artless question: "Whether Mrs. M'Alister had been a married woman, and had borne several children." They all answered truly in the affirmative. It was afterwards proved by the defence, through the evidence of several expert anatomists, that the body produced was not that of such a woman at all. The accused accordingly were found not guilty, through the simple fact that portions of several bodies had been put together by the officers who conducted the search.[1]

ALLEN THOMSON (1809-1884)

A memorial, drawn up by Professors Jeffray and Burns in April, 1830, was largely instrumental in effecting the passing of the Anatomy Act of 1832.[2] Professor Jeffray was assisted by his son during the last ten years of his life, and during this time took little part in the teaching of the class.

Allen Thomson

He was succeeded, in 1848, as professor of anatomy by Allen Thomson (1809–1884), the son of John Thomson, who held various chairs in the University of Edinburgh. Allen was brother of William Thomson, who was professor of medicine at Glasgow from 1841 to 1852. Allen Thomson had studied at Edinburgh, graduated M.D. in 1830, and acted as an extra-mural lecturer upon physiology. From 1839 to 1841 he had been professor of anatomy at Marischal College,

[1] Mackenzie: "Reminiscences of Glasgow," Glasgow, 1866, Vol. II., p. 474, *et seq.*

[2] Coutts: "History of the University of Glasgow," Glasgow, 1909, pp. 518 and 519.

Aberdeen, and from 1842 to 1848, professor of physiology at Edinburgh University. He held the Glasgow chair of anatomy till 1877, when he was succeeded by John Cleland.

By the time he came to Glasgow, Thomson had made a large collection of material for anatomical and physiological teaching, and this was added to the Hunterian Museum. The number of students increased greatly under his regime, but, in addition to the arduous work of teaching, he was able to devote much time to university management and to anatomical research. He was a skilful draughtsman, and many sketches by his hand still appear as illustrations in text-books of anatomy. He was one of the editors of the seventh and eighth editions of Quain's "Anatomy," and carried out important researches in embryology.[1]

In addition to his work in the department of anatomy, Allen Thomson showed great activity in the administrative work of the university at an important crisis in its affairs. Dr. David Murray says of him :—

Character

> "He was popular not only with the students of his own class, but with the whole body of the students of the University. No one in his day enjoyed so much respect from the students or exercised so great an influence over them as he did. When the removal of the Old College was decided on, and the erection of new buildings at Gilmorehill became necessary, the greater part of the arrangements was entrusted to him, and it was largely owing to his tact, energy and organising ability that the work was carried through. One of the most important matters was the provision of funds. During the forenoons of many months Professor Allen Thomson and Professor Anderson Kirkwood were to be seen hurrying through the streets of Glasgow on their way to the offices of business men whom they wished to interest in the building scheme and from whom they hoped to obtain support. Their efforts were at the time considered eminently successful."[2]

Chemistry

In 1818, a chair of chemistry was founded, and Dr. Thomas Thomson (1773–1852) received the appointment of professor from the Crown. In the time of Joseph Black, the chair had been one of medicine and chemistry, and in the interval the subject of pure chemistry had been taught by lecturers.

Thomas Thomson

Thomson had acted as editor of the third edition of the "Encyclopædia Britannica." He had published a "System of Chemistry," in 1802, that went through several editions, and was the author of numerous works dealing with history of chemistry, history of the Royal Society, and outlines of mineralogy and geology. He had graduated, in 1799, as M.D. at Edinburgh, and he had been a student under Joseph Black. He is perhaps best known as being credited with the invention of the oxy-hydrogen blow-pipe, and as the introducer of symbols in chemistry. The number of students and of persons doing research whom he attracted made it necessary to obtain a new chemistry department, and this was erected in Shuttle Street, a short distance from the university, and opened in 1831.

[1] Coutts : "History of the University of Glasgow," Glasgow, 1909, pp. 519–521.
[2] Murray : "Memories of the Old College of Glasgow," Glasgow, 1927, p. 246.

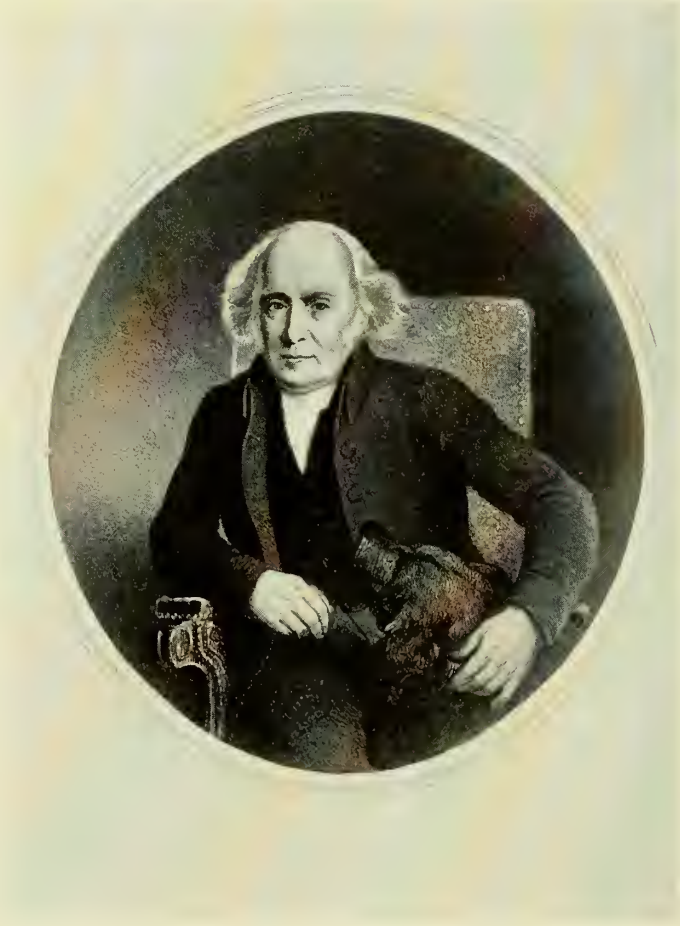
This laboratory is generally stated to be the first laboratory in the world devoted to research in chemistry, although Cullen and Black had previously had laboratories where they carried out their individual

THOMAS THOMSON (1773–1852)

researches. In 1848, his failing health made it necessary that he should obtain permission from the Senatus that his nephew, Dr. Robert D. Thomson, should conduct the class for him, and this arrangement was continued till 1852, when Professor Thomson died, and was succeeded by Thomas Anderson, an Edinburgh graduate. Anderson took over the department in October, 1852, and held the chair for 22 years, till his death in November, 1874.[1]

[1] Coutts: "History of the University of Glasgow," Glasgow, 1909, pp. 533–535.

During Anderson's tenure of the chair the subject of chemistry gradually gained scientific associations outside those of medicine, and as in other universities, the department became one in the faculty of science. Anderson



JOHN BURNS (1774–1850)

was succeeded in the chair by John Ferguson, and in 1919, G. G. Henderson became professor of chemistry.

Midwifery

In 1790, James Towers, surgeon, who had studied obstetrics at the Royal Infirmary of Edinburgh, and also in London, asked to be allowed to lecture upon midwifery in the University of Glasgow.[1] He was appointed year by year till 1815, when he was made professor of midwifery, enjoying a salary of

[1] Coutts: "History of the University of Glasgow" Glasgow, 1909, p. 500

£45 per annum. He was succeeded in 1820 by his son, John Towers, who died in 1833. Robert Lee, an obstetric physician and lecturer in London, was appointed professor of midwifery in 1833, but resigned office almost immediately, and William Cummin, a son of the professor of oriental languages, who had been a surgeon in the army, and afterwards professor of botany in Anderson's College, was appointed professor of midwifery. Although he expended about £200 in the purchase of preparations, drawings, casts and models from Paris, London and elsewhere, he held the chair only for six years, and was succeeded in 1840 by John MacMichan Pagan, an Edinburgh graduate, who held the chair till 1868.[1]

Surgery

The year 1815 was an important one for the school of medicine at Glasgow. In addition to the chair of midwifery, a chair in surgery was also established in that year, and three years later, in 1818, chairs of botany and chemistry were founded by the Crown, and a salary of £50 per annum was granted from the Treasury to each of the four new professors.[2] This was in addition to the fees that they collected from such students as they might attract to their lectures.

John Burns

The first professor of surgery was John Burns (1774–1850), son of a Glasgow minister, who had been educated at the Universities of Glasgow and Edinburgh, and who had already taught anatomy, surgery and midwifery for some time in connection with Anderson's College. He had also, as surgeon to the Royal Infirmary, taken to giving clinical lectures there in the session 1797–1798. He was the author of two books: "The Principles of Midwifery" and "The Principles of Surgery," which attained great success. As a teacher he was highly popular and successful, his class at times exceeding 200 students. Professor Burns occupied himself much with Parliamentary and other business connected with the university, but, in 1850, when returning to Glasgow, he was a passenger on the steamer "Orion," which was wrecked near Portpatrick, and he was drowned.[3] He was succeeded as professor of surgery, in 1850, by James Adair Lawrie, who had graduated at Glasgow in 1822, served in the East India Company, and subsequently lectured in Anderson's College. He died in November, 1859,[4] at the age of 58, and was succeeded in the following year by Joseph Lister.

J. A. Lawrie

Medicine

Robert Freer

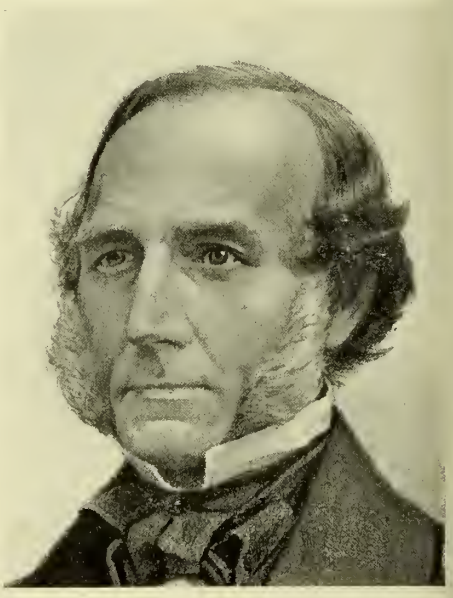
In the chair of medicine, Dr. Robert Freer had succeeded Hope in 1796, and continued to act as professor of medicine till he was 82 years of age, though this long continuance in office cannot have been a good thing for the Glasgow medical school. Robert Freer (1745–1827), studied at Edinburgh, where he graduated M.A. in 1765. Entering the army some time later, he served as an ensign and surgeon in the American War, and was present at the

[1] Coutts: "History of the University of Glasgow," Glasgow, 1909, pp. 526-528.
[2] Coutts: Op. cit., p. 526.
[3] Coutts: Op. cit., pp. 528–530.
[4] Coutts: Op. cit., pp. 530 and 531.

battle of Bunker's Hill. Returning to Scotland, he obtained the M.D. degree from King's College, Aberdeen, in 1779, and commenced practice in Glasgow. A year after his appointment as professor of medicine, he became physician to the Glasgow Royal Infirmary and held this office up to 1815.

Charles Badham

On the death of Robert Freer in 1827, Charles Badham was appointed to be professor of medicine, and the Crown, on his appointment reserved power to appoint a fellow professor to teach the theory or practice of medicine, both of these subjects up to this time having been taught from the same chair.[1] Badham's tenure of the chair does not seem to have been a success, for he had numerous disputes with the Faculty, appears to have neglected his duties, and, in 1841, after having been absent in the south of Europe for over two years, he resigned his chair to the Home Secretary, ignoring the Senatus of the University altogether.



JAMES ADAIR LAWRIE (1801–1859)

William Thomson

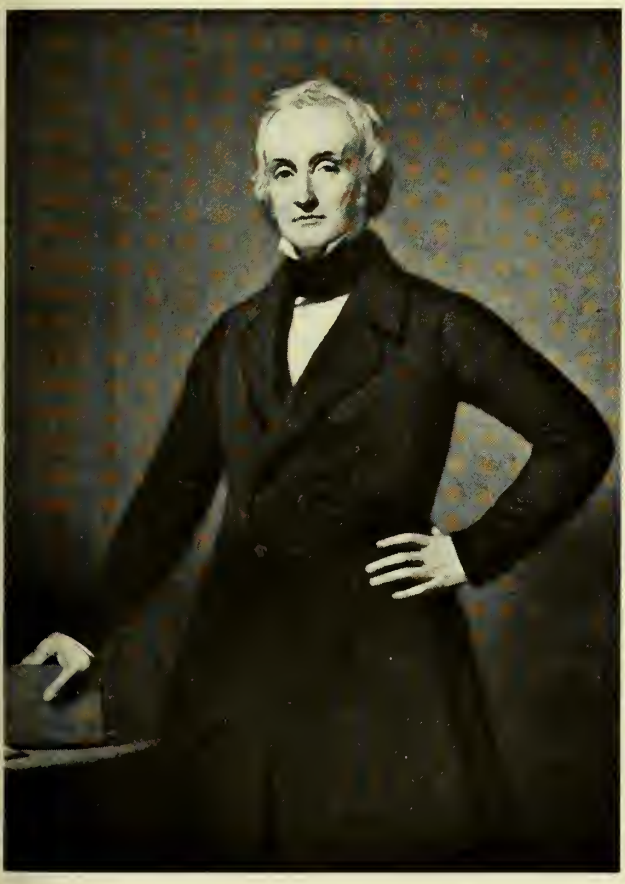
The Crown now appointed William Thomson to be professor of medicine. He was brother of Allen Thomson, professor of anatomy, and had studied medicine both in Edinburgh and Glasgow, as well as taking the M.D. degree at Marischal College, Aberdeen. At Edinburgh he had been a lecturer both on theory and practice of medicine, and had also acted for his father in the chair of pathology. On his appointment to the University of Glasgow, he became one of the physicians to the Royal Infirmary, and did a great deal of administrative work for the university, especially in connection with the proposed removal from the buildings in the High Street to the west side of the city. He died in 1852, and was succeeded by John Macfarlane.

John Macfarlane

John Macfarlane (1796–1869) had graduated M.D. at Glasgow, and had been a surgeon to the Royal Infirmary. His sovereign remedy is said to have been a blue pill,[2] but in 1832 he published a volume of Clinical Reports, which procured him some reputation, and he gradually acquired a considerable practice. This professor held the chair for only ten years, retiring in 1862, and being succeeded by Dr. (later Sir) William Tennant Gairdner.

[1] Coutts: "History of the University of Glasgow," Glasgow, 1909, p. 522.
[2] Murray: "Memories of the Old College of Glasgow," Glasgow, 1927, p. 167.

During Professor Badham's tenure of the chair of medicine, he announced, in 1832, that he was unable to give his course of lectures on the theory of medicine in addition to his course on practice of medicine, and Dr. Harry Rainy was appointed to give a course of lectures on the theory of medicine, and, in 1833, was re-appointed to give a full course. In 1839, on account of Badham's absence, Rainy was appointed for two years to lecture on practice of medicine.[1]



HARRY RAINY (1792-1876)

In this year (1839) the Government was taking much interest in the development of the Scottish universities. Several new chairs were instituted at Aberdeen, and in Glasgow the Crown founded chairs in theory of physic or institutes of medicine (physiology) and in forensic medicine. Dr. Andrew Buchanan, who had graduated M.D. at Glasgow in 1822, and had lectured on materia medica in Anderson's College, was appointed professor in the new chair of theory of physic. Buchanan, who was one of the first to investigate the subject of coagulation of the blood, held the chair till 1876.[2]

Physiology

Andrew Buchanan

The other chair, founded by Queen Victoria in 1839, was that of forensic medicine, to which Robert Cowan, who had graduated M.D. at Glasgow in 1834, and had been both physician and surgeon to the Royal Infirmary, was appointed. Cowan died after two years' tenure of the chair, and in December, 1841, Dr. Harry Rainy was appointed professor of forensic medicine by the Crown. He had graduated M.D. at Glasgow in 1833, having already been in practice as a physician with

Forensic medicine

Harry Rainy

[1] Coutts: "History of the University of Glasgow," Glasgow, 1909, p. 523.
[2] Coutts: Op. cit., p. 540.

JOHN ALEXANDER EASTON (1807-1865)

JOHN MACFARLANE (1796-1869)

a licence from the Faculty of Physicians and Surgeons, and, as mentioned above, he had acted for Badham during the absence of the latter. He continued in office until 1872.[1]

Materia medica

A chair of materia medica was established by the Crown in 1831, and its first incumbent was Dr. Richard Millar, who had taught this subject as a lecturer since 1791. He had virtually been professor since 1819, when he had been made lecturer for life with a salary of £70, in addition to the class fees paid by the students, a scale of remuneration very much the same as that of the other professors. On his resignation in 1833, he was succeeded in the chair by Dr. John Couper, who held the chair until 1855, when he in turn was succeeded by John Alexander Easton (1807–1865), who had graduated M.D. at Glasgow in 1836, and had already taught materia medica in Anderson's College for some 15 years. His name has attained a permanent record in that of a preparation introduced by him and still known as "Easton's Syrup." He held the chair till his death in 1865.[2]

Richard Millar

John Couper

John Alexander Easton

Method of lecturing

Easton seems to have been a teacher popular with the students, and had the art, by several tricks of lecturing, to fasten the details of the dry subject of materia medica in the memory of his hearers. Several examples of his style in lecturing are given by Murray, who says that he read his lectures from manuscript, and unlike his medical colleagues, always wore a gown. At times the language employed was amusingly bombastic, as when for example, in lecturing on the use of sulphur, he referred to the skin affection known as scabies or itch in such words as these :—

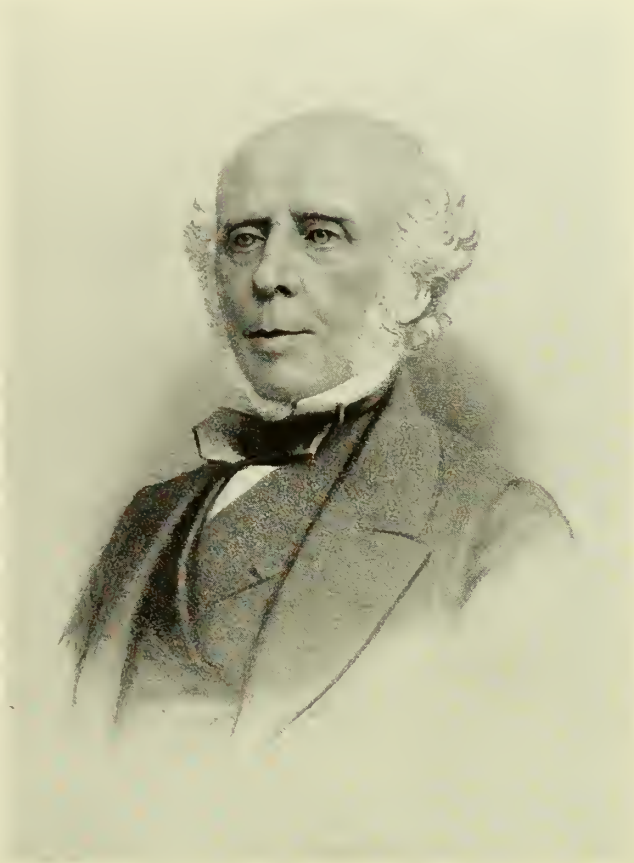
> "Our friends south of the Tweed speak of this disease as the Scotch Fiddle or Caledonian Cremona. But, gentlemen, its silent notes have been attuned in other lands than that of the mountain and the flood. We claim no monopoly in any such disease and we trust our countrymen's hands are clean as we know their hearts are pure."

At another time he would amuse his hearers with some grotesque exaggeration. Thus, when lecturing on the necessity of modifying the usual dose of certain medicines in the case of weakly patients, or of women and children, or even of natives of certain lands, he used to say :—

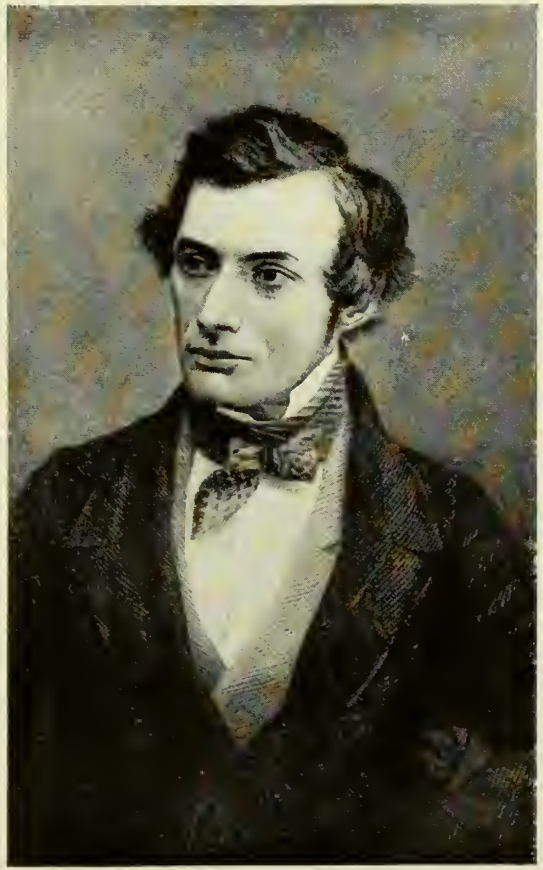
> "No sane practitioner would think of prescribing for the rice-eating native of Madras as large a dose of a powerful cathartic as he would fearlessly administer to the stout English yeoman, who bolts his bacon by the cubic foot and quaffs his porter by the imperial gallon."

Or again, he would suddenly introduce some poetical quotation into a description of the common use of some well-known article of the materia medica. Thus, he would describe at length the mode of capturing the cantharides or Spanish

[1] Coutts: "History of the University of Glasgow," Glasgow, 1909, pp. 537–540.
[2] Coutts: Op. cit., pp. 535–537.



WILLIAM MACKENZIE (1791-1868)



THOMAS GRAHAM (1805-1869)

flies, and tell how, after a preliminary preparation, their bodies are crushed to powder, and then suddenly add: "And in their ashes live their wonted fires." [1]

Addiction to language of this type gained for him among the students the title of "emphysematous John."

Natural history

The subject of natural history at Glasgow, unlike its position at Edinburgh or Aberdeen, did not form a part of the medical curriculum, and the class was accordingly poorly attended. The professorship was founded by George III. in 1807, and Dr. Lockhart Muirhead was the first professor. It included both zoology and geology, and the successive professors of this subject were William Couper, from 1829; Henry D. Rodgers, from 1857; and John Young, from 1866. A chair of geology was founded in 1903, and the name of the natural history chair was then changed to zoology, on the understanding that its occupant should teach the subjects of zoology and comparative anatomy. J. Graham Kerr was appointed to this chair in 1902.

Although many of the lecturers in the Portland Street School and Anderson's College figured, at a later date, as professors in the medical school of the university, several left Glasgow to attain distinction in other places, and a large number devoted most of their energies to the practice of various specialties in the city.

Thomas Graham

In 1828, Thomas Graham (1805–1869), who had been a pupil of Thomas Thomson, professor of chemistry, and had spent some time in Edinburgh studying under Thomas Charles Hope, began to lecture on chemistry in the Portland Street School. Two years later he transferred to the Andersonian College, and in 1837 he was appointed professor of chemistry in University College, London, a post which he held till 1855, when he became Master of the Mint. He was one of the most distinguished chemists of the 19th century, and to his Glasgow period belongs his elaborate series of experiments upon the diffusion of gases, which he published about 1834. His researches on osmosis and the diffusion of crystalline and colloid substances through membranes also belong to the same time. While professor of chemistry at University College, Graham was the teacher and friend of Joseph Lister, and it was on the recommendation of this teacher, as well as of Professor Sharpey, that Lister decided to go to Scotland in order to study surgery under Syme.

When Thomas Graham left the Andersonian College, he was succeeded by William Gregory, who became professor of chemistry in Edinburgh in 1839, when he in turn was succeeded by Dr. Frederick Penny in Glasgow.

William Mackenzie

William Mackenzie (1791–1868) was in his day perhaps the most distinguished ophthalmic surgeon in the United Kingdom, and attracted patients from all over the world. He studied for a time in London, but, returning to Glasgow, he became professor of surgery and of anatomy at the Andersonian College in 1819. In 1824, he and Dr. Monteath founded the Glasgow Eye Infirmary, the first hospital for this specialty in Scotland. His practical treatise on "Diseases of the

[1] Murray: "Memories of the Old College of Glasgow," p. 237.

Eye" was translated into German, French and Italian, and he made many contributions to the clinical side of ophthalmology, being the first to give a clear and definite clinical picture of glaucoma and of sympathetic ophthalmitis.[1]

Robert Watt

Robert Watt (1774–1819) was the son of a small farmer in Ayrshire, and began life as a ploughman and road-maker. At a later date he joined his brother as a cabinet-maker, and in his spare time studied Latin and Greek, entering Glasgow University in 1793. In 1795–1796, he also attended philosophy classes at Edinburgh and taught in a private school. After a winter's study of anatomy at Edinburgh in 1796, he finished his medical studies at Glasgow in 1799. Obtaining the licence of the Faculty, he began practice in Paisley in the same year. He found time to make numerous contributions to the "London Medical and Physical Journal" from 1800 onwards, especially one giving a description of diabetes. As he had a strong inclination to teaching, he took the M.D. degree of Aberdeen in 1810, and immediately afterwards removed to Glasgow, where he began to lecture on medicine in 1811.

ROBERT WATT (1774-1819)
(Original in the Hall of the Royal Faculty of Physicians and Surgeons, Glasgow)

For the use of his students he formed a medical library, of which, in 1812 he printed a catalogue with subject-index. The utility of this impressed him so

[1] Fergus: "The Origin and Development of the Glasgow School of Medicine," 1911, p. 26.

forcibly that he set about enlarging his catalogue so as to embrace all the medical works published in the United Kingdom, and to these he finally added those on law, divinity and the whole round of science and literature. In this way the "Bibliotheca Britannica" of this talented man evolved.

MOSES STEVEN BUCHANAN (*ca.* 1794-1860)

Moses Steven Buchanan

Moses Steven Buchanan (*ca.* 1794–1860) published a "History of the Glasgow Royal Infirmary" which is a storehouse of information regarding this hospital, and the outbreaks of epidemic disease in the city during the early part of the 19th century. He had graduated M.D. at Edinburgh in 1816, and was a surgeon to the Glasgow Royal Infirmary as well as a lecturer on anatomy, first in the Portland Street medical school, and later in the Andersonian University. He was an early advocate of medical reform in the 'forties.

Robert Perry

Typhoid fever

Robert Perry (1783–1848) was for some years surgeon, and later (1834–1848) physician to the Glasgow Royal Infirmary. He is often stated to have been the person who originally distinguished between typhus and typhoid fever. These two diseases, along with relapsing fever, were hopelessly confused with one another, and, indeed, in the early part of the 19th century, more than one of them probably often affected a patient simultaneously. In January, 1836, Dr. Robert Perry published a paper in which he correctly described many of the distinctions between typhus and enteric fever.[1] The complete separation of these three diseases was a matter of gradual development, and his observations were extended by Dr. A. P. Stewart, of Glasgow, and Dr. Gerhard, of Philadelphia, in the following year. Dr. John Reid, of Edinburgh and St. Andrews, nearly 20 years before had already drawn attention to some of these differences.

ROBERT PERRY (1783-1848)

(Original in the Hall of the Royal Faculty of Physicians and Surgeons, Glasgow)

Early student life at Glasgow

Student life in Glasgow during the period of the old college appears to have had characters of its own somewhat different from the customs in vogue at the other Scottish universities. The grounds of the old college, about 16 acres in extent, were situated on both sides of the Molendinar burn, to which they sloped downwards, and these offered ample scope for purposes of recreation. A visitor, in 1661, notes that the college garden was large and very beautiful, and filled with fruit trees, many of which were rare in this country.[2] At a later date the trees disappeared, and the grounds were laid out in grass. Golf and bowls were played in Glasgow as early as 1595, for in that year the presbytery forbade these games being played on Sunday.[3]

[1] Murchison : "Continued Fevers," 2nd Edition, 1873, p. 430.
[2] Hume Brown : "Early Travellers in Scotland," Edinburgh, 1891, p. 220.
[3] Murray : "Memories of the Old College of Glasgow," Glasgow, 1927, p. 430.

The Commission of the General Assembly which visited Glasgow University in 1642, recommended "that the schollers be exercised in lawful games, such as Gouffe, Archarie and the lyk; and that they absteine from all games that are unlawfull, as Carding, Dicing and such others as are discharged by there lawes."[1] There are many notices of golf being played among students through the 18th century.[2] About the middle of the 19th century football seems to have been a favourite sport, played on the college green.[3]

The system of residence and regenting prevailed at Glasgow in the early days of the university, as it did at Aberdeen. During the 17th century the life was collegiate, and the regents and students lived within the college and had a common table. Part of the students however, lived in the town, and the system of residence in the college gradually died out during the latter part of the 18th century. The High Street was the favourite place of residence.

INTERIOR OF QUADRANGLE, OLD UNIVERSITY GLASGOW
Completed about 1640; demolished after 1870

Prior to the reformation, the gown was the compulsory dress of the student, and the red gown with an ordinary hat or cap was worn from the latter part of the 17th century. The university claimed and exercised in the early days wide powers of jurisdiction over its members. As in Paris, the rector's court even constituted itself a tribunal for trying cases of culpable homicide, the punishments inflicted including expulsion from the university, imprisonment, fines and flogging. Punishment by fine continued until a comparatively recent date, and was inflicted by professors, particularly upon the younger students, for disturbances in the class-room and similar slight breaches of discipline. These

[1] "Munimenta Alme Universitatis Glasguensis," Glasgow, 1854, Vol. II., p. 466.
[2] Murray: "Memories of the Old College of Glasgow," Glasgow, 1927, p. 436.
[3] Murray: Op. cit., p. 443.

judicial powers were a remnant of the old benefit of clergy, by which a cleric could be tried only by the courts of the church.

In 1721, the magistrates having inquired into certain charges against students and sentenced them, a protest was lodged by the university authorities, and two professors were sent to demand the cancelling of the sentence by the baillies. Even after 1870, when the university had removed to Gilmorehill, a policeman having appeared in the college grounds, Professor Weir and Professor Allen Thomson were sent to wait upon the Partick authorities and protest against this infringement of the traditional right of the university, so that the constable was withdrawn.[1]

Most of these regulations affected the medical students but little, seeing that there were few medical students attending classes in the university until the early part of the 19th century. Prior to 1858 the medical students occupied a detached position as regarded the university. Up to the Universities' Act of this year, only those students who matriculated, numbering some 100 or 200 in each session, were incorporated members of the university, the remainder, 1400 or 1500 in number, having their names merely placed upon a register as attending certain classes, and the medical students almost always fell into the latter category.

The somewhat aloof position of the medical students is indicated by their behaviour in the great snowball riot of 1865. A heavy fall of snow took place in February of this year, and snow-balling began between the students and a crowd of outside lads. A large body of police was brought to the spot and forced its way into the college grounds, driving the students into the inner quadrangle. Professor Blackburn having pointed out to the police that they were not entitled to enter the precincts of the college, they withdrew, carrying with them some students whom they had captured. At this stage the noise in the quadrangle attracted the attention of the medical students working in the anatomical department, and catching up bones and " other weapons of offence " they seized two constables who had not been able to escape in time. Depriving these of their helmets and batons and tearing off their coat-tails as prizes of war, they retreated again to the anatomy department, after ejecting the unfortunate constables into the High Street. A prolonged trial subsequently took place, and two of the snowballers were fined £10 or 60 days' imprisonment for being "guilty of very wanton breach of the peace," although the anger of the magistrates was really directed against the medicals, whom it had been impossible either to arrest or to identify.[2]

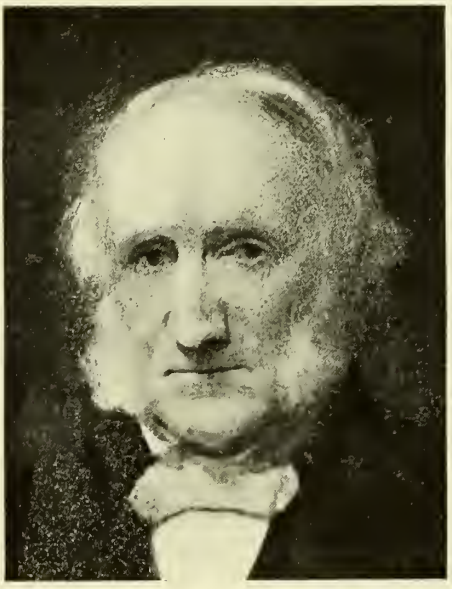
Glasgow Medical Journal

Among the early enterprises of the Glasgow medical school which contributed to its consolidation, one of the most important was the founding and maintenance of the *Glasgow Medical Journal*. The first number of this periodical appeared in February, 1828, under the editorship of Dr. William Mackenzie, who four years previously had been instrumental in founding the Eye Infirmary. The journal appeared with nearly 300 subscribers, but it was apparently a private venture on the part of Dr. Mackenzie. He was succeeded in the editorship

[1] Murray: "Memories of the Old College of Glasgow," Glasgow, 1927, p. 501.
[2] Murray: Op. cit., p. 495.

by Dr. William Weir, who was first surgeon and later physician to the Royal Infirmary, and who had as co-editors first Dr. Andrew Buchanan for one year and, afterwards, Dr. J. A. Lawrie.

The journal ran for six years, but in October, 1833, it lapsed for some 20 years, to be resuscitated in 1853, largely by the efforts of the Medico-Chirurgical Society. The revived journal appeared as a quarterly until 1866, when, for two years, it was again published monthly. Dr. Andrew Buchanan was a vigorous but not too discreet editor, and his publication of leading articles containing passages like the following, although intended to set forth the value of the journal, probably led to his retirement from the editorial chair. Speaking of practitioners of the day, he said "The time not occupied in the active discharge of professional duties is too often wasted in idleness and dissipation. Now we have supplied the inducement which was awanting. We have held out to the practitioners in this city and around it, an object of honourable ambition in the cultivation of medicine and the kindred sciences ; and we have furnished the public with a more certain standard by which to estimate the qualifications of medical men than the solemnity of their aspect, the gravity of their demeanour, their insinuating address, or their convivial endowments."



WILLIAM WEIR (1794–1876)

In 1831 appeared a rival medical journal, the *Glasgow Medical Examiner*, under the editorship of Dr. J. P. Glen. As an indication of the vigour with which medical journalism of the time was carried on, we may quote a comment upon a paper which had appeared in the *Glasgow Medical Journal* by Dr. Moses S. Buchanan (who wrote a history of the Royal Infirmary). The editor of the *Medical Examiner* says: "We have risen from the perusal of this paper with feelings of shame and disgust not unmingled with surprise that our very respectable contemporary—a quarterly journal and the representative of medical science in the West of Scotland—should be under the necessity of transferring to its pages such a vast quantity of purely elementary matter, crude pabulum of the students attending the Glasgow Royal Infirmary." The *Medical Examiner* came to an end after eleven numbers had appeared, but after a long interval, in 1869 it was revived, and its special feature appears to have been leading articles on controversial subjects of the time. It criticised without mercy the actions and theories of leading Glasgow doctors and surgeons, and came to be nicknamed popularly "the mustard plaster." Again, however, its life was a short one.

When the *Glasgow Medical Journal* was re-published in 1853, Dr. William Weir was assisted in the editorship by Drs. James Steven, J. B. Cowan and George Buchanan. Afterwards, from 1856 to 1861, it was under the joint editorship of Drs. Buchanan and Cowan with Dr. James McGhie, who was superintendent of the Royal Infirmary during the erection of the new hospital. In 1861, the editorship passed into the hands of Dr. William Leishman and Dr. Joseph Bell, a physician to the Royal Infirmary, and professor of botany in Anderson's College, who was succeeded by Dr. P. A. Simpson, professor of medical jurisprudence in the university.

In 1868, the journal was again in difficulties, and at a meeting of the medical profession of Glasgow and its neighbourhood, a decision was reached to form an association called "The Glasgow and West of Scotland Medical Association," which should take over the publication of the journal. This proposal was carried into effect and the association has acted successfully as proprietor of the journal ever since.[1] The editorship under the new régime was discharged for some six years by Dr. J. B. Russell who, in 1875, was succeeded by Dr. H. E. Clark, and in 1878, for 20 years, by Dr. Joseph Coats. Later editors were Drs. Lindsay Steven, T. K. Monro, G. H. Edington, W. R. Jack, John Patrick and J. N. Cruickshank.

TABLE *showing the Teachers in the Medical Schools of Glasgow to the passing of the Medical Act, 1858* (From Duncan: "Memorials of the Faculty of Physicians and Surgeons of Glasgow")

SUBJECT	UNIVERSITY		ANDERSONIAN		PORTLAND STREET SCHOOL	
Medicine	1637–46	Robert Maine				
	1714	John Johnstoun				
	1751	William Cullen				
	1756	Robert Hamilton				
	1757	Joseph Black				
	1766	Alex. Stevenson				
	1789	Thos. Chas. Hope				
	1796	Robert Freer				
					1826	Alex. Hannay
	1827	Charles Badham	1828	Alex. Hannay ...	1830–42	William Weir
	1841	William Thomson	1846–63	Andrew Anderson		
	1852–62	John Macfarlane				

[1] *Glasgow Medical Journal*, February, 1928, p. 73.

SUBJECT	UNIVERSITY		ANDERSONIAN		PORTLAND STREET SCHOOL	
Anatomy	1720	Thomas Brisbane				
	1742	Robert Hamilton				
	1756	Joseph Black				
	1757	Thomas Hamilton				
	1781	William Hamilton				
	1790	James Jeffray ...	1799	John Burns		
			1818	G. S. Pattison		
			1819	Wm. Mackenzie...	1826	Robert Hunter
			1828	Robert Hunter ...	1830	John Stirling
					1836	M. S. Buchanan
			1841–60	M. S. Buchanan...	1841	James Douglas
	1848–77	Allen Thomson			1844	Robert Knox
Surgery			1799	John Burns ...	1826	Robert Hunter
	1815	John Burns ...	1818	G. S. Pattison ...	1830	Wm. Auchencloss
			1819	Wm. Mackenzie		
	1850	James A. Lawrie	1829	James A. Lawrie		
	1860–69	Joseph Lister ...	1850–60	Robert Hunter ...	1840–44	William Lyon
Midwifery	1815	James Towers				
	1820	John Towers			1826	James Armour
	1833	(Robert Lee) ...	1828	James Armour ...	1830	James Wilson
	1834	William Cummin	1831	James Brown ...	1838	Charles Ritchie
	1840–68	John M. Pagan ...	1841–63	James Paterson	1840	Maxwell Adams
Chemistry		*Lecturers :*				
	1747	William Cullen				
	1756	Joseph Black				
	1766	John Robison				
	1769	William Irvine				
	1787	Thos. Chas. Hope				
	1791	Robert Cleghorn				
		Professors :				
	1818	Thomas Thomson			1828	Thomas Graham
			1830	Thomas Graham	1833	James M'Conechy
			1837	Wm. Gregory	1836–44	Rob. McGregor
	1852–74	Thomas Anderson	1839–70	Frederick Penny		
Botany	1818	Robert Graham	1819	William Cummin		
	1821	W. J. Hooker			1840–42	David Gibson
	1841	John H. Balfour				
	1845–68	G. Walker-Arnott	1847–63	Joseph Bell		

SUBJECT	UNIVERSITY	ANDERSONIAN	PORTLAND STREET SCHOOL
	Lecturers :		
Materia Medica	1766 William Irvine		
	1787 Thos. Chas. Hope		
	1788 Robert Cleghorn		
	1791 Richard Millar		1827 Wm. Mackenzie
		1828 Andrew Buchanan	1830 Wm. Davidson
	Professors :		
	1831 Richard Millar		
	1833 John Couper ...	1838 William Hooker...	1841–42 J. D. Muter
		1840 John A. Easton	
	1855–65 John A. Easton...	1855–88 James Morton	
Physiology			1830 William Weir
			1833 William Craig
			1836 William Weir
	1839–76 Andrew Buchanan	1840 Andrew Anderson	1839–42 Wm. Macdonald
		1846 Maxwell Adams	
		1850–76 Eben. Watson	
Medical Juris-prudence			1826 James Armour
	1839 Robert Cowan ...	1831 George Watt ...	1830 J. M. Pagan
	1841–72 Harry Rainy ...	1842 John Crawford ...	1841–42 H. Cleland
		1856–63 J. B. Cowan ...	1842–43 John Jackson
Natural History	1807 Lockhart Muirhead		
	1829 William Couper		
	1857–66 Henry D. Rogers		

Chapter XXI

The Medical School of Marischal College and of the University of Aberdeen

Marischal College or University

Marischal College and University was founded on the site of the Greyfriars Monastery by George Keith, 5th Earl Marischal of Scotland, in 1593, after the Reformation, out of the former possessions of the Grey Friars, Black Friars and White Friars of Aberdeen, because of his knowledge of the lack of means in the north of Scotland for obtaining a liberal and Christian education. The Earls Marischal continued as hereditary Chancellors of this College until their forfeiture following the Rebellion of 1715. William, 9th Earl Marischal, erected a professorship of medicine in Marischal College on 8th August, 1700, and nominated for the post Mr. Patrick Chalmers of Fedrett, M.D., "to be Professor of Medicine in our Colledge and University."[1] No remuneration apparently was attached to the post, but on 31st May, 1712, Queen Anne granted £210 from the Civil List to the principal and professors of Marischal and King's Colleges for the augmentation of their salaries. The share of the professor of medicine at Marischal College appears to have been £10 10s. yearly.[2]

Seal of Marischal College Aberdeen

The present-day buildings of Marischal College have been erected upon a site originally occupied by the conventual buildings of the Grey Friars or Franciscans, and the chapel of this monastery survived as the old Greyfriars Church until the year 1903, when it was removed to make way for the south-west corner of the present buildings. The original Marischal College was a tall, gaunt building which was pulled down in 1840, leaving only the central gate, which persisted for many years in the middle of a row of houses. The latter disappeared about 1895, when the new buildings were opened up to Broad Street, and the medical departments in the north wing of the college taken into use. The west front containing other medical departments, was finished in 1906.

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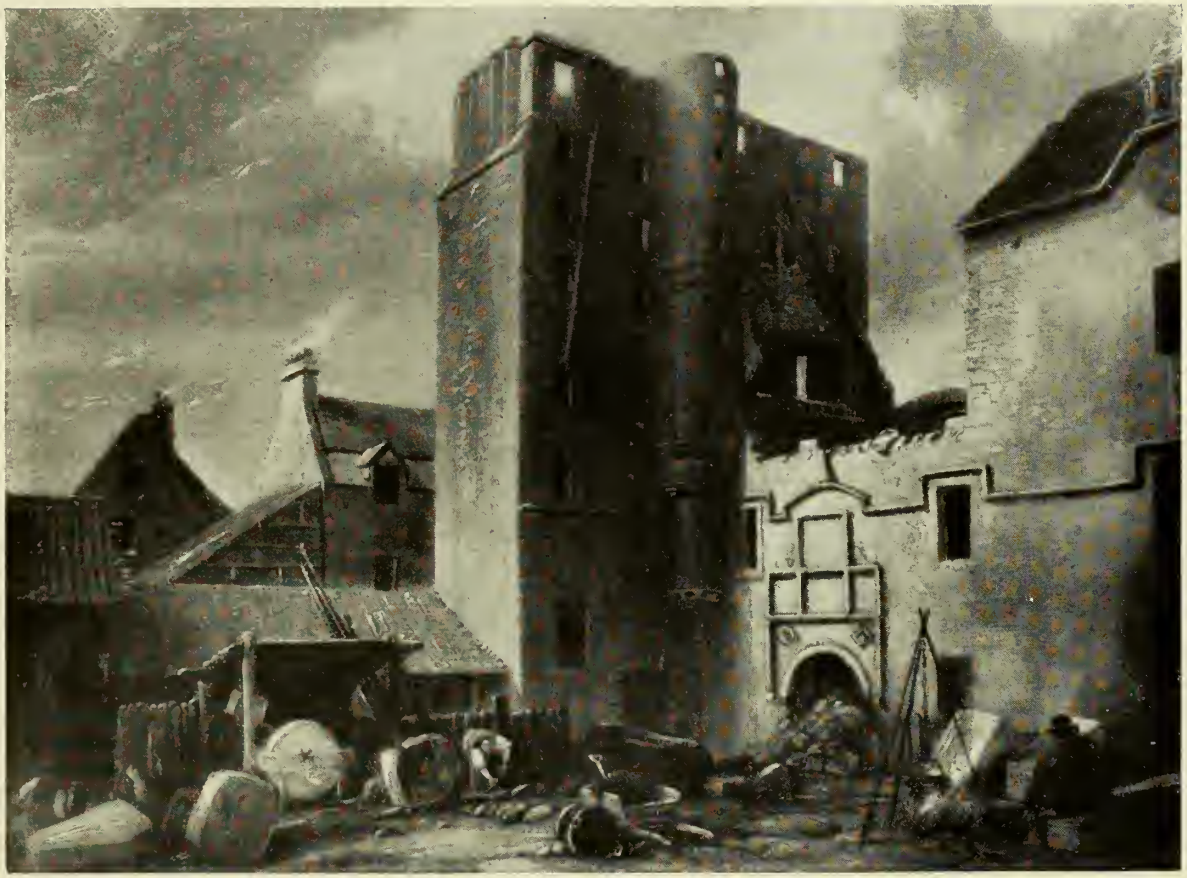
[1] "Fasti Academiæ Mariscallanæ Aberdonensis," New Spalding Club, Aberdeen, 1889. Edited by P. J. Anderson, Vol. I., p. 381.

[2] Op. cit., p. 395.



OLD MARISCHAL COLLEGE

In process of demolition in 1840

(Original painting by Auld, in the University of Aberdeen)

The following is a list of the professors of medicine in Marischal College, with their dates of appointment :— Professors of medicine

1700 Patrick Chalmers
1717 Matthew Mackaile
1734 James Gordon
1755 Alexander Donaldson
1793 William Livingston
1823 Charles Skene
1839 John Macrobin

Their duties were very similar to those of the mediciners in the neighbouring King's College, although they appear to have carried these out with greater energy.

The ledger of Patrick Chalmers has been preserved, and some of its details afford an interesting picture of the work and especially of the remuneration of a physician in Aberdeen at the close of the 17th and beginning of the 18th centuries. Chalmers settled in Aberdeen in medical practice in the year 1682, having already studied medicine according to the practice of the time at the universities of Leyden, Paris and Padua, in each of which universities he took the M.D. degree. His professional income appears to have increased from £384 16*s.* Scots in 1684, to £1084 2*s.* 2*d.* in 1694. This was, however, a particularly good year, and his average income seems to have been about £600 Scots. His patients included many of the county families of Aberdeenshire. Among the diseases most frequently mentioned in the ledger are fever and ague, rheumatism, scrofula, pleurisy, cholera, flux, smallpox and hydropsie. Patrick Chalmers

There are frequent entries of payments by the Earle of Aberdeine, including one of £67 in 1686, and the fees vary from sums of about this amount to £8 for delivery and medical attendance on a baillie's wife, and £6 paid by Captain David Garioch for "drunkenness." There are frequent entries of accounts to ladies for cure of "the vapours," and ague seems to have been a very common complaint. The Sheriff of Murray paid £6 9*s.* for treatment of the itch, and Mrs. Helen Leslie for vapours and itch, £6 6*s.*; while Mrs. Duncan "in gratitude for her salvation" paid £12 18*s.* Presents in kind seem often to have been tendered by way of payment, from meal and malt down to a hat in 1692. These presents are duly valued and entered, and their amount varied from £40 down to £9 in the year.[1]

Matthew Mackaile, who died in 1734, had studied medicine at Leyden in 1712, under the celebrated Boerhaave.[2] In October, 1717, he was appointed professor of medicine at Marischal College in room of Patrick Chalmers, who had been expelled by the Commission of Visitation for participation in the Jacobite rebellion of 1715, and in November, 1729, Mackaile also became regent in philosophy. Matthew Mackaile

[1] Chalmers: *Proceedings of the Society of Antiquaries of Scotland*, Vol. IV., pp. 181–185.
[2] Peacock: "Leyden Students' Index," London, 1883, p. 63.

He was the son of the better-known Matthew Mackaile *(senior)*, an apothecary and burgess of Edinburgh, who went to London for a short time and later practised in Aberdeen. Matthew Mackaile *(senior)* became an M.D. of King's College in 1696, and was the author of several books. Some of these were tracts of a religious

MATTHEW MACKAILE *(senior) (floruit ca.* 1670)
(Original in Marischal College, Aberdeen)

nature which he had been commissioned to write by Archbishop Sharp. Most of them were medical works with a tendency towards chemistry, including one on the "Diversite of Salts and Spirits" (1683), and another dealing with the waters of Moffat and of St. Catherine's Well near Liberton (1664),[1] in which he mentions the virtues of several other wells in Scotland. The father's portrait hangs in the Great Hall at Marischal College.

[1] "Aberdeen Public Library Catalogue of Local Collection," p. 226.

James Gordon, appointed professor of medicine at Marischal College in 1734, was the son of Dr. John Gordon, a physician of Aberdeen.[1] He was also the first physician to the newly-built Infirmary of Aberdeen in 1741, with a salary of ten guineas, which he generously returned for the good of the house. He went round the hospital at one o'clock daily with the students. James Gordon

Alexander Donaldson succeeded Gordon as professor of medicine on the latter's death in 1755. He was the son of Dr. James Donaldson, and both of them combined, in what now seems a somewhat incongruous manner, the tenure of the professorship of oriental languages in Marischal College with the possession of a drug shop and house in the Gallowgate of Aberdeen.[2] Alexander Donaldson succeeded his father as professor of oriental languages in 1754, and continued this post along with that of professor of medicine till his death in 1793.[3] Both the Donaldsons were intimately connected with the infirmary, Dr. Alexander Donaldson being one of the early physicians. Alexander Donaldson

William Livingston (1760–1822), was appointed professor of medicine in 1793. He was the son of Dr. Thomas Livingston, a physician of Aberdeen, and graduated M.D. at this university. For some years prior to his appointment, he had been settled in practice in a house in the Upper Kirkgate, and he was in affluent circumstances. He is best known as having been an early patron of the Medical Society. This society, founded by McGrigor, Robertson and their associates in 1789, met at first in the lodgings of the members and later in the Greek class-room, but soon commenced to seek for a patron, whom they found in Dr. Livingston, a popular practitioner and a person of influence among his fellow townsmen. Dr. Livingston was appointed, on 15th February, 1791, honorary president of the society, and he immediately showed his interest by allowing the students to use a house which belonged to him and which contained a hall suitable for their meetings. William Livingston

For 15 years the society's business was conducted and its library and museum were housed in these premises. Dr. Livingston and Dr. French, who had been appointed professor of chemistry in 1793, were joint physicians at the infirmary, but Dr. Livingston appears to have done most of the work, and here also he did much to encourage the students of the Medical Society. He died in 1822, two years before the Medical Society adjourned to its new hall.[4] Aberdeen Medical Society

The foundation of the Aberdeen Medical Society was an important event in the Aberdeen Medical School towards the end of the 18th century. The prime mover in this was James (later Sir James) McGrigor (1771–1858), who, with his companion, James Robertson, after completing his studies at Marischal College, had travelled to Edinburgh and spent a year at this university. After taking an arts course at Marischal College, McGrigor decided to follow the profession James McGrigor

[1] "Records of Marischal College," New Spalding Club, Aberdeen, 1898, Vol. II., pp. 55 and 56.
[2] Rodger: "Aberdeen Doctors," Edinburgh, 1893, p. 41.
[3] "Records of Marischal College," Vol. II., pp. 55 and 56.
[4] Rodger: "Aberdeen Doctors," Edinburgh, 1893, p. 191.

WILLIAM LIVINGSTON (1760–1822)

GEORGE FRENCH (1765–1833)

(Painted by John Moir in Hall of the Aberdeen Medico-Chirurgical Society)

of medicine, and commenced the study of it under Dr. French, physician to the infirmary, attending the few lectures then in existence in Aberdeen on the different branches.

After three years' attendance at the infirmary and the dispensary, McGrigor finished his medical studies at Edinburgh by attendance on Monro's class of anatomy, Fyfe's demonstrations on the same subject, and Gregory's practice of physic. In Edinburgh the Royal Medical Society, managed by students, had enjoyed over 50 years of flourishing existence, and McGrigor and Robertson joined another students' society, the Medical and Chirurgical.[1]

On their return to Aberdeen, McGrigor and Robertson, together with ten other medical students from Marischal College, determined, in 1789, to found a debating society for mutual benefit, under the name of the Aberdeen Medical Society. The Society met once a week in the Greek class-room, for papers, criticism and discussions on the lines of the Edinburgh students' society. In 1790, twelve more names were added, and, in 1791, several more joined. James McGrigor was first secretary of the society till 1790, and was evidently its moving spirit.

Among the first honorary members of the society was Mr. Wynne, private chaplain to the Prince of Wales, afterwards George IV. His support was secured in a somewhat amusing manner. A dispute arose as to how the letter offering him honorary membership should be worded. It was thought improper that it should be too curt, and to terminate by wishing him the compliments of the season appeared to some members impertinent, so that these difficulties were finally overcome by the appointment of a committee to write the letter in Latin. James McGrigor, who happened to be leaving for London to try his fortunes, agreed to deliver the letter in person in order to save the postage. McGrigor's early energy was continued in later life, so that he became Director-General of the Army Medical Service in the Peninsula, and, as Sir James McGrigor, was one of Wellington's most trusted advisers.

Sir James McGrigor continued to take a close and practical interest in the affairs of the society, and later, when, in 1820, the society built a hall, he was largely instrumental in the successful issue of the project. This building, situated in King Street, and still the home of the society, was the first work in beautifully-dressed white granite of Archibald Simpson (1790–1847), Aberdeen's most notable resident architect, who erected the Royal Infirmary and other principal buildings in the first half of last century, and gave a new character to Aberdeen as the "Granite City."

As the student members of the society graduated, those who lived in Aberdeen or its neighbourhood continued to attend its meetings, and the society, before 1820, was divided into two classes—a senior class, consisting of medical practitioners, who met in the hall, and a second or junior class consisting of medical students or apprentices, who had their own president and secretary, and met in the library.

[1] McGrigor: "Autobiography and Services," London, 1861, p. 5.

Charles Sykes (1777–1844)

Sir James McGrigor (1771–1858)

The junior class gradually languished, and eventually came to an end, but the senior class, under the title of the Aberdeen Medico-Chirurgical Society, a name adopted about 1812, continued to flourish, and made itself one of the most important influences in the developing medical school of Aberdeen.[1]

Charles Skene

Dr. Charles Skene (1777–1844), held the professorship of medicine in Marischal College from 1823 to 1839. He was the son of Dr. George Skene, who had been professor of natural philosophy and later of civil and natural history in Marischal College. He graduated M.A. in 1795, and M.D. at Edinburgh in 1799. He appears to have been a person of great dignity, with an aristocratic county practice, and of a type different from most of his plain blunt contemporaries, who lived above their drug shops, although they were not necessarily less skilful in the practice of their profession.[2] Skene resigned the chair in 1839 and died in 1844.

John Macrobin

John Macrobin (1804–1879), who succeeded Skene in 1839, was an M.D. of Edinburgh. When the two colleges were united in 1860, Macrobin became professor of practice of medicine in the University of Aberdeen (*see page* 552).

Early teaching in the two colleges

The state of affairs between King's and Marischal Colleges as regarded the teaching of medicine has been already mentioned in Chapter XVI., but may be summarised here. King's and Marischal Colleges co-existed for a long period as independent and rival institutions, but an attempt was made during the reign of Charles I., in 1641, to combine them into one academic body. This attempt, however, appears to have been abortive, and they again fell apart. Various attempts at *rapprochement* were made from time to time. Thus, in a scheme of union in 1770, a joint school of medicine was a prominent feature. Once more a complete plan of union was advocated in 1786. Again, in 1818, an attempt which lasted for some 21 years was made to combine the two medical schools.

In 1826, a Commission was appointed by Sir Robert Peel to investigate the state of affairs in the Scottish universities, and their report, in 1830, suggested that in Aberdeen the fusion of the two colleges would create an efficient medical school. A Bill was proposed in 1836, under the title "The United University of Aberdeen," but, owing to opposition, was withdrawn, and local jealousies kept the two schools apart until their final fusion in 1860.[3]

At Marischal College, professors of chemistry had existed in the persons of George French (1765–1833), appointed in 1793, and Thomas Clark, appointed in 1833. Dr. George French, the son of an Aberdeen advocate, was one of the surgeons to the infirmary and a physician in Aberdeen. Prior to being made professor of chemistry, he and Dr. Livingston, afterwards professor of medicine, had proposed, in 1786, to give a six months' course of clinical lectures at the infirmary.[4] He was succeeded in 1833 in the chair of chemistry by Thomas Clark (1801–1867), an M.D. of Glasgow, who introduced the well-known soap test for hardness in water and the method of softening hard water.

[1] Scott Riddell: "Records of the Aberdeen Medico-Chirurgical Society," Aberdeen, 1922, pp. 23–28.
[2] Rodger: "Aberdeen Doctors," Edinburgh, 1893, p. 207.
[3] Scott Riddell: "Records of the Aberdeen Medico-Chirurgical Society," Aberdeen, 1922, p. 46, *et seq.*
[4] *Aberdeen Journal*, 23rd October, 1786.

Dr. Macrobin, as professor of medicine, and Dr. Thomas Clark, as professor of chemistry, appear to have been active teachers, and in the year 1839, two new chairs were founded by Queen Victoria, that of anatomy, to which Dr. Allen Thomson was appointed, and that of surgery, of which Dr. Pirrie was made professor.

In 1857, a chair of medical logic and medical jurisprudence was founded, to which Francis Ogston, who had been lecturing on medical jurisprudence since 1839, was appointed.

Early lecturers of Marischal College

The following is a list, so far as known, of lecturers in connection with the medical school of Marischal College up to the year 1860. Others, appointed by the Joint School (1818 to 1839) and by King's College, are mentioned in Chapter XVI.

1758	Dr. David Skene	Midwifery
	(In 1759, the Kirk Session of Old Machar published a recommendation of Dr. Skene's midwifery class, animadverting upon the ignorance of midwives)[1]	
1786	Dr. French and Dr. Livingston	Clinical Lectures at the Infirmary
1790	Mr. James Russel	Clinical Surgery at the Infirmary
1802	Dr. Charles Skene	Anatomy
1811	Dr. William Dyce	Midwifery
1818	George Barclay	Surgery
	William Henderson	Materia Medica
	(The proprietor of Caskieben, near Aberdeen)	
	Alexander Ewing	Physiology
	(This was the first year of the joint school)	
1819	Robert White	Institutes of Medicine
1820	Patrick Blaikie	Surgery
1823	Alexander Ewing	Anatomy
1826	Alexander Fraser	Midwifery
1827	William Knight	Botany
	(Dr. Knight had conducted a botany class at intervals for several years before this time. In 1780, Rev. Robert Memis had been granted £6 per annum by the Town Council towards the formation of a Botanic Garden, and, in 1787, had taught a class in botany. From 1792 to 1799, Rev. Alexander Smith had conducted a class, and, from 1801 to 1810, Professor James Beattie had conducted a class of 10 to 20 students)	
1828	James Torrie	Institutes of Medicine

[1] *Aberdeen Journal*, 9th January, 1759.

1830	Alexander Ewing	Surgery
	William Pirrie	Anatomy and Physiology
	William Laing	Clinical Medicine
1831	John Geddes	Institutes of Medicine
1834	William Laing	Surgery
1837	Alexander Murray	Clinical Medicine
	William Laing	Clinical Surgery
1839	William Henderson	Materia Medica
	Francis Ogston	Medical Jurisprudence
	Alexander Harvey	Institutes of Medicine
	William McKinnon	Comparative Anatomy
	James Jamieson	Midwifery
1840	John Shier...	Botany
1841	Robert Dyce	Midwifery
1845	Robert Jamieson	Mental Diseases
1849	George Ogilvie	Institutes of Medicine
	John Forbes Ogilvie	Insanity
1853	Wyville Thomson	Botany
1854	William Rhind	Botany
1855	Robert Beveridge	Botany[1]

The formation of the Joint School of Medicine (1818–1839) with its lecturers, has been described in Chapter XVI (*page* 391). After its dissolution, instruction in various branches of medicine was given for the next score of years at King's College by the mediciner, as well as by a group of lecturers in other subjects.

University of Aberdeen

The Commissioners, appointed by the Act of 1858 to improve and regulate the course of studies in the universities of Scotland, united in 1860 the two foundations of King's College and Marischal College, as the University of Aberdeen. Henceforth, the faculty of medicine in this university was lodged in Marischal College, which was more favourably placed than King's College for a medical school. For one thing, it was situated in the new town of Aberdeen, and was nearer to the infirmary, which had been opened in 1742, and in which clinical teaching had gradually been established. In King's College there was only one professor, the mediciner, other subjects being represented by lecturers. The re-organisation of the medical school approximated closely with the passing of the Medical Act of 1858. Regius chairs in physiology, materia medica and midwifery were founded at the same time, while a chair in pathology was added in 1882, and other chairs and lectureships have gradually followed, as at other universities. The more detailed development of this medical school which, since its beginning in 1860, has attained world-wide fame, is as follows :—

In 1826, the University of Edinburgh, resenting the interference of the Town Council in its affairs, petitioned the Crown to institute an inquiry, with the result that a Royal Commission was appointed to inquire into the condition of all the Scottish universities. The Commissioners sat intermittently for four years and

[1] " Records of Marischal College," Vol. II., p. 65, *et seq.*

drew up a valuable report, but Parliament was much occupied with the agitation regarding the Reform Bill, so that the recommendation of the Commissioners for the union of the two universities at Aberdeen did not at the time receive attention. The main benefit which the Commissioners expected from the union of the two colleges at Aberdeen was the creation of a medical school.

Changes in 1839

Although Parliament did nothing meantime in this matter, both the university authorities and private persons were greatly stimulated in developing the facilities for medical study. This development occurred about the year 1839. In this year the joint medical school collapsed, owing largely to the jealous attitude of King's College, but as the school had not been a success, this formed no disadvantage.

King's College now appointed several lecturers of its own, including one in practice of medicine (Dr. Alexander Kilgour), and others in physiology, botany, surgery, midwifery and medical jurisprudence. (*See* Chapter XVI, *page* 393.) The most important of these lectureships was that of anatomy, to which Andrew Moir, a skilled anatomist, was appointed. The fate that overtook his private dissecting-room in St. Andrews Street has been mentioned. In February, 1839, William Gregory was appointed mediciner at King's College. He was a skilled chemist, and was appointed on the understanding that he would teach this subject, which he did for five years before being appointed to the chair of chemistry at Edinburgh.

In October, 1839, six months after the joint school had been dissolved, an important step was taken by the Crown in the creation of chairs of anatomy and surgery at Marischal College.

Chemistry

The chair of chemistry at the same time was improved. In 1793, the widow of Principal Thomas Blackwell had provided £40 a year to found a chair of chemistry at Marischal College, and Dr. George French had been appointed to the post, but had so organised his lectures that the subject in his hands had nothing to do with medicine.[1] He had been succeeded, in 1833, by Dr. Thomas Clark, whose lectures dealt with chemistry as it concerned medicine; and now, in 1839, the chair was put on a better financial basis by having the salary raised to £250.

Medicine

John Macrobin

Another change of 1839 was that in this year John Macrobin (1804–1879) succeeded Charles Skene, to whom he had already been assistant, as professor of medicine at Marischal College. He was born at Edinburgh and studied medicine at this university, where he was a pupil of Alison, and graduated M.D. of Edinburgh in 1827, with a thesis entitled "De Peripneumonia." Professor Alison was at the time making a special study upon the influence produced by poverty in the production of disease, which formed, to a large extent, the basis for the legislation of 1845. This was not without influence upon the development of his pupil Macrobin. In 1830, Macrobin became resident physician at the Royal Lunatic Asylum in Aberdeen, and later settled in practice in this city, retaining his connection with the Asylum as visiting physician. It was unfortunate for the developing school of medicine that he never became connected

[1] Bulloch: "History of the University of Aberdeen," London, 1895, p. 168.

with the Royal Infirmary, and, therefore, was debarred from the instruction of his students in clinical medicine.

He acted as dean of the medical faculty of the University of Aberdeen from its institution in 1860 to his retiral in 1875, and in this administrative capacity he was brought into intimate contact with the students, who entertained for him a great affection. He also represented the university on the General Medical Council, but his time being largely occupied by administrative work, his only publication of importance was "An Introduction to the Study of Practical Medicine" (1835). This work, though intended for his students, did not pass beyond a consideration of the nature of disease, a defect for which the absence of a clinical appointment was also largely responsible.

Surgery

William Pirrie

A more vigorous personality than the professor of medicine was William Pirrie (1807–1883), appointed in the same year (1839) to the newly-founded chair of surgery.[1] Dr. Pirrie had been born at Huntly, educated at Marischal College, and afterwards at the University of Edinburgh, where he took the degree of M.D. in 1829, with a thesis entitled "De Vitiis Tali." He spent some time in Paris studying surgery under Baron Dupuytren, and, partly because of his fondness for relating anecdotes regarding his Parisian experiences, and partly because of his portly figure, he enjoyed among his students the sobriquet of "The Baron." He had already, in 1830, been appointed a lecturer in anatomy and physiology under the unsuccessful joint school of King's and Marischal Colleges.

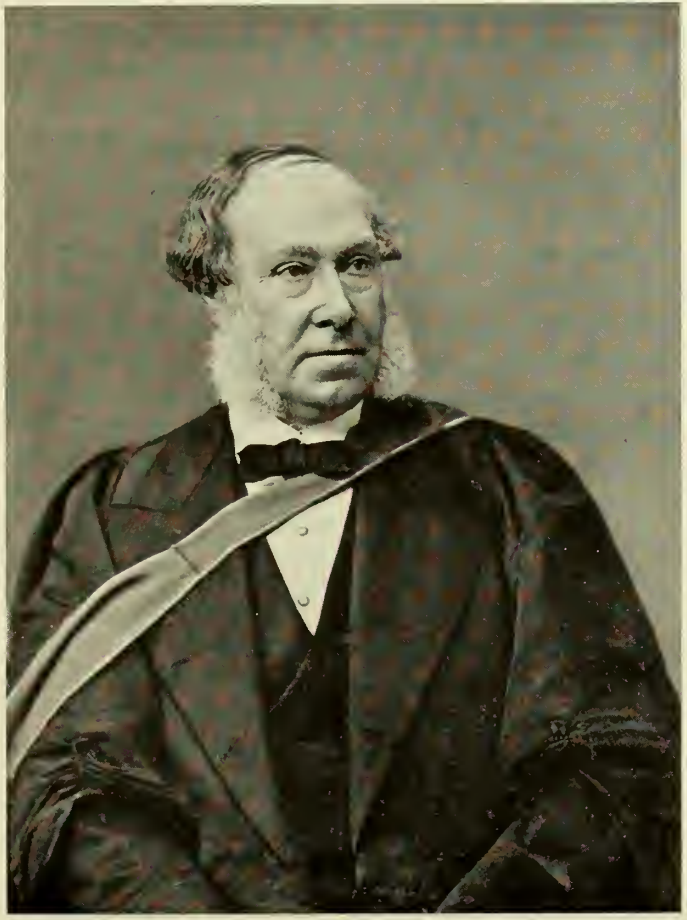
He was a popular lecturer and successful operator, becoming the foremost surgeon in the north of Scotland during the second half of his career. In pre-Listerian days he was noted for the cleanness of his operations, and was a devotee of the method of arresting hæmorrhage by acupressure. He published, in 1852, a text-book on the "Principles and Practice of Surgery," which passed through several editions.

An old pupil says that the great characteristic possessed by Pirrie was enthusiasm. "It was not his brilliancy as a surgeon but his zeal as a teacher that held the students spellbound. The intense desire to 'put things nicely' and 'to have his ideas all arrang't' was at once his *forte* and his foible."

A reverence for the great surgeons of the past was a distinguishing trait which he constantly impressed upon his pupils. Another pupil with a talent for touching off, in verse, characteristics of his teachers, said of him :—

"There came the Baron Larrey
Wi' preparation on a stan',
Put up by Astley Cooper's han',
He looked as learned, as fine, as gran'
As once did Ambrose Paré.
Oh! the Baron Dupuytren,
Dupuytren, Dupuytren,
Oh! the Baron Dupuytren,
The user of the needle."

[1] "Records of Marischal College," Vol. II., p. 61.



WILLIAM PIRRIE (1807–1883)

JOHN MACROBIN (1804–1879)
(Original in Marischal College, Aberdeen)

"Without these quips and foibles Pirrie would have been remembered merely as an excellent surgeon and a good teacher. But these qualities are common to many illustrious men, and Pirrie's name, with such epithets merely, would have been gathered, like theirs, into Time's waste basket and forgotten . . . with them he became a personality in the eyes of his students."[1]

Another old pupil who graduated in 1864, says :—

Clinical teaching in 1860

"Clinical instruction in the Infirmary was carried on in a haphazard fashion : we followed the physicians in the wards, notably a wise one—Alexander Kilgour—observed the operations of Pirrie and Keith, and picked up what we could. There was none of the systematic drill now so essential in clinical work. Still we learned something, more especially so far as I was concerned, in surgery, and I owed not a little in after years to the kindly, though fussy teaching of William Pirrie, who was an enthusiastic professor, strangely weak to the wiles of flattery, a peculiarity that was fully taken advantage of by the students."[2]

An important service rendered by him to the medical school consisted in the foundation, through his influence, by his old fellow-student and friend, Sir Erasmus Wilson, of a chair of pathology in 1882. In this year Pirrie resigned the chair of surgery, and was succeeded by Alexander Ogston.

Alexander Ogston

Alexander (later Sir Alexander) Ogston (1844–1929)[3] was the eldest son of Francis Ogston, professor of medical jurisprudence. After graduating M.B. at Aberdeen in 1865, he acted for a time as assistant to his father, but speedily took to surgery, and on the retirement of Professor Pirrie, succeeded him in 1882. His early days in surgery coincided with the time when Lister in Glasgow was making researches upon the subject of antiseptics, and Ogston is generally credited with the discovery and description of the *Staphylococcus pyogenes aureus* as a common cause of acute suppuration. As a surgeon he took part in the Egyptian war of 1884, and the South African war of 1899, and had much to do with the re-organisation of the Army Medical Corps after the latter campaign. Even at the age of 70, he took part in the European war as operating surgeon in military hospitals, first in Serbia and afterwards in Italy. His war experiences were given in his book "Reminiscences of Three Campaigns," published in 1919.

Many contributions were made by him to British and continental medical journals between the years 1868 and 1902. Subjects which he helped especially to develop were the operative treatment of genu valgum, the treatment of club-foot, and an extension of his early work on the micro-organisms responsible for surgical diseases. He retired from the chair of surgery in 1909, and was succeeded by Sir John Marnoch.

Anatomy

The chair of anatomy was created at Marischal College in 1839, in place of the various lectureships which had previously existed in this subject. Allen Thomson, who had been a lecturer on physiology in the extra-mural school

[1] Cantlie : "Aurora Borealis Academica," Aberdeen, 1899, p. 261.
[2] McKendrick : "The Story of My Life," Aberdeen, 1919, p. 51.
[3] *British Medical Journal*, 16th February, 1929, p. 325.

Sir John Struthers (1823-1899)

Sir Alexander Ogston (1844-1929)

at Edinburgh, was the first professor of anatomy, but resigned, in 1841, to take up the professorship of physiology at Edinburgh, when he was succeeded by Alexander Jardine Lizars at Aberdeen.[1] Lizars had previously been a lecturer upon anatomy in the extra-mural school at Edinburgh, in association with his better known brother, John Lizars. In 1844, he published a text-book, the "Elements of Anatomy," but the incentive to research at that time in Aberdeen was not great, and he did little beyond teaching the small number of students who then attended the class. He was appointed professor of anatomy in the University of Aberdeen in 1860, but resigned the chair three years later, when he was succeeded by John (later Sir John) Struthers (1823–1899).

John Struthers

For a score of years Struthers and Pirrie formed the two most vigorous personalities in the development of the Aberdeen medical school. Struthers had studied medicine at Edinburgh and graduated M.D. in 1845 with a thesis on "The Anatomy of the Muscles and Nerves of the Eyeballs and their Derangement in Strabismus." In 1847, he began to teach anatomy in the extra-mural school at Edinburgh, and was, in 1854, appointed assistant surgeon to the Royal Infirmary of Edinburgh, becoming later a full surgeon.

Struthers abandoned surgery and reverted to anatomy on his appointment, in 1863, as professor of this subject at Aberdeen. He found the class of anatomy a small one, but the advancement of the medical school is indicated by the fact that his class had more than doubled in numbers when he retired in 1889. While serving as a member of the General Medical Council, he acted as chairman of the Education Committee of this body, and drew up a report upon medical study and teaching which led to the important changes in the medical curriculum that took place after 1889.

Precise observation was one of the matters which he chiefly inculcated to his students. An old pupil says :—

His teaching

> "The best of his discipline was at the morning orals. 'Come away, sir, come away down,' and the beginner went down into the arena, there to be pumped of what he had stored from dissecting-rooms, museum and book. 'The length?' queried the professor. 'Half-an-inch, sir,' replied the beginner. 'Have you measured it?' 'No, sir.' 'Let us measure it—yes, I thought so, three-quarters of an inch. Now, sir?' 'It's much the same, sir,' hesitatingly replied the beginner. 'The same! No, sir—miles of difference, *miles* of difference.' After that the beginner measured everything."[2]

A gentle but penetrating sarcasm was a well-known method in which he exercised the art of criticism. A budding lecturer and protégé on one occasion displayed to him with pride the handbill announcing a class which he proposed to conduct. The usual plain black ink was relieved by lines of blue and red print, and the comment of Struthers upon it was: "Dear me, Mr.——, is this a notice of your class? I thought at first you were showing me an advertisement for some flower show."

[1] "Records of Marischal College," Vol. II., p. 62.
[2] Leslie Mackenzie: "Aurora Borealis Academica," p. 242.

At a time when the whaling industry was of great importance to Scotland, and was vigorously pursued from its ports, Struthers interested himself greatly in the dissection of cetaceans cast up on the shores, and he became a recognised authority in this branch of comparative anatomy.

Struthers' works

He contributed many papers to current medical literature dealing with anatomy, human and comparative, wrote a valuable historical sketch of the Edinburgh Anatomical School; but the department of his work which produced the greatest practical result was a series of reports, papers and addresses which he issued dealing with the improvement of teaching in the Scottish universities. He retired in 1889, and was succeeded by Robert William Reid, who retired in 1925, to be followed by Alexander Low.

Thus the medical school of Aberdeen, after a half-hearted existence of more than three centuries, may be said to have taken a vigorous forward step at Marischal College in 1839. A second, and more important step, was taken after the two colleges were united into the University of Aberdeen in 1860.

Forensic medicine

Another chair, founded before the union, was that of forensic medicine. Alexander Henderson (1780–1863), a member of the family of Henderson of Caskieben, who had graduated M.D. at Edinburgh in 1803, and had practised in London, applying himself chiefly to literature, decided to found a chair on this subject. The chair was inaugurated in 1857 by the appointment of Francis Ogston (1803–1887), the son of a well-known Aberdeen manufacturer.[1] He had been educated at Marischal College and at Edinburgh, where he graduated M.D. in 1824, with a thesis entitled "De Volvulo." From 1827 he had been teaching chemistry at Aberdeen, and had been, from 1839, a lecturer on medical jurisprudence at Marischal College. His course included not only medical jurisprudence, but a number of lectures on what might be called applied logic, in which the students were instructed in the laws of reasoning and the various methods employed in the investigation of phenomena, with illustrations from medical literature. He published a text-book of "Lectures on Medical Jurisprudence" (1878), which was for long a standard work in Britain and Germany, and he was celebrated as a medical witness before the courts. He also held the post of Medical Officer of Health for Aberdeen from 1862 to 1881.

Francis Ogston

He retired from the professorship in 1883, and was succeeded by Matthew Hay, who held the chair till 1926, and took a large share in the later development of this medical school. Professor Hay published numerous papers dealing with public health subjects, and his name is especially associated with a sulphur test for bile salts. When he retired, Robert Richards became head of the department of forensic medicine. A lecturer on public health, in the person of John Parlane Kinloch, had been appointed in 1914, and this post became a readership in 1923. When Dr. Kinloch demitted office in 1928 to become chief

[1] "Records of Marischal College," Vol. II., p. 64.

medical officer to the Department of Health for Scotland at Edinburgh, he was succeeded at Aberdeen by Harry J. Rae.

In chemistry, Professor Thomas Clark, who had been appointed at Marischal College in 1833, had been in ill-health and unable to lecture after 1843. His class Chemistry

FRANCIS OGSTON (1803–1887)

had been conducted by a series of substitutes, viz., John Shier from 1843 to 1845, Professor Andrew Fyfe of King's College from 1845 to 1847, Dr. John Smith from 1847 to 1852, and Dr. James Smith Brazier from 1852 to 1860. In 1860, Professor Clark finally retired, dying in 1867.[1] Professor Andrew Fyfe had been the last mediciner at King's College since 1844, having succeeded William Gregory, under whom the duties of the mediciner had been definitely construed as those of a lecturer Andrew Fyfe

[1] "Records of Marischal College," Vol. II., p. 59.

in chemistry. Professor Clark, who held the chair of chemistry in Marischal College, resigning in 1860, left vacant the chair of chemistry in the new University of Aberdeen, to which, accordingly, Andrew Fyfe was transferred. He died in the year following his appointment, and was succeeded in 1862 by James Smith Brazier.

J. S. Brazier

Brazier is said by an old pupil to have been a fair lecturer but a superb technician and the greatest of practical teachers, whose experiments all seemed to come off. His scientific work, however, was small, for as the same pupil says: "He had probably drifted too far from the centre, and the stimulus in the northern city cold was insufficient."[1] On Brazier's retirement in 1888, Thomas Carnelley was appointed to the chair, but died two years later. He in turn was succeeded, in 1890, by Francis Robert Japp, who retired in 1914, to be followed successively by Frederick Soddy, and in 1919 by Alexander Findlay. Under the later professors, chemistry became more a department of the faculty of science than of medicine.

Medical faculty in 1860

In 1860, when the union between King's and Marischal Colleges was brought about through the Universities' Act of 1858, the medical professoriate consisted of: John Macrobin (medicine), William Pirrie (surgery), Francis Ogston (medical logic and medical jurisprudence), Andrew Fyfe (chemistry), and Alexander Jardine Lizars (anatomy). This faculty was obviously incomplete, and the Crown immediately set about the foundation of several new chairs and the appointment of professors.

These new Crown chairs included: Botany (George Dickie), natural history (James Nicol), physiology (George Ogilvie Forbes), materia medica (Alexander Harvey), and midwifery (Robert Dyce).

Botany

George Dickie

George Dickie (1813–1882) was appointed to the newly-instituted chair of botany. He had been educated at Marischal College and Edinburgh, had been a lecturer on botany and also on materia medica at King's College, and had been appointed, in 1849, professor of natural history at Belfast. He wrote an important work on the flora of Aberdeen, and was distinguished for an intimate knowledge of marine algæ. He was succeeded, in 1877, by James W. H. Trail, who died in 1919, to be followed by William Grant Craib.

Natural history

James Nicol

There had already been a chair of civil and natural history at Marischal College, held by one of the regents since 1753, and James Nicol (1810–1878) had been the incumbent of this chair since 1853. He was now, in 1860, appointed professor of natural history in the new chair of the University of Aberdeen. He had been educated at Edinburgh and had been professor of geology at Cork. He published numerous works dealing with geology, especially with that of Scotland, and he was celebrated in the early days of this science for his dispute with Murchison upon the age of the gneiss and schists of north-west Scotland, in which posterity has agreed with the view of Nicol.

Upon his death in 1878, the Crown appointed J. Cossar Ewart, who, after four years, passed to the University of Edinburgh as professor of natural history.

[1] Bulloch: "Aurora Borealis Academica," Aberdeen, 1899, p. 324.

He in turn was succeeded by Henry Alleyne Nicholson, (1844–1899), who had studied at Göttingen and at Edinburgh, and who, after acting for two years as an extra-mural lecturer on natural history at Edinburgh, had held professorships in Toronto, Dublin and St. Andrews. He was noted as a lucid lecturer and a writer of many papers and successful manuals dealing with the subjects of zoology and geology. He died in 1899, and was succeeded by John Arthur (later Sir Arthur) Thomson. H. A. Nicholson

The first professor of physiology, George Ogilvie Forbes (1820–1886), had already been a lecturer on physiology, and held the chair from 1860 to 1877. The professor's name was originally George Ogilvie and he was the son of a well-known physician of Aberdeen. He assumed the name of Forbes on becoming heir to the estate of Boyndlie in 1876, the year before he retired from the chair of physiology. Physiology

George Ogilvie Forbes

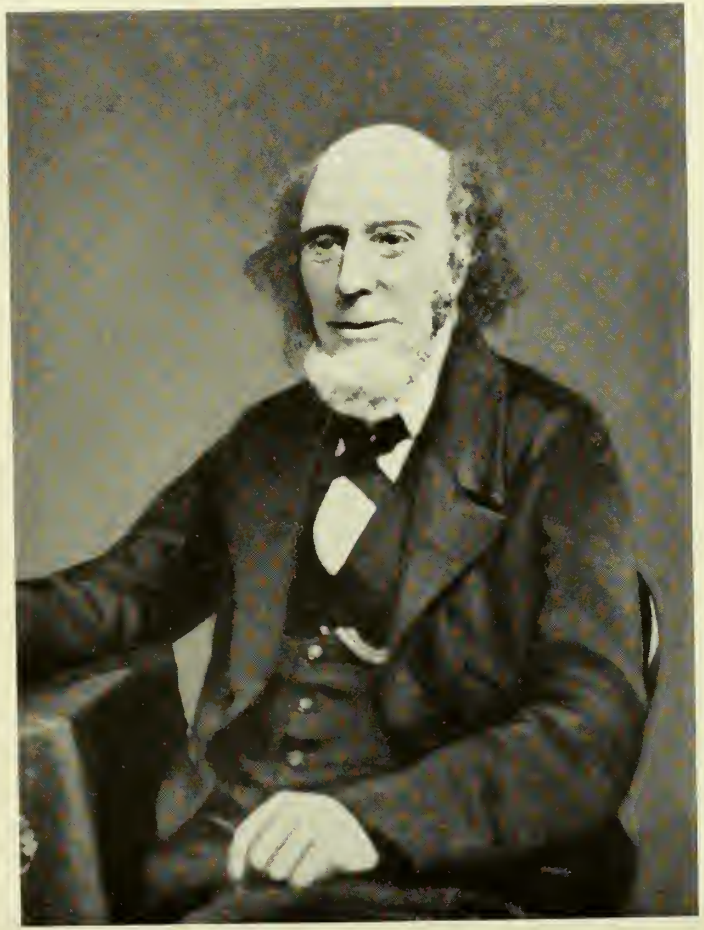
The scope of the science of physiology in the 'sixties and 'seventies of the last century, at a time when Johannes Muller, Henle and Schwann were discovering the finer structures of the body with the aid of the recently-improved microscope, may be gathered from a description which an old pupil gives of Ogilvie's class. Indeed, this is a fair description of the medical lecture which was common in all the Scottish universities in the latter part of the 19th century, and which has now largely passed away.

A lecture on physiology in 1860

"A few diagrams hung upon the wall, a book or two, but no apparatus, and rarely any specimens lay on the table, but, in the dimness of the winter twilight, there was one bright spot, a little square table brilliantly lit with gas, and on which stood half a dozen microscopes. The students at once made their way to the microscopes, under which were displayed with scrupulous care specimens showing the structure of the lungs, liver, skin or other organs of the body. In those days such specimens were rare and were to be found only in the hands of a few experts, and the ordinary student looked at a section showing Lieberkühn's glands, or at one revealing the sweat ducts of the skin, with feelings deeper than those of mere curiosity.

"Then, at the appointed time, the professor issued from his retiring-room—a man rather above middle height, of spare build, of reddish complexion, with a pale, thoughtful face, with eyes quick, penetrating, but restless, glancing quickly to right and left beneath shaggy brows under a square powerful forehead. In the erect position, with his hands on the table, or more often grasping the back of a chair, the professor assumed a posture not to be described as graceful, looked straight before him, apparently closed his eyes, and began his lecture. His voice was not melodious, being somewhat shrill and with that ring about it often betokening a critical mind. Usually he lectured without notes. The matter was carefully arranged, the sentences were well constructed; the method was critical as well as expository. It was evident the lecturer spoke out of the fullness of knowledge, sometimes knowledge of a practical kind, always knowledge which was the fruit of much reading and of a critical examination of the facts and theories placed before the student.

ALEXANDER HARVEY (1811-1889)



WILLIAM HENDERSON

... materia medica in the Joint School, 1818-1839, and in

There was conspicuous fairness in criticism, an evident desire to be just, and a careful balancing of probabilities. There was not much to enliven the lecture. There were no flashes of wit ; occasionally a dry remark showed that a sense of humour lurked below ; but, on the whole, listening to the lecture was a severe mental exercise, and, as a rule, the student was busy with his notebook." [1]

He treated the subject largely from the comparative standpoint as a branch of zoology, and this tendency is indicated by the titles of some of his published works, such as " The Master Builder's Plan " and " The Genetic Cycle." He was succeeded, in 1877, by William Stirling, who resigned in 1886, in order to take up an appointment as professor of physiology in Owen's College, Manchester, when he in turn was succeeded by John Alexander MacWilliam till 1927, and he again by John James Rickard MacLeod, the discoverer of insulin.

Materia medica

Alexander Harvey

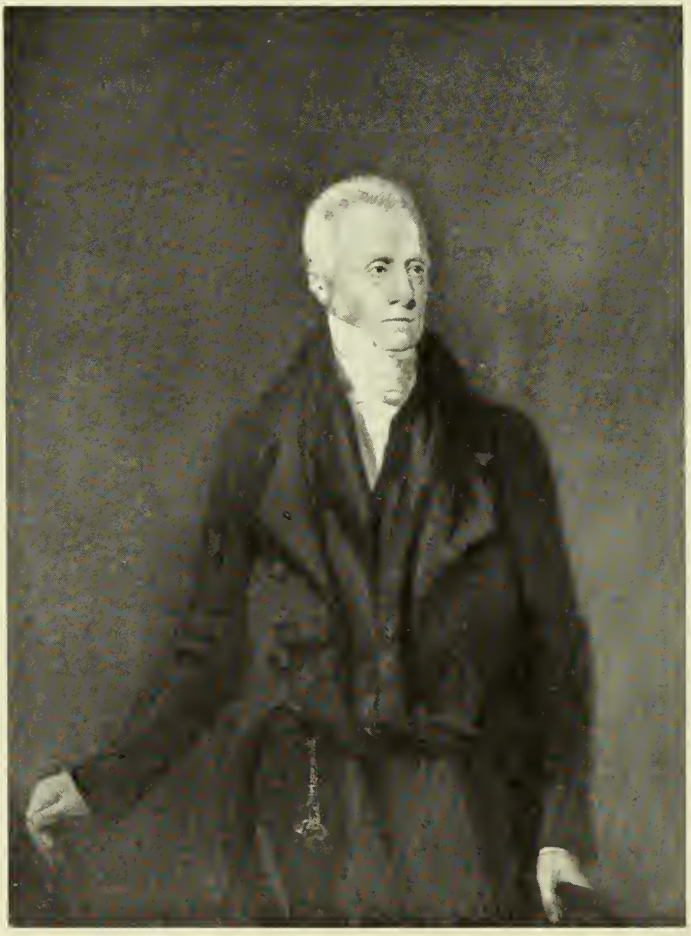
The chair of materia medica, on its foundation in 1860, was filled by Alexander Harvey (1811–1889). He had been educated at Marischal College and at Edinburgh University, where he graduated M.D. in 1835 with a thesis on " The Function of Nutrition." Before he became professor he had been for several years a lecturer on physiology at Marischal College and on medicine at King's College, and had also tried general practice at Southampton and at Cupar, Fife. He was a physician to the Royal Infirmary as well as professor of materia medica. He contributed a variety of works to medical literature, amongst which the most noteworthy were " First Lines on Therapeutics " (1879), " The Remarkable Effect of Cross-Breeding," " Trees and their Nature," " Letters on Administrative Reform in Relation to Medical Schools," and a " Syllabus of Materia Medica," in conjunction with Dr. Dyce Davidson.

A feature of Harvey's lectures is recorded which was not uncommon in the Scottish universities during the last century, when a professor frequently maintained a prolonged tenure of his chair and delivered a stereotyped course of lectures in almost the same words year after year. Little supervision also was exercised over the length of time during which students stayed at a university, and there are numerous instances of " chronics " who continued taking out classes session after session for 10 or even 15 years. The students in Harvey's class used to wait for well-known passages in the lectures, and as the professor pronounced some favourite sentence, this would be taken up by the gallery and intoned word by word in time with the teacher, who, at its conclusion, would look up with a good-natured smile and remark : " Really, gentlemen, some of you appear to know my lectures as well as I know them myself." [2]

On the retirement of Harvey in 1878, he was succeeded by Alexander Dyce Davidson (1845–1886). He had been educated at Aberdeen and, while assisting Professor Harvey, had also been in practice as an ophthalmic surgeon, holding the post of ophthalmic surgeon to the Royal Infirmary from 1870. In 1886, while delivering a lecture to his class, he was struck down by cerebral hæmorrhage and

[1] McKendrick : " Aurora Borealis Academica," p. 264.
[2] Philpots and Ruxton : " Aurora Borealis Academica," p. 299.

died within an hour, at the early age of 41. He was succeeded by John Theodore Cash, who held the professorship till 1919, when he retired. He was the author of numerous papers dealing with pharmacological subjects, and acted as dean of the medical faculty. He was succeeded by Charles Robertshaw



ROBERT DYCE (1798–1869)
(Original in Marischal College, Aberdeen)

Marshall, who had published a "Text-book of Materia Medica," and various results of research in his subject. He in turn retired in 1930, when he was succeeded by David Campbell.

Midwifery

Robert Dyce

To the chair of midwifery, upon its foundation in 1860, Robert Dyce (1798–1869) was appointed. He had been educated at Marischal College, and, after studying in Edinburgh and London, he had joined the Army Medical Service. He

was the son of William Dyce, a well-known Aberdeen practitioner, who had lectured on midwifery at Marischal College, and the son was persuaded, in 1836, to settle in Aberdeen and to succeed to the practice and appointments of his father. In 1841 he was appointed lecturer on midwifery at Marischal College, later becoming professor. He was a physician to the Royal Infirmary and appears to have been a clear lecturer and writer upon his subject. Upon the death of Dyce in 1869, he was succeeded by Andrew Inglis (1837–1875). Inglis has the merit of having established the first lying-in hospital at Aberdeen, for, although the hospital was on a small scale, the step was a most important one. He held the chair for only six years and died in 1875.

Lying-in hospital

He was succeeded by William Stephenson (1837–1919), who had been educated at Edinburgh University and had graduated in 1861 with a thesis on "Certain Nervous Symptoms due to Exhaustion." He had been for some time in practice, and had acted as a physician to the Royal Hospital for Sick Children at Edinburgh. On his appointment to the chair of midwifery at Aberdeen, he also became physician to the Maternity Hospital and gynæcologist to the Royal Infirmary. He was a practical teacher and published numerous papers upon diseases of children and upon the mechanism of labour—subjects in which he took a special interest. He retired in 1912, to be followed by Robert Gordon McKerron.

William Stephenson

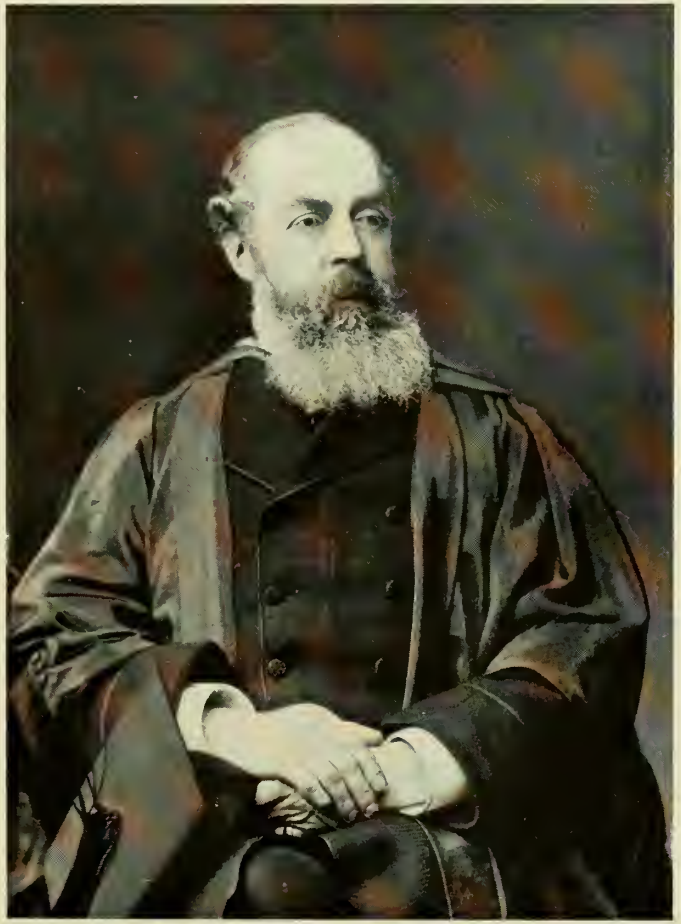
The chair of medicine in the University of Aberdeen had been placed under new regulations on the union of the two colleges in 1860, and John Macrobin had been continued in office as professor of medicine. On his retiral, in 1875, James W. F. Smith Shand (1834–1891) was appointed his successor. He had graduated M.D. at King's College in 1855, had studied in Edinburgh, Paris, London and Germany, and settled for a time in practice at Broughty Ferry. He was greatly devoted to classic literature and was noted for his fondness of making long recitations from the Greek tragedies. In 1868, he settled in practice at Aberdeen, and was appointed a clinical lecturer in the Royal Infirmary, where he was one of the visiting physicians. This was followed, in 1875, by his appointment as professor of medicine in the university, where he became very popular as a teacher.

Medicine

J. W. F. Smith Shand

Upon his death in 1891, he was succeeded by David W. Finlay (1840–1923), who had been educated at Glasgow, where he graduated M.D. in 1864. Settled in London, he became physician to Middlesex Hospital, where he was a lecturer on clinical medicine, forensic medicine, and public health, and he also held the appointment in London of physician to the Royal Hospital for Diseases of the Chest. In 1891 he was elected regius professor of medicine at Aberdeen, and became, shortly afterwards, a physician to the Royal Infirmary in this city. He did much to reorganise clinical teaching in Aberdeen and to place it on its present firm basis, and he enjoyed great popularity with the students, to whom he was affectionately known as "Dauvit." Outside of medicine, he was a noted yachtsman, and made many contributions to literature dealing with his experiences among the isles and lochs of Scotland. On his retirement in 1912, he was succeeded by Ashley (later Sir Ashley) Watson Mackintosh, who was followed in 1930, by Leybourne Stanley Patrick Davidson.

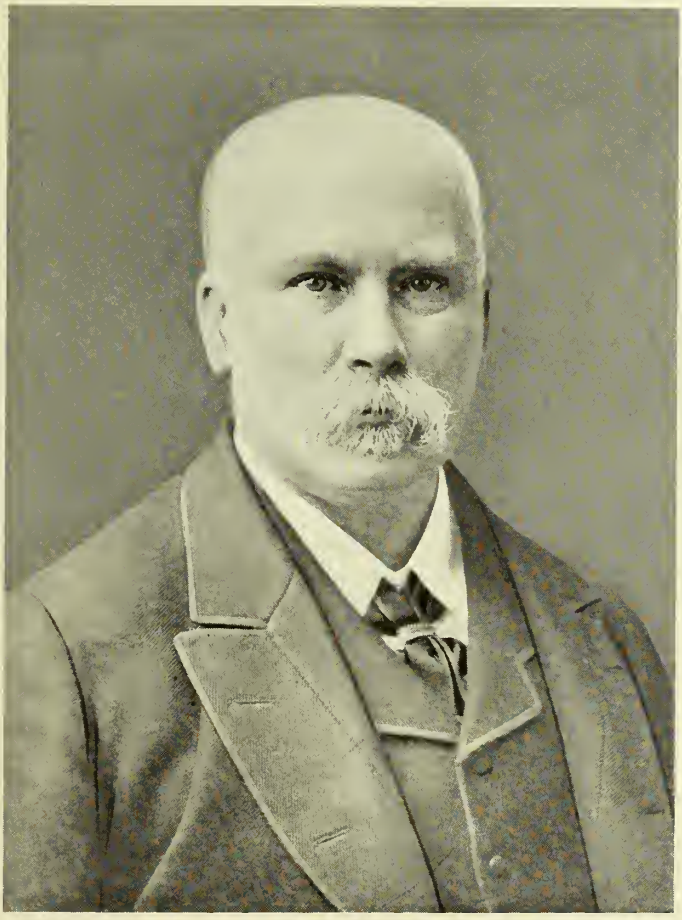
D. W. Finlay



JAMES W. F. SMITH SHAND (1834–1891)

WILLIAM STEPHENSON (1837–1919)

The chair of pathology was a comparatively late development at the University of Aberdeen, founded, in 1882, by Sir Erasmus Wilson at the instigation of Professor Pirrie. Nevertheless, the subject developed rapidly, and, in alliance with the cognate subjects of bacteriology and public health, has become one of the chief Pathology



DAVID JAMES HAMILTON (1849-1909)

features of the medical school at Aberdeen. The university was fortunate in securing as the first professor David James Hamilton (1849–1909), an enthusiastic and inspiring teacher. He had studied at Edinburgh, where he graduated M.B. in 1870. For two years he held the post of resident surgeon at the Northern Hospital, Liverpool, where he wrote an essay on "Diseases and Injuries of the Spinal Cord," which was awarded the Astley Cooper prize in 1874. D. J. Hamilton

In 1876, he returned to Edinburgh as demonstrator of pathology at Edinburgh University, and pathologist to the Royal Infirmary, Edinburgh, becoming later

a teacher of pathology in the extra-mural school. Disappointed by his failure to obtain the chair of pathology at Edinburgh in 1881, he was successful in his application for that at Aberdeen in 1882, and he immediately began to devote a great amount of energy to perfecting the teaching of this subject. He is said to have been the first person to introduce class instruction in bacteriology, and a considerable impetus was given to the practical importance of this subject, in relation to public health, by his introduction into Scotland of the bacteriological methods for the diagnosis of diphtheria and typhoid fever.

He also rendered important services to the agricultural industry of Scotland and to research upon disease in animals by studying the maladies of cattle, and discovering the bacteria of several diseases to which sheep are liable. Among other important writings, his "Text-book of Pathology" remained a standard work for many years. In 1906, his success as a teacher was recognised by his pupils, scattered in various parts of the world, who wrote a combined volume "Studies of Pathology," and dedicated this to Hamilton. On his retirement in 1908, he was succeeded by George Dean, and he, on his death in 1914, by Theodore Shennan. A chair in bacteriology was founded in 1925, with John Cruickshank as its first incumbent.

Progress after 1860

The progress of the Aberdeen medical school in the 40 years succeeding 1860 was remarkable. In 1850, the senatus of King's College had questioned the right of Marischal College to grant medical degrees at all, although this contention was disproved in a historical review issued by Professor Clark in 1853. In 1852, the King's College authorities took the important step of introducing the degree of Bachelor of Medicine, which was to be conferred after examination on students who had completed the curriculum of three years for a degree, and had passed one *annus medicus* at King's College. The M.D. degree was henceforward to be given at a later stage without further examination. Although this proposal was intended to checkmate the growing success of Marischal College as a medical school, its advantage was so obvious that the plan was followed in the regulations introduced by the Commissioners of 1858.[1]

Accordingly, from 1860 onwards, the previous curriculum of three years was extended to four years, and the student on graduation received the degrees of M.B. and C.M. in place of the old M.D. degree.

Examinations about 1860

An Aberdeen graduate of 1864 says of the examinations :—

> "The two degrees in medicine and surgery were conferred together but with separate diplomas. The Medical Faculty at that time had a rule that if a candidate wrote a paper showing a competent knowledge, the candidate was not subjected to an oral examination. I had no oral in many subjects, a result that was satisfactory to me, as I had not attended the classes of several of the professors who might have examined. This, I think, was a bad rule, as an oral examination tests the knowledge of a candidate better than a written paper can do. There was no practical examination in those days."[2]

[1] Bulloch : "History of the University of Aberdeen," p. 189.
[2] McKendrick : "The Story of my Life," Aberdeen, 1919, p. 55.

Changes after 1889

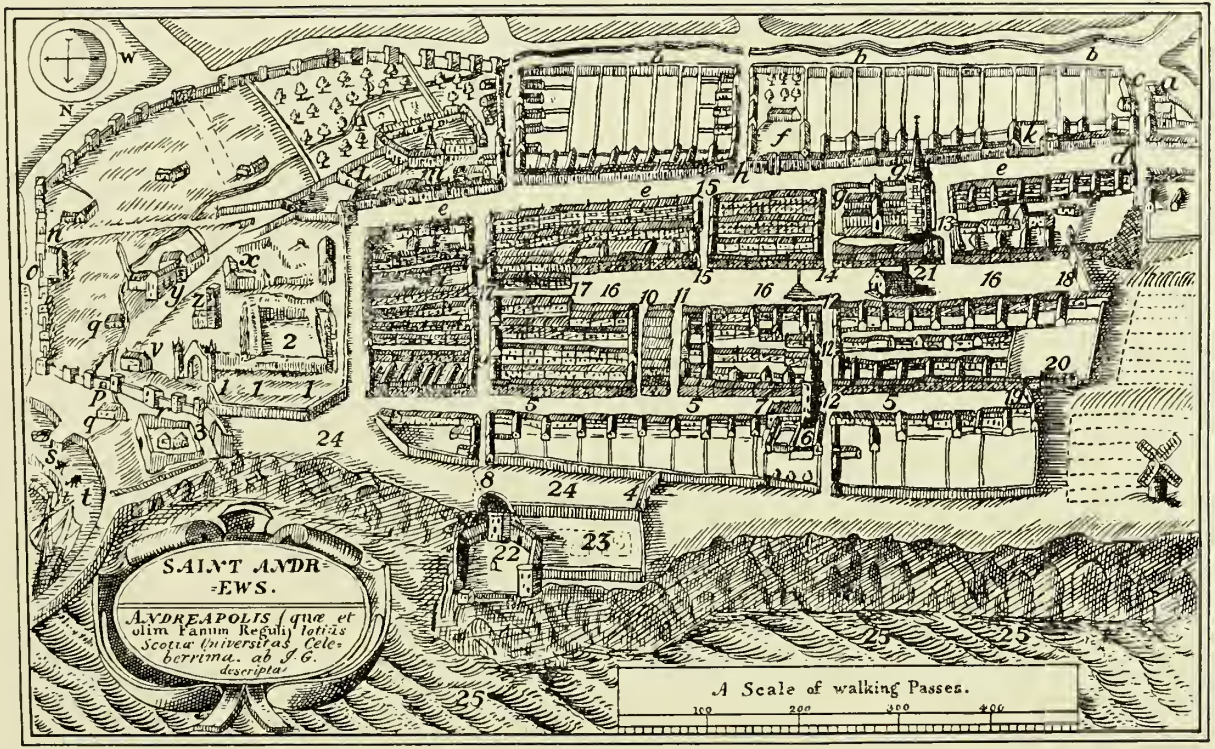
The Scottish Universities' Act of 1889 made still further improvements in the medical curriculum of Aberdeen, as of the other three Scottish universities. The ordinances of the Commissioners appointed under this Act began to take effect about 1895, when the medical course was extended to five years. The qualifying degrees became those of M.B. and Ch.B., and the M.D. and C.M. were awarded after an interval on the result of a further examination and thesis.

Some idea of the success attained by the medical school in the University of Aberdeen is obtained from the increase in the number of students. In 1860, the medical students numbered only 145; in 1880, they had risen to 335, and thereafter continued at an average of about 300 in each year, rising, however, to 678 in 1920 as the result of the great increase found in all the universities immediately following the war.

As at the other Scottish universities, the age and general educational attainments of medical students were raised by the institution of a preliminary examination in 1860, while the standard and quality of degree examinations were also improved by the institution of practical and clinical examinations for the degree. The faculty of medicine was also gradually strengthened by the institution, about 1890, of a faculty of science, to which some of the preliminary medical subjects were assigned,[1] and by the appointment of lecturers who were either attached to various departments or engaged in teaching independent subjects.[2]

SEAL OF
THE UNIVERSITY OF ABERDEEN

[1] Struthers: "Aurora Borealis Academica," Aberdeen, 1899, p. 212
[2] *See* Aberdeen University Calendar.



a. Ardgyle
bbb. the common leade
c. the corne wynde
d. southgate port
eee the Southgate
f. Maries, or the N. Colledge
gg Trinity Church
h. Westburn wynde
iii. Eastburn wynde
k. Gray freers or Scool
l. S. Leonards Colledge
m. Leonards Church
n. Neither Pryory
o The Tennis Court
p. Mill port
qq Pryor & Shore Mills
r Kirk hill
s. Feirne head
tt the haven
v. The Pryors Granury
x. Pryor's house ruined
y. New Innes
z. S. Regulus Chappell
111. Ruins of S. Andrews k
2. Ruind Cloysters
3. Shore port
4. Swallow port.
5. Northgate
6. S. Salvators Colledge
7. S. Salvators Church
8 Fisher Gate
99 Hucters wynde
10. Foule waste
11. Blaks Close
12 12. O. Colledge wynde
13. Logs wynde
14. kirk wynde
15 Bakhouse wynde
16 16 16. Market gate
17. 17. Narrow M. gate
18 Markett gate port
19 North gate port
20 The Hospittall
21 The Tolbuith
22 The Castell
23 Castell yard
24 24 Swallow gat.
25 25 The Sea.

Map of St. Andrews in 1642, by Gordon of Rothemay. The view is from the north. m—Hospital at St. Leonard's College; 20—Hospital outside the walls. *See* Chapter VI.

Chapter XXII

The Medical School of St. Andrews

The University of St. Andrews was the first of the Scottish seats of learning to be instituted. From its beginning in the year 1411, when it was founded by Henry Wardlaw, Bishop of St. Andrews, the institution was a "*studium generale*," or "*universitas studii*," and as such it was entitled to include all the faculties in theology, canon and civil law, arts and medicine. The foundation of universities in Scotland was somewhat late as compared with those in other countries, despite the fact that many Scotsmen sought learning at foreign universities. The War of Independence with England was largely responsible for this, although a pious Scottish lady, Devorguila, Countess of Galloway, and widow of John de Baliol, had founded a college at Oxford in 1269, probably moved to this step in large part by the desire to encourage young Scotsmen to travel and familiarise themselves with the manners of the wealthier southern country.

Founding of university

Seal of the University of St. Andrews

A student at St. Andrews in the early years of the university, who afterwards practised medicine with distinction at the Court of James III., was William Schevez, later Archbishop of St. Andrews. The facts of his life bearing upon medicine have already been mentioned in Chapter IV.

Early medical connections

An early native of St. Andrews and probably a student at its university, who distinguished himself abroad, was John Ramsay. He was born in Fifeshire about 1490, and at the age of 30 had migrated to Italy, where he took the degree of M.D. at Turin in 1520, and became one of the teachers with a salary of 200 florins and other privileges. Here he is said to have been the ornament of the college of medicine, and he became seigneur of Vallette in the neighbourhood of Turin. His son, too, appears to have been physician to the Prince of Savoy in 1570.[1]

There is mention of a hospital of St. Andrews which existed before 1144. In this year the endowments of the hospitals were converted to what was then considered the more important purpose of meeting the cost for the reception of guests and strangers.[2]

[1] *Proceedings of the Society of Antiquaries of Scotland*, Vol. X., p. 294.
[2] "Acts of the Scottish Parliament," Vol. I., Sup. 2b.

Pilgrims and hospitals

St. Andrews from early times had been a resort of pilgrims, because of the relics supposed to have been brought by St. Regulus to that town, and, for the reception and succour of these pilgrims, there was a hospital associated with the Church of St. Leonard.[1] This hospital, along with the associated church, was incorporated in the College of St. Leonard in 1512. At this time, Archbishop Alexander Stewart, in his charter, mentioned that "miracles and pilgrimages . . . had in a measure ceased, so that the hospital was without pilgrims, and the Priors did set therein certain women chosen by reason of old age who did give little or no return in devotion or virtue." In a deed of 1529, a reference is made to Mr. George Martine as Preceptor, Master and Possessor of the Hospital and Leper-house beside the city of St. Andrews, founded for the honour and worship of St. Nicholas.[2] Little else, however, appears to be available in the way of information regarding early medical activities at St. Andrews.

Three colleges

The foundation of the university was sanctioned in 1413 by a Papal Bull from Pope Benedict XIII., and, in the succeeding century, the university showed considerable development till it came to include three separate colleges. These were as follows :—

(1) St. Salvator's College, founded in 1450 by James Kennedy, Bishop of St. Andrews.

(2) St. Leonard's College, founded in 1512 by Alexander Stewart, Archbishop of St. Andrews, and John Hepburn, Prior of the Metropolitan Church. It received in the same year the royal confirmation of James IV., and was intended for 26 students.

(3) St. Mary's College, founded in 1537 by Archbishop James Beaton, on the site of the "Pedagogium," the original academical building. It was further endowed by Archbishop John Hamilton in 1553, and reconstituted by him under a Papal Bull, being intended for 24 students.

In 1579, soon after the Reformation, the constitution of the university was changed. The College of St. Mary was now reserved for theology, while the Colleges of St. Salvator and St. Leonard were restricted to the teaching of philosophy, law and medicine. The Act of 1579 was partially repealed in 1621, but, in 1747, the two Colleges of St. Salvator and St. Leonard were finally joined by Act of Parliament, and have since been known as the United College of St. Salvator and St. Leonard.

Early medical teaching

There seems already to have been some teaching in medicine, for when John Major, in 1529, came to be Provost of St. Salvator's College, he brought with him William Manderston, who had been a student of Montaigu College in Paris and was a doctor of medicine. William Manderston, according to the fashion of the times, in his "Bipartitum in Morali Philosophia," published in 1523, includes a commendation received from "*Robertus Gra. medicinae amator*," who refers to William Manderston as "*praeceptori suo apollonie artis professori peritissimo.*" Robert Gray had apparently been a pupil of Manderston in Paris, and as there

[1] Herkless : "Votiva Tabella," Maclehose, Glasgow, 1911, p. 31.
[2] Buist : "Votiva Tabella," p. 197.

are not likely to have been two *amatores medicinae* named Robert Gray at the time, this is probably the same Robert Gray who was appointed mediciner at King's College, Aberdeen, in 1522. Gray, at all events, refers to Manderston as a leader in medicine (without which the State would be altogether poor), and speaks

JOHN KNOX (1505-1572)
(From the contemporary engraving by Beza)

of him as being recalled by Archbishop James Beaton to his native soil as desired for his high reputation *(spectatum et desideratum)*.[1]

Lectures in medicine appear to have been given in 1535 and 1538, and there is evidence of a professor of medicine in 1579, in 1597 and in 1649. There is record of the granting of the degree of doctor of medicine in 1696.

In the re-organisation of Scottish education which followed the Reformation, under the personal direction of John Knox, a definite scheme took form, that, of

[1] Manderston: "Bipartitum in Morali Philosophia Opusculum," 2nd Edn., Paris, 1523.

Proposed medical school in 1560

the three Scottish universities, St. Andrews should be the school where medicine was to be taught. The plan is laid down in the Buke of Discipline of 1560, where it is said :—

> " . . . nixt we think it necessarie thair be three Universities in this whole Realme, establischeit in the Tounis accustumed. The first in Sanctandrois, the secound in Glasgow, and the thrid in Abirdene.
>
> And in the first Universitie and principall, whiche is Sanctandrois, thair be thre Colledgeis. And in the first Colledge, quhilk is the entre of the Universitie, thair be four classes or saigeis [*chairs*] : the first, to the new Suppostis, shalbe onlie Dialectique ; the nixt, onlie Mathematique ; the thrid, of Phisick onlie ; the fourt of Medicine. . . . .
>
> " In the fourt classe, shall be ane Reidar of Medicine, who shall compleit his course in five years: after the study of the whiche tyme, being by examinatioun fund sufficient, thei shall be graduat in Medicine. . . . .
>
> " *Item*, That nane be admittit to the classe of the Medicine bot he that shall have his testimoniall of his tyme weall spent in Dialecticque, Mathematique, and Phisicque and of his docilitie in the last." [1]

As to the salary of the teacher, the provision was made " for the Stipend of everie Reader in Medicine and Lawis, ane hundreth threttie thre pundis, vi. s. viij. d." [2]

At the same time, it was intended that Glasgow University should teach arts only, and Aberdeen laws and divinity. Nevertheless, the scheme never came into operation, and Gilbert Skeen continued as mediciner at King's College, Aberdeen, for 15 years, when he betook himself to practise in Edinburgh. Twenty-two years later the Town Council of Edinburgh also disregarded the general plan of the Reformers for Scottish education by establishing their Town's College.

Failure of proposal

The failure of Knox's plan for a medical school at St. Andrews is readily understood when one reflects that a living study like that of medicine can hardly flourish save in a centre of population, and can certainly never bear fruit in the output of practitioners skilled in the knowledge of human beings, and capable of treating their disorders, unless associated with other forms of intellectual and social endeavour. St. Andrews had never been a great centre of commerce, and after the Reformation it ceased to be even a centre of religious activity and resort of pilgrims.

Medical lectures in 1580

In the report of the Commission appointed by King James VI. to visit the university in 1579, it was provided that the principal of St. Salvator's should be professor in medicine, and should read this subject four times in the week. Another report, in 1588, mentions that " The Provest, sin the reformatioun, affirmis he teichis tuyis [*twice*] ilk oulk [*week*], the Aphorismes Hippocrates, quhill [*until*] October last ; sensyne [*since then*] he hes teichit na thing ; the Maisteris sayis he nevir teichis, skantlie anis [*hardly once*] in the moneth." [3]

[1] " Works of John Knox," edited by David Laing, Edinburgh, 1848, Vol. II., pp. 213–215.
[2] Op. cit., p. 218.
[3] Buist: " Votiva Tabella," p. 201.

The teaching of law at St. Andrews laboured under much the same difficulties as that of medicine, for the provost reported of the reader in law, Mr. William Walwood, that "he neglectis oft," and on one occasion, the provost came to his school "and commandit him to come doun, for he wald teich himselff at that hour; quhairupoun great slander followit," and at a later date it was found "that the Professioun of the Lawes is na wayes necessar at this tyme in this Universitie." [1]

A Commission of 1642, after prescribing certain books which should be studied at St. Andrews, added to the list, "if so much tyme may be spared, some compend of Anatomy." In 1649, there was a provision that one of the masters of St. Salvator's College should teach medicine twice a week. In all these regulations for teaching medicine, however, this subject was simply a part of the arts curriculum, taught to students as a valuable part of general knowledge.

Degrees in medicine

Nevertheless, the university still held to the privilege conferred by its Bull of Foundation in granting degrees in medicine. These were sometimes given *honoris causa*, frequently *in eundem gradum*, and sometimes, unfortunately, *in absentia*, in return for a payment. The most frequent condition was that of giving the degree *in eundem gradum*, which meant that an applicant already a graduate of some foreign university, desired to add to his qualifications the degree of M.D. from a Scottish university, and this was granted on production of the foreign diploma, which thus offered a certain amount of protection to the university. It appears, from the report of a Committee in 1747, that the fee for a degree was £10 sterling, of which the professor of medicine received £3.[2]

This practice was liable to lead to experiences such as one which is quoted in an anecdote related by Dean Ramsay and still current in the south of Scotland :—

Purchase of degrees

> "An East Lothian minister, accompanied by his man, who acted as betheral of his parish, went over to a northern university to purchase his degree, and on their return home he gave strict charge to his man, that as now he was invested with academical honour, he was to be sure to say, if any one asked for the minister, 'O yes, the Doctor is at home, or the Doctor is in the study, or the Doctor is out, as the case might be.' The man at once acquiesced in the propriety of this observance on account of his master's newly-acquired dignity. But he quietly added: 'Ay, ay, minister; an' if ony ane speirs (*asks*) for me, the servants maun be sure to say, Oh, the Doctor's in the stable, or the Doctor's in the kitchen, or the Doctor's in the garden or the field.' 'What do you mean, Dauvid?' exclaimed his astonished master; 'what can *you* have to do with Doctor?' 'Weel, ye see, sir,' said David, looking very knowing, 'when ye got your degree, I thought that as I had saved a little money, I couldna lay it out better, as being betheral of the church, than tak out a degree to mysell.'" [3]

[1] Buist: "Votiva Tabella," p. 202

[2] Buist: Op. cit., p. 216.

[3] Dean Ramsay: "Reminiscences of Scottish Life and Character," Edinburgh and London, p. 168.

Chair of medicine

In the 18th century the university appears to have obtained an opportunity of gratifying its long-cherished wish to have a professorship of medicine. Prior to 1722, the Duke of Chandos, through his son's tutor, Dr. Charles Stuart, offered the university £1000, with the suggestion that it should be employed for the establishment of a chair of eloquence. The university, however, decided that it should be used for the foundation of a chair of medicine and anatomy. A letter from Dr. Stuart, dated 28th November, 1720, gives an amusing criticism upon what he regards as a useless proposal :—

> " . . . ye Theory and Practise of Medicine are not only considered as distinct Professions in some of ye Universitys abroad, but there are likewise other Sciences such as Anatomy, Chimistry and Botany, which are unseparable retainers to that Science and absolutely necessary to ye study of it : now there are no foundations in your University for any of these Sciences, nor perhaps will be for these hundred years to come, and as one man can hardly be sufficient for more than one or at most two of them, I can not see of what great use a Professor of Medicine wou'd be at St. Andrews, where an Anatomist may be ten years in looking for a body to dissect ; I think I plainly forsee that this Profession wou'd quickly fall into ye hands of some young Physitian who, wanting imployment, should have interest enough to get himself chosen to it, for a livelyhood to him, without having so much as one scholar to teach. . . . ." [1]

Thomas Simson

Nevertheless, the university persisted in its intention, and Thomas Simson (1696–1764) was appointed first Chandos professor of medicine in 1722. He had graduated M.D. at Glasgow in 1720, and on his introduction to the chair at St. Andrews, delivered an oration : " De Erroribus tam veterum quam recentiorum circa Materiam Medicam." He also published a treatise, " De Re Medica," in 1726, concerning the need of investigating the laws under which the human machine acted, and of studying the natural history of disease by experiment, and a treatise on " A System of the Womb," at Edinburgh, in 1729. He lectured in English instead of the Latin, which was then commonly employed, and he appears to have thrown himself into the duties of his post with considerable ardour.

He was succeeded by his son, James Simson, who had graduated M.D. at St. Andrews in 1760, with a dissertation, " De Asthmate Infantium Spasmodico," which is to be found in the " Miscellanies " of Andrew Duncan. He in turn was

James Flint

succeeded by James Flint in 1770, but there is no evidence that either James Simson or James Flint delivered any lectures.

Robert Briggs

After the death of James Flint, Robert Briggs was appointed to the chair in 1811, and the university, before his appointment, saw fit to enact that the Chandos professor should be a teaching professor, and should open classes to be regularly taught during the session of the United College for the instruction of

[1] Buist : " Votiva Tabella," p. 209.

any students, who might apply to him, in the principles of medicine, anatomy and chemistry. This is the first mention of chemistry in connection with the chair, and the university further provided apparatus for practical work, which was successful, and was continued till the death of Professor Briggs in 1840.

In 1808, Dr. John Gray, of London, had left a sum of money to found a special professorship of chemistry. The funds were allowed to accumulate until 1840,[1] when the chair of chemistry was inaugurated, and Arthur Connell was appointed professor. He held the chair till 1862, when he was succeeded by Matthew Forster Heddle. Chemistry Arthur Connell

JOHN REID (1809–1849)
(Original in the University of St. Andrews)

After him the chair was successively held by Thomas Purdie, appointed in 1884, James Colquhoun Irvine, appointed in 1909, Robert Robinson, appointed in 1921, and John Read, appointed in 1923.

After the death of Professor Briggs, the Chandos chair again became one of medicine only, and John Reid (1809–1849), a man of much finer qualities than his predecessors, was elected professor in 1841. Reid was a native of Bathgate, and had studied medicine at Edinburgh University, where he graduated M.D. in 1830. After a period of study in Paris, he returned to Edinburgh in 1832, and was one of a committee of investigation who went to Dumfries to enquire into an outbreak of cholera. He had been a demonstrator of anatomy at Surgeons' Hall, had joined the College of Physicians as Fellow in 1836, and, in the same year, had become lecturer on physiology. He was also greatly interested in pathology, and, between 1838 and 1841, acted as pathologist to the Royal Infirmary at Edinburgh. Immediately on his appointment as Chandos professor, he began a course of comparative anatomy and physiology at St. Andrews, which proved attractive to students, and successful. John Reid

In 1848, he published a well-known collection of papers entitled "Physiological, Anatomical and Pathological Researches," a volume remarkable for originality and accuracy of observation. One of the papers contained in it was "An Investigation of the Epidemic Fever of Edinburgh in the years 1836, 1837 and 1838." Typhoid fever

[1] Anderson : "The Matriculation Roll of the University of St. Andrews, 1747–1897," Edinburgh, 1905, p. xxx.

It is a remarkable fact, as illustrative of the changes which have taken place in the incidence of certain diseases, that 2037 patients were treated during 15 months for this fever in the Royal Infirmary of Edinburgh, with a mortality of over 13 per cent. Reid clearly described in this disease the pathological changes characteristic of typhoid fever. He was thus one of the first to differentiate between typhoid and typhus fevers. The University of St. Andrews suffered a great loss when Reid died from cancer of the tongue in 1849.

G. E. Day

After the death of Reid, George Edward Day (1815–1872) was appointed Chandos professor. He had already made a reputation by translating Simon's "Animal Chemistry," for the Sydenham Society, and later he translated for the same series the fourth volume of Rokitansky's "Pathological Anatomy." Immediately after his appointment he published "A Practical Treatise on the Domestic Management and Most Important Diseases of Advanced Life," and, in 1860, a work on "Chemistry in its Relation to Physiology and Medicine." He worthily continued the reputation which Reid had gained for this chair, both in teaching and in publication. He resigned the chair in 1863, when Oswald Home Bell was appointed, to be succeeded, in 1875, by J. Bell Pettigrew. Under Bell and his successors, the Chandos chair became a professorship of physiology. The name of the chair, however, remained that of medicine until 1908, when on the death of Professor Pettigrew, it was re-named the chair of physiology in conformity with an ordinance which had been passed by the University Court in December, 1900.

J. B. Pettigrew

James Bell Pettigrew (1834–1908)[1] graduated M.D. at Edinburgh in 1861, and in the following year was appointed assistant curator of the Hunterian Museum in London. Returning to Edinburgh, he became curator of the museum of the Royal College of Surgeons in 1869, and a lecturer on physiology in 1873. He was appointed Chandos professor of medicine and anatomy at St. Andrews in 1875, and held this post till his death in 1908.

His most outstanding contributions to physiology were concerned with the subject of motion in animals, and especially of flight in birds, and some of the points to which he drew attention were of importance in the development of aeronautics. His first communication on this subject was made to the Royal Institution of Great Britain in 1867, and for these researches he was awarded the Godard Prize of the French Academy of Sciences and was laureated by the Institute of France. In regard to the mechanism of flight, he declared:—

Flight of birds

> "The wing of the bird acts after the manner of a boy's kite, the only difference being that the kite is pulled forwards upon the wind by the string and the hand, whereas in the bird the wing is pushed forwards on the wind by the weight of the body and the life residing in the pinion itself. The angle at which the wing acts most efficaciously as an elevator, as proved by an examination of the pinion of the living insect, bat and bird, when fully extended and ready to give the effective stroke, is an angle of 45° with the horizon. As,

[1] *Edinburgh Medical Journal*, Vol. XXIII., 1908, p. 287.

however, this angle could not be uniformly maintained without a rotatory motion which would wrench the wings from their fixings, a compromise is adopted, the wing being made to rotate on its axis to the extent of a quarter of a turn in one direction during extension, and the same amount in an opposite direction during flexion." [1]

JAMES BELL PETTIGREW (1834–1908)

With regard to gliding, he said :—

"When a sufficient altitude has been attained, the length of the downward stroke is generally curtailed, the mere extension and flexion of the wing, assisted by the weight of the body, in such instances sufficing. This is especially the case if the bird is advancing against a slight breeze, the effort required under such circumstances being nominal in amount. . . . When birds are fairly on the wing they have the air, unless when that is greatly agitated by a storm, completely under control. This arises from their greater specific gravity, and because they are possessed of independent motion. If they want to

[1] Pettigrew : "On the Various Modes of Flight in Relation to Aeronautics," 1867, p. 7.

turn, they have simply to tilt their bodies laterally, as a railway carriage would be tilted in taking a curve, or to increase the number of beats given by the one wing as compared with the other ; or to keep the one wing extended while the other is partially flexed. The neck, feet and tail may or may not contribute to this result If the bird wishes to rise, it tilts its entire body (the neck and tail participating) in an upward direction." [1]

Structure of the heart

He also made contributions, which were valuable in their time, to the study of the valves and of the arrangement of the muscular fibres in the heart ; the latter he divided into seven layers, arranged in spiral form.[2]

Cape barn owl as seen in full flight, hunting. The under surfaces of the wings and body are inclined slightly upwards, and act upon the air after the manner of a kite.
(Drawn by James Bell Pettigrew for his "Animal Locomotion")

Natural history

The desire of the university to establish a faculty of medicine was again evinced in a somewhat curious way in connection with the chair of civil history. A professorship of civil history had existed from 1747, and an experiment had been made in 1825 by the appointment of Mr. J. G. Macvicar as lecturer on natural history, which had proved that the latter subject was one in which a successful course could be held. In 1850, when Dr. William Macdonald was appointed professor of civil history, it was made a condition of his appointment that he should be able and willing to teach natural history, although this was a totally different subject. The chair was thereafter continued as a professorship of natural history, and Macdonald was succeeded, in 1875, by Professor Henry A. Nicholson. He developed the teaching of this subject greatly, and held the chair till 1882, when he was transferred to the chair of natural history in Aberdeen. He was succeeded at St. Andrews by William Carmichael M'Intosh, and he in turn, in 1917, by D'Arcy Wentworth Thompson, who had already been over 30 years professor of natural history in University College, Dundee.

Botany

Botany had been regularly taught in the United College at St. Andrews from 1887, and a lecturer in botany was appointed by the University Court in 1891, the first holder of the post being Robert Alexander Robertson.

It was not till the establishment of University College in the neighbouring city of Dundee, in the year 1881, that the design which St. Andrews University had entertained for several centuries, of establishing a full medical school, succeeded in taking definite shape.

[1] Pettigrew : "Animal Locomotion," London, 1873, p. 202.
[2] Pettigrew : "On the Arrangement of the Muscular Fibres in the Ventricles of the Vertebrate Heart," London, 1864.

University College, Dundee

In 1881, Miss Baxter and Dr. Boyd Baxter gave £140,000 to found University College, Dundee, which was established by the purchase of four villas with handsome gardens. On this original site was subsequently added a block for chemistry and buildings for the medical school, and the property was extended by additional purchases in the neighbourhood. The endowment later rose to £390,000. The original five professorships, established in 1882, included one medical subject, that of chemistry (Thomas Carnelley), and shortly afterwards, between 1884 and 1889, other chairs in botany (Patrick Geddes), natural history (D'Arcy Wentworth Thompson), anatomy (Andrew Melville Paterson), and physiology (Edward Waymouth Reid), as well as a lectureship on surgery, were established.

Affiliation with St. Andrews

When the Universities (Scotland) Act came into force, this provision for teaching medicine at Dundee was in operation, and, in addition, there had also been in existence at St. Andrews the chairs of chemistry, of natural history and of medicine (subsequently converted into physiology), and a lectureship in botany. By this Act of Parliament, the Commissioners were empowered to affiliate University College, Dundee, to, and make it form part of, the University of St. Andrews, with the object *inter alia* "of establishing a fully-equipped conjoint University School of Medicine." This affiliation was now carried out, and by an ordinance of 1894, enforced in 1897, regulations for degrees in medicine were enacted by the Commissioners.

New chairs

In the next year (1898) chairs of medicine (Alexander Mitchell Stalker), surgery (David M'Ewan), pathology (Robert Muir), materia medica (William Henry de Wytt) and midwifery (John Alexander Campbell Kynoch) were instituted, and a faculty of medicine was constituted. In 1897, also, a lectureship in forensic medicine and public health (Charles Templeman) was instituted, and in 1901 an ordinance founded the Bute chair of anatomy (James Musgrove) in the United College, St. Andrews. Thus, by the end of the century, a fully-equipped medical school was established in Dundee and in St. Andrews.

After the incorporation of University College, the first two years of the medical course were taught in University College, Dundee, and in the United College, St. Andrews, while the remainder of the curriculum for the medical degree was taught in the University Conjoint School of Medicine at Dundee, and clinical teaching was given in the Royal Infirmary and other medical institutions in the latter city. The whole medical school henceforth came under the administration of the Faculty of Medicine, the Senatus Academicus, and the University Court of the University of St. Andrews, and constituted a part of that university.

Public health and dentistry

The university further instituted a diploma in public health in 1899, and a diploma in dental surgery in 1916, and the lecturers in purely dental subjects were appointed university lecturers as from 1st October, 1929.

By an ordinance of 1920, a chair of bacteriology (William John Tulloch) was founded in the university in 1921.

Later changes

Various changes took place in the personnel of the different chairs about the end of the 19th century, and an increasing number of lecturers was appointed in different subjects. In anatomy, Professor Musgrove was succeeded by David

Waterston at St. Andrews in 1915 ; and at Dundee, Professor Paterson was succeeded by John Yule Mackay in 1894, and he in turn by David Rutherford Dow in 1925. In physiology, Professor Pettigrew was succeeded by Percy Theodore Herring at St. Andrews in 1908. In natural history, after the transfer of Professor D'Arcy Thompson from Dundee to St. Andrews, he was succeeded in 1919 at Dundee by James Fairlie Gemmill, and he in turn, in 1926, by Alexander David Peacock. In chemistry, at Dundee, Professor Carnelley was succeeded in turn by Percy Faraday Frankland in 1888, James Walker in 1894, Hugh Marshall in 1908, and Alexander M'Kenzie in 1914 ; the changes in the chair of this subject at St. Andrews have been already mentioned.

In surgery, Professor M'Ewan was succeeded by Lloyd Turton Price in 1920 ; in medicine, Professor Stalker was succeeded by Adam Patrick in 1923 ; in materia medica, Professor de Wytt was succeeded by Charles Robertshaw Marshall in 1899, and he in turn by Francis James Charteris in 1920 ; in pathology, Professor Muir was succeeded, in 1899, by Lewis Robertson Sutherland ; and in midwifery, Professor Kynoch was succeeded by John M'Gibbon in 1928.

Lectureships

After the institution of the medical school, and to supplement the professors appointed between 1898 and 1901, several lectureships were founded in addition to those in botany and forensic medicine already in existence. These were in physiology (David Fraser Harris), ophthalmology (Angus Macgillivray), mental diseases (James Rorie), clinical medicine (James Mackie Whyte), clinical surgery (David Middleton Greig), diseases of the throat and ear (George Taylor Guild), and clinical midwifery and gynæcology (Robert Cochrane Buist). Other lecturers and readers were subsequently added in chemistry, zoology, anatomy, pathology, public health, diseases of children, diseases of the skin, anæsthetics and fevers.

Institute for clinical research

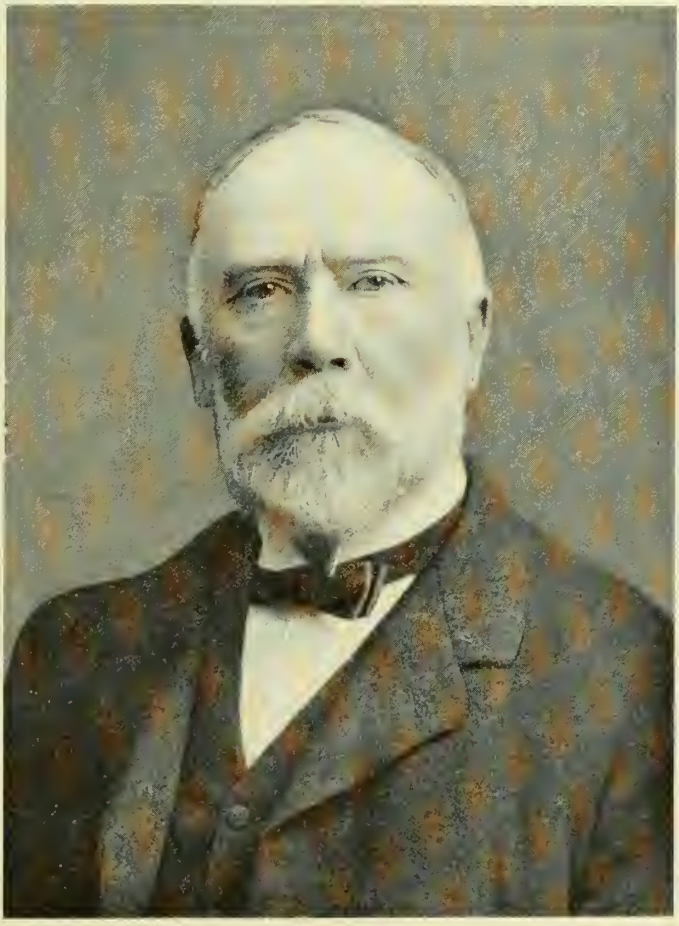
The James Mackenzie Institute for Clinical Research, though not connected with the university, was founded by Sir James Mackenzie (1853–1925)[1] at St. Andrews in 1918. Mackenzie, after graduating at Edinburgh in 1878, had taken up medical practice at Burnley in Lancashire, and from the beginning had embarked upon the quest of his life, which was to understand the mechanism of production and the prognostic significance of the symptoms about which his patients complained. He had set before himself the task of observing every patient carefully over a long period of years in order to discover how far those who presented certain symptoms or physical signs tolerated the illnesses and stress of life. He had particularly studied the pulse by new instrumental methods, and his book upon this subject, published in 1902, made his reputation.

James Mackenzie

At the age of 54 he took up practice in London as a heart specialist, and was of great use to the military authorities during the war (1914–1918), by devising means which enabled a distinction to be drawn between organic and merely functional diseases of the heart, so that the fit men could be separated from the unfit. At the age of 65, however, he gave up consulting practice and, choosing St. Andrews as a small town where he could find a population of

[1] Wilson : "The Beloved Physician, Sir James Mackenzie," London, 1926.

moderate dimensions and of both urban and rural character, he proceeded to elaborate an institute for the study of symptoms. This institute was intended largely to develop the idea that progress in medicine would depend upon the study of symptoms in early phases of disease.



Sir James Mackenzie (1853–1925)

Recent development

As indicating the development of the conjoint medical school after its foundation, the following facts may be mentioned: In 1899 there were 60 medical students matriculated in the university (including St. Andrews and Dundee). In 1923–24 (at the apex of the post-war university activity) the number rose to 242. In 1927–28 the total was 134. Medical degrees conferred under the new system rose from one in 1900–01 to six in 1903–04. In 1923–24 (post-war period) 68 degrees were granted. The number for 1927–28 was 18.

GROUP OF EDINBURGH PROFESSORS, ABOUT 1850

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

Chapter XXIII

Edinburgh Medicine from 1830 to 1870

Rise of surgery

Up to the early years of the 19th century, Edinburgh had been specially distinguished as a school of physic, and had been a resort of students from a distance, who came to hear this side of the healing art expounded by Rutherford, Cullen, Black, Hope and Gregory. It had also become a celebrated school of anatomy under the second Monro, and this aspect of its teaching had been still further improved by the brothers John and Charles Bell, and the surgeon-anatomists who followed in their footsteps. Just as the great development of anatomy in London in the hands of the brothers John and William Hunter in the latter half of the 18th century had been followed by a great improvement in surgery, with exponents like Sir Astley Cooper and Sir Benjamin Brodie, so in the Edinburgh school, a great development of surgery appeared about the third decade of the 19th century.

Decline of students in university

About the year 1840, an important dispute arose between the Town Council and the Senatus of Edinburgh University, which dragged on through the courts for several years, and which ultimately resulted in the Universities' Act of 1858 and the subsequent Royal Commission. In the year 1826, one hundred years after the foundation of the medical faculty in Edinburgh University, the number of medical students in the university classes had stood at about 900, but from this time they steadily dwindled to about 400 some 40 years later, although large numbers continued to attend the extra-academical or, as they came later to be called, extra-mural lectures.

Extra-academical lectures to qualify for graduation

In 1840, Professor Syme had written an important letter to the Town Council adverting to this diminution, and attributing this to the rigidly exclusive rule according to which the University of Edinburgh recognised no medical teaching as qualifying for its degree except that given within itself or in some other university. He recommended the Town Council to enquire into the matter, and to ordain a recognition of extra-academical teaching.

It happened that about this time many teachers in the Royal College of Surgeons at Edinburgh were particularly brilliant and singularly successful. Accordingly, in February, 1842, the Town Council, after consideration, sent to the university a draft of alterations in the medical statutes, of which the main point was that four classes by outside teachers should be recognised as qualifying towards a degree. The Senatus attempted to delay this, but the Town Council directed that these regulations should come into force in the following winter.

The matter was allowed to stand over till 1845, when the Senatus proposed to recognise the teaching of the schools in London and Dublin, but the Town Council

insisted that the courses of teachers of medicine in Edinburgh, recognised as such by the Royal Colleges of Physicians and Surgeons in Edinburgh, should also be recognised as qualifying for graduation in the university to the extent of one-third of all the subjects required, or of one year out of the four years' medical course. The medical professors could bear the idea of accepting teaching that was given in London or Dublin as equivalent to their own, but they dreaded having rival teachers in Edinburgh, so that any student, instead of coming reverently to the professor of a medical subject, might elect to walk across the street and get his teaching from someone who had been recognised by the medical corporations of the city.

The Senatus accordingly resolved to appeal to the courts, although it is difficult now to understand how they could expect to win a case on precisely the same ground as that in the action already decided against them and in favour of the Town Council and Professor James Hamilton in 1826. In 1851, Lord Dundrennan rejected the plea of the Senatus as being *res judicata*, and, in 1852, on appeal, his decision was confirmed by the Inner House.[1] When the Senatus appealed to the House of Lords, the law lords confirmed the Scottish decision,[2] and although the Senatus procrastinated for some time, the Town Council regulations recognising extra-mural rivals to the medical professors came into operation in 1855, with, it may be added, great subsequent benefit to the Edinburgh medical school.

By the Universities' (Scotland) Act, 1858, the powers of the Town Council of Edinburgh to regulate the university were considerably modified, the Town Council being given representation upon the University Court, which now became the chief regulating body of the university, and the Town Council also having a majority of representation upon the Court of Curators, which was to choose the principal and certain of the professors. The Commissioners appointed under this Act[3] laid down that courses in 16 subjects were to be studied by candidates for the degrees of M.B., C.M. at the University of Edinburgh, and the student was obliged to have studied for at least one year in the University of Edinburgh, but otherwise there was little restriction as to the teachers from whom he might take the necessary classes.

The Commissioners in their report referred to the regulations then existing in regard to extra-academical teachers in Edinburgh as follows: "According to these regulations, all members of the Colleges of Physicians or Surgeons, whether graduates of the university or not, and without limit as to the number of persons teaching any particular branch, are, on passing an examination of a Board nominated by their College, entitled to have their lectures recognised by the University."[4]

The right was again confirmed by the Commissioners of 1889, especially as regarded clinical medicine and clinical surgery, in which the student might be taught by the ordinary physicians or surgeons of the Royal Infirmary of Edinburgh. Although an attempt was made by the University Court to subvert this through an agreement made with the Managers of the Royal Infirmary in 1917, the old

[1] "Session Cases," 14 Dunlop, p. 74.
[2] "Appeal Cases," 1 Macqueen, p. 485.
[3] Ordinance No. 5, dated 6th August, 1859.
[4] "General Report of the Commissioners under the Universities' (Scotland) Act, 1858," Edinburgh, 1863, p. 229.

status of the physicians and surgeons of the hospital as teachers in all respects of equal standing with the university professors was re-established in 1929.

Surgery

The chair of surgery was founded in the year 1831, under the conditions mentioned in the last chapter. The first incumbent was Dr. John William Turner (1790–1836) who had been assistant to Dr. John Thomson, and had afterwards succeeded him as professor of surgery to the Royal College of Surgeons. His tenure of the chair was short, for he died at the age of 46, after a chill contracted in the course of his Infirmary duties. On his death, the chair was offered to Sir Charles Bell (1774–1842), who had made a great reputation as an anatomist and scientist in London. On Bell's return to Edinburgh, after an absence of 32 years, he stepped into a completely new life. His previous work in connection with anatomy has been mentioned in Chapter XIX.

J. W. Turner

Charles Bell

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

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

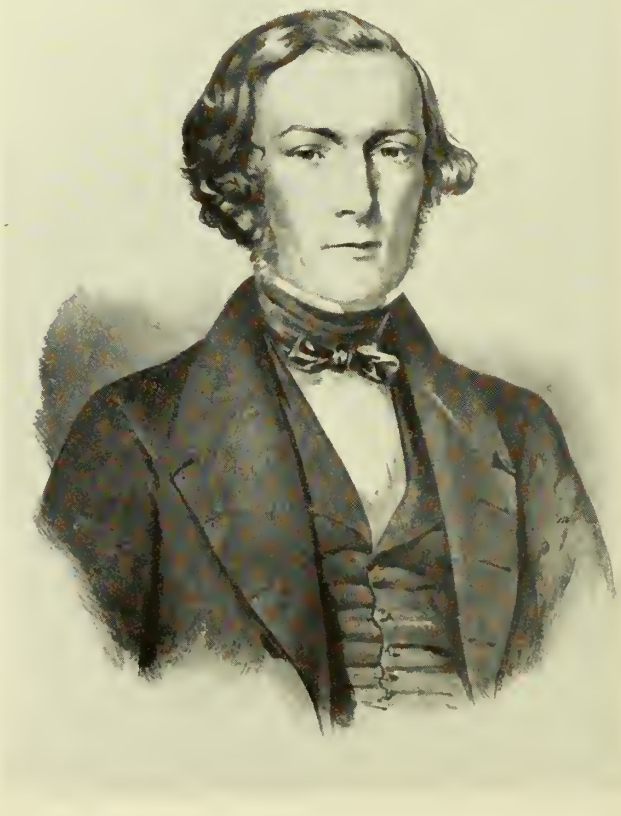
Bell acquired a considerable practice among the nobility of Scotland, but he appears, at the time, to have been in failing health. In 1838, he published his "Institutes of Surgery," and, in 1841, a volume of "Practical Essays," and he conducted the routine work of the surgical class and of his wards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

James Miller

Sir Charles Bell was succeeded in the chair of surgery by James Miller (1812–1864), who had studied at St. Andrews and Edinburgh, taking the licentiateship of the Royal College of Surgeons in 1832. He had been assistant to R. J. Mackenzie and Robert Liston, succeeding to the practice of the latter when he went to London. In addition to his skill as a surgeon, Miller was celebrated as an orator, and, at the Disruption of the Scottish Church in 1843, he rendered great service to the Free Church of Scotland both by speech and pen. He was also well known for his speeches as a temperance reformer. The same qualities stood him in good stead in his lectures on surgery, which were illustrated by anecdotes and illuminated by flashes of wit. He was an early exponent of constitutional treatment for tuberculous joints.[1] His most important contributions to surgical literature were his "Principles of Surgery," published in 1844, and "Practice of Surgery," published in 1846, which after several editions, were amalgamated in 1864 into a "System of Surgery." This book had a great sale in America as well as in Britain. When Miller died in 1864, he was succeeded by Mr. James Spence.

[1] *Edinburgh Medical Journal*, Vol. X., Part 1., p. 92.

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



JAMES MILLER (1812-1864)

The deficiencies of Monro *(tertius)* induced most of the medical students in the early years of the century to take out the anatomical classes of John Barclay and his successor, Robert Knox; and their dissecting-rooms in Surgeons' Square formed the training-ground for most of the surgeon-anatomists, who first acted as assistants to Barclay and afterwards conducted classes of their own in the immediate neighbourhood. In 1826, the practical study of dissection was made compulsory on all candidates for degrees, so that accommodation and "subjects" had to be provided for about 1000 students in Edinburgh. The resurrectionist activities to which this gave rise have already been mentioned.

John Lizars

John Lizars (1794-1860) was professor of surgery to the College of Surgeons from 1831 to 1839, and had also been a popular teacher of anatomy. He had been apprenticed to John Bell, had served as a surgeon in the navy, and had returned to Edinburgh in 1814 and taken the Fellowship of the Royal College of Surgeons.

He then became a partner with John Bell and Robert Allan, the author of "Allan's Surgery," which was a popular book in its time. He lectured on anatomy and physiology along with Allan, who lectured on surgery, and after separating from Allan, he lectured on anatomy and surgery to a class of about 150 students up to the time of his appointment as professor of surgery. His "Anatomical Plates," mostly drawn from his own dissections, was a well-known practical aid in the Edinburgh dissecting-rooms.[1]

SIR WILLIAM FERGUSSON (1808-1877)

He was a bold and fearless operator, and enjoys the reputation of having been the first person to ligate the innominate artery for aneurysm, an operation which he performed with the assistance of Fergusson in 1837. His "Observations on Extraction of Diseased Ovaria,"[2] dealing with four cases, was the first description in Britain to place the operation within the bounds of regular surgery, although the operation had been performed and described more than a century earlier by Houston, in Glasgow. He was also the first Scottish surgeon to remove the jawbone for sarcoma.[3] He published a "System of Practical Surgery," and is celebrated for a life-long contention with Syme. His brother, Alexander Jardine Lizars, who had also been a lecturer on anatomy at Edinburgh, became professor of anatomy at Marischal College, Aberdeen, in 1841.

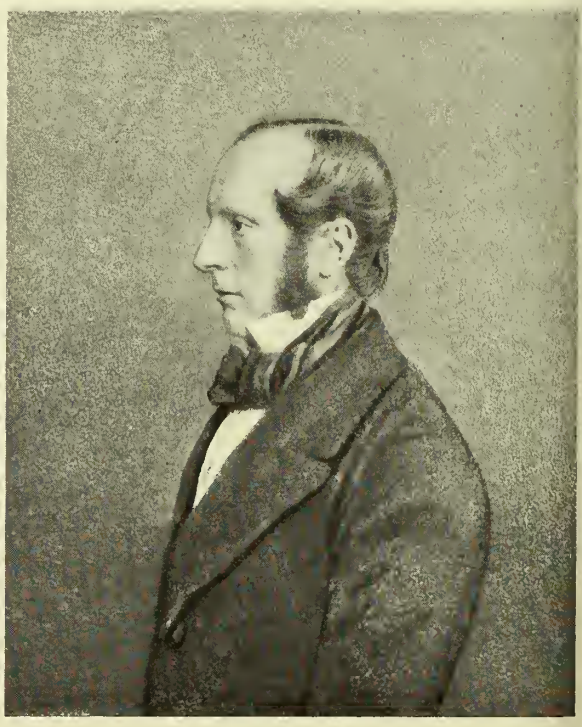
[1] *Edinburgh Medical Journal*, Vol. VI., p. 101.
[2] *Edinburgh Medical and Surgical Journal*, July, 1825, p. 174.
[3] Op. cit., October, 1826, p. 305.

William Fergusson

William Fergusson (1808–1877) was a pupil and assistant of Knox, and a dissector of extraordinary skill. His dissections of the blood vessels in various parts of the body are still shown among the most valued preparations in the Museum of the Royal College of Surgeons of Edinburgh.

A former student said of him: "At that time, and long after, he laboured, almost lived, in the dissecting-rooms, performing all the duties of demonstrator in the most efficient manner." He not only made elaborate dissections, but practised assiduously on the violin for the purpose of increasing the development and agility of the muscles in his hand and fingers, with a view to his future occupation as an operating surgeon.

Following in the footsteps of John Bell, he began a course of demonstrations on surgical anatomy in 1829, and, in 1839, was appointed a surgeon to the Royal Infirmary in succession to Liston. Although he was an active teacher and operator in Edinburgh, his professional life in this city was short, for in 1840, the chair of surgery at King's College, London, was offered to him, and the greater part of his life's work is associated with London.[1]



Richard James Mackenzie (1821–1854)

His "Manual of Practical Surgery" passed through five editions, and was translated into various European languages.[2]

R. J. Mackenzie

Richard James Mackenzie (1821–1854) was another surgeon-anatomist of great promise, who had a short professional life in Edinburgh. He had graduated at Edinburgh and studied surgery in various continental schools. Returning to Edinburgh in 1844, he became a Fellow of the Royal College of Surgeons, and, in 1848, was elected an assistant-surgeon to the Royal Infirmary. In the following year he commenced to lecture on surgery at Surgeons' Hall, becoming a very popular teacher.[3]

[1] Miles: "Edinburgh School of Surgery before Lister," p. 132.
[2] *Edinburgh Medical Journal*, Vol. XXII., Part II., p. 856.
[3] *Edinburgh Medical and Surgical Journal*, Vol. LXXXII., p. 281.

His original contributions to surgery included papers on " A Successful Ligation of the Subclavian Artery," " Excision of the Knee-joint," and " Amputation at the Ankle by an Internal Flap." Having volunteered for service with the army in the Crimea, he died there of cholera in 1854. His death was regarded as a great loss to the Edinburgh surgical school of the day,[1] but it virtually made room in Edinburgh for Lister, who succeeded to his lectureship.

Robert Liston

Much romance centres around the name of Robert Liston (1794–1847),[2] who is generally associated with his contemporary and relative, James Syme. He began the study of medicine in Edinburgh at the age of 16, as a pupil of John Barclay, under whom he devoted himself enthusiastically to the study of anatomy, and was one of the great resurrectionist figures of the time.

In 1815, he was house surgeon in the Royal Infirmary of Edinburgh, first to Mr. George Bell, and then under Dr. Gillespie. Later he became a student under Blizard and Abernethy in London, and, in 1818, he became a member of the Royal Colleges of Surgeons both in Edinburgh and in London. In this year he began to lecture upon anatomy, with James Syme as his demonstrator and assistant, to a class of 60 students. He very quickly became famous as a surgeon possessed of unusual initiative and dexterity in operations.

Exclusion from hospital

Partly, no doubt, because of his uncompromising manner and partly by reason of the jealousy of his seniors, he was accused to the Managers of the Royal Infirmary of criticising the practice of the hospital in such a way as to diminish its reputation with the public, and, in 1822, the Managers passed a resolution prohibiting Mr. Liston from entering the wards or operation-room of the Royal Infirmary at any time, or on any pretence whatever. Liston defended himself in an open letter to the Lord Provost,[3] and at the present day the unprejudiced reader almost inevitably takes the side of Liston. Five years later, however, Liston was appointed one of the surgeons to the Infirmary, and his temporary exclusion from the institution does not appear to have had any great effect in diminishing his reputation or retarding his career. About this time he began to deliver lectures on clinical surgery, at first with Professor Russell, and later with the other surgeons of the Infirmary.

His bone forceps

One of his earliest contributions to surgery was a dissertation read before the Royal Medical Society in 1820, on " Fracture of the Neck of the Femur," and in the same year he published a series of five cases of aneurysm, which are celebrated in surgical annals and which formed the beginning of his great reputation. About this time he introduced the bone-pliers with which his name is specially associated, and which, though designed to facilitate the cutting of small bones, are said to have been used in Liston's powerful hand for re-section of the femur.

Operations

In 1823 (during his period of exclusion from the Royal Infirmary) Liston performed an operation which caused a great sensation at the time. It was the removal of an enormous tumour of the nature of elephantiasis, weighing $44\frac{1}{2}$ lbs.

[1] Miles : " Edinburgh School of Surgery before Lister," p. 140.
[2] *Edinburgh Medical and Surgical Journal*, Vol. LXIX., p. 267.
[3] Letter to the Rt. Hon. the Lord Provost of Edinburgh, by Robert Liston, Edinburgh, 1822.

JAMES SYME (1799-1870)

ROBERT LISTON (1794-1847)

The flow of blood during the operation was compared by those present to the discharge of water from a shower-bath, but in three weeks the patient was able to walk about. In this operation, Liston says: "I had the valuable assistance of my friend, Mr. Syme, without which the result might have been less favourable." [1]

An idea of the great importance attaching in these pre-anæsthetic days to rapidity of operation, as well as of Liston's great strength and self-confidence, is gained from his "Observations on Amputation." [2] Referring to the tourniquet, he says that in his opinion, it is, in many cases, worse than useless, and he described how, when no proper assistance was available, he has repeatedly compressed the femoral artery with one hand while with the other he removed the limb "with the loss of much less blood than if I had followed the ordinary mode." Another glimpse of his rapidity in operation is obtained from his "Remarks on the Operation of Lithotomy," [3] in which he says: "Should there be but one or two stones of a moderate size (under the size of a hen's egg), the incisions and extraction should not occupy more than two or three minutes at most."

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

James Syme

James Syme, who has been called by Miles "the Napoleon of surgery," was born at 56, Princes Street, Edinburgh, in 1799.[4] As a boy he spent much of his spare time in the company of Robert Christison, working at chemical experiments. They, and about a dozen fellow-students of Dr. Hope's chemistry class, founded a chemical society, which met once a week to repeat the professor's experiments. Arising out of this, Syme discovered, at the age of 18, a solvent for indiarubber, and a process by which cloth might be impregnated with this substance and so attain waterproof properties. He published his discovery,[5] but he never got the credit for it. Mr. Macintosh, a manufacturing chemist of Glasgow, heard of the discovery, took out a patent for it and made a fortune, as well as getting his name permanently associated with the useful garment made from the material first prepared by Syme.[6]

[1] *Edinburgh Medical and Surgical Journal*, October, 1823, p. 566.
[2] Op. cit., January, 1824, p. 42.
[3] Op. cit., January, 1825, p. 26.
[4] Miles: "Edinburgh School of Surgery before Lister," p. 174.
[5] Thomson's "Annals of Philosophy," 1818, Vol. XII., p. 112.
[6] "The Life of Sir Robert Christison, Bart.," Vol. I., p. 62.

Syme's early years

Syme spent two years at the arts classes of the university, and, in 1817, began his medical studies by joining the anatomy class of Dr. John Barclay, where Liston was at the time the principal demonstrator. In 1818, when Liston commenced lecturing on his own account, Syme joined him as demonstrator and (later) assistant, and in 1823, when Liston gave up teaching anatomy, Syme took over the class, after joining the College of Surgeons as a Fellow. In 1821, he read a dissertation at the Royal Medical Society "On Caries of the Bones," which indicated one of the important lines of his later work. In 1822, along with his friend Sharpey, he visited Paris to attend the clinics of Dupuytren, and to take a course of operative surgery under Lisfranc.

Operations

On his return to Edinburgh one of his earliest major operations was the amputation at the hip-joint of the limb of a lad, William Fraser, aged 19, who had suffered from necrosis of the thigh-bone for three years. This was the first occasion on which this operation had been performed in Scotland, and Syme was assisted by Liston, who controlled the bleeding in the manner which he favoured, by pressure of his hands. The operation was successfully performed, and did much to establish Syme's reputation as a surgeon. In 1826, he excised the head of the humerus for tuberculous disease of seven years' duration, and in 1828 he published a famous case of excision of the lower jaw for sarcoma. The tumour was of enormous size, and the operation lasted 24 minutes, and, at a time when anæsthesia was unknown, must have been a terrible ordeal for the patient. Five weeks later, however, the patient was quite well and thinking of resuming his occupation.

Minto House

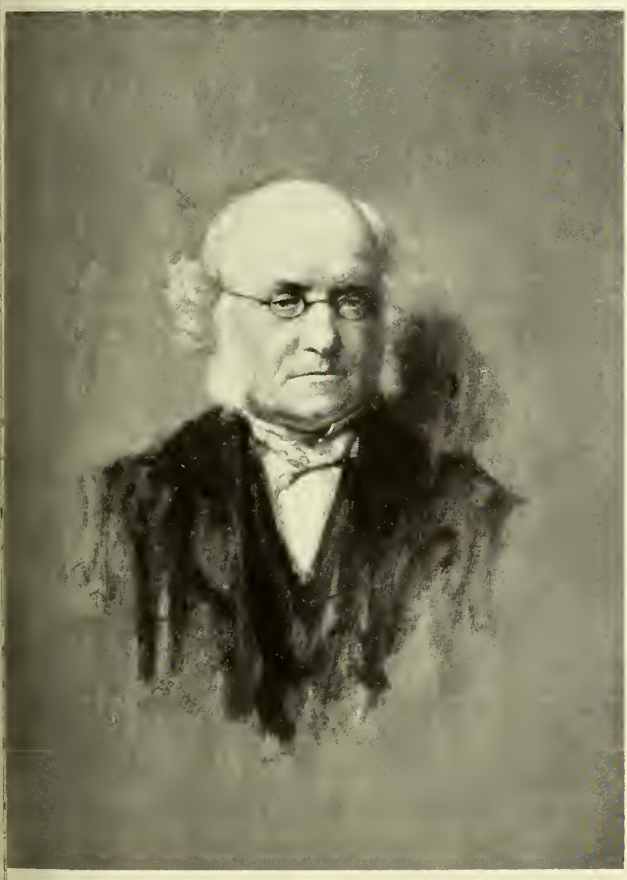
Syme's disappointment in being refused the surgeonship of the Royal Infirmary, in 1829, on account of his quarrel with Liston, has been mentioned. Most of his operations up to this time had been carried out in the homes of patients, often in the most unsuitable surgical surroundings. His reputation, however, had become very great, both with the public and with the students, and he conceived the bold idea of establishing a surgical hospital for himself. In 1829, a surgical hospital was opened by him in Minto House, an old mansion which stood in a position that is now on the north side of Chambers Street. Here patients applied for admission in great numbers, and 70 patients were admitted within the first three months. Very soon this surgical hospital had to be extended, and its reputation came to rival that of the Royal Infirmary.[1] This small hospital has been immortalised by Dr. John Brown in "Rab and his Friends."

John Brown (1810–1882), was a student under Syme at Minto House, and later practised in Edinburgh. Though his practice was not large, he became famous for his essays collected under the title "Horæ Subsecivæ," among which the above-named sketch is to be found.

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

Clinical lectures

One of the landmarks in Syme's career was the publication, in 1831, of his "Treatise on the Excision of Diseased Joints," a type of operation which he was the first to place on a successful basis. In the same year, Syme brought out his "Principles of Surgery." In 1833, Professor Russell vacated the chair of clinical surgery, and, after a sharp contest between Liston and Syme, the latter was appointed his successor and now became one of the surgeons to the Royal Infirmary. Here he introduced a new method of teaching clinical surgery, instead of the dissertations on allied groups of cases which had been previously delivered by Professor Russell.



JOHN BROWN (1810-1882)

His method may be described in his own words :—

> ". . . to bring the cases one by one into a room, where the students are comfortably seated, and if the patients have not been seen previously by the surgeon, so much the better; then ascertaining the seat and nature of their complaints, and point out their distinctive characters.
>
> "Having done this, so that everyone present knows distinctly the case under consideration, the teacher, either in the presence or absence of the patient, according to circumstances, proceeds to explain the principles of treatment, with his reasons for choosing the method preferred, and, lastly, does what is requisite in the presence of his pupils.
>
> "The great advantage of this system is that it makes an impression at the same time on the eye and ear, which is known from experience to be more indelible than any other, and thus conveys instruction of the most lasting character."[1]

[1] *The Lancet*, 1st October, 1864, p. 391.

Syme's London appointment

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

Return to Edinburgh

During the 36 years through which Syme held the chair of clinical surgery, he became easily first among the surgeons of Edinburgh, and many of his operations and other contributions to surgical practice have become classics of the art of surgery. About one-half of this period belonged to the days before anæsthetics, but, fortunately, this great boon to mankind was introduced about the middle of Syme's period of activity. The amputation at the ankle-joint, which goes by his name, was first performed in 1842, and was intended to replace the amputation below the knee in suitable cases. His investigation "On the Power of the Periosteum to form New Bone," in 1837, was an important contribution to surgical pathology.

His operation for external urethrotomy, first performed in 1840, gave rise to a great deal of acrimonious discussion among surgeons of the time, which it is difficult now to understand. The treatment of aneurysm, which appears to have been a much more frequent disease in the early 19th century than it is to-day, received a great deal of attention from Syme. Several daring operations were performed by him for the cure of this condition, and greatly increased his already high reputation.

His quarrels

Syme's acrimonious disposition has been mentioned in connection with his bitter quarrel with Liston. Five years after Liston left Edinburgh, he made overtures of friendship to Syme, which, fortunately, were eagerly accepted, and the old friendship was renewed and maintained till Liston's death. Syme's defeat, in 1831, by Lizars for the professorship of surgery in the College of Surgeons, was a cause of perpetual enmity between the two. Simpson, too, offended him because he, an obstetrician, ventured to recommend acupressure as a means of controlling surgical hæmorrhage, and Syme's adoption of anæsthesia was delayed for a time for the same reason.

Syme's rejection of acupressure was dramatic. Entering the operating-theatre with Simpson's pamphlet, soon after its appearance, he called for an operating-knife, cut the pamphlet to shreds before the assembled students, threw the remains into the sawdust below the operating-table, and remarked to the class: "There, gentlemen, is what acupressure is worth." He also quarrelled with his fellow-members of the General Medical Council, and even on one occasion, in regard to the law of evidence, with the judge who was trying a case in which he was a witness.

Another of his feuds was conducted with his colleague James Miller, professor of surgery. This had continued for many years, as Miller was a fast friend of Professor Simpson, but when Miller got into bad health he decided to make

an effort to reconcile Syme. Feeling himself a dying man, Miller went to see Syme at his house, Syme was standing in front of the fire with his hands behind his back. Miller held out his hand saying he had come to say good-bye. Without offering to shake hands, Syme replied, " Huh, so you've come to apologise, have you ? Well ! I forgive ye." And that was all.

In the last year of Syme's tenure of the clinical surgery chair, he spoke of the beginning of the antiseptic principle in surgery, which, he said, "is certainly destined in no small degree to revolutionise the practice of surgery." In 1869, he had an apoplectic seizure and resigned the chair, where he was succeeded by his son-in-law, Joseph Lister (1827–1912).

Picture of Syme

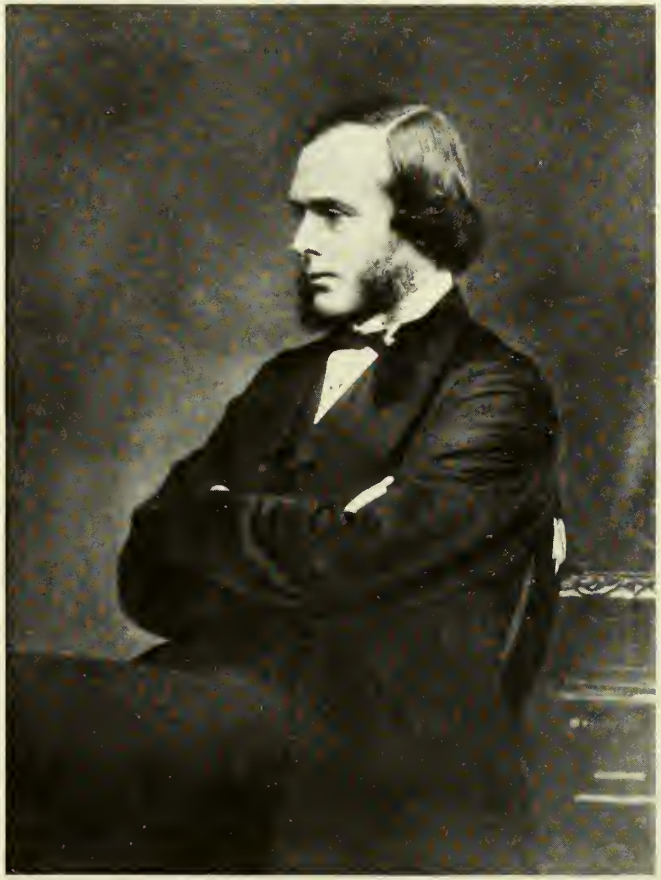
Referring to the year 1853, when Lister arrived in Edinburgh to work under Syme, the following picture of Syme is given by one of his house-surgeons, the late Dr. Joseph Bell :—

" His hospital life was on this wise,—two clinical lectures a week, operations two days more (perhaps three), a ward visit when he wished to see any special cases ; he spent generally about two hours in the hospital. Driving down in his big yellow chariot, with footman, hammercloth and C-springs, with two big, rather slow and stately white or grey horses, he used to expect his house surgeon to meet him at the door and move upstairs with him to his little room, where he at once took up his post with his back to the fire and his hands under the flaps of his swallow-tail coat. In this little room he generally held a small *levée* of assistants, old friends, practitioners wanting to arrange a consultation, old pupils home on leave ; and before this select class he examined each new and interesting case that could walk in. The new cases had been collected, sifted and arranged by the dresser in a little room on the stair, irreverently known as ' the trap,' and Mr. Syme then and there made his diagnosis, which to us young ones seemed magical and intuitional, with certainly the minimum of examination or discussion. One was sent off with a promise of a letter to his doctor, another was fixed for tomorrow's lecture or next day's operation. Then, if it was lecture day, a tremendous rush of feet would be heard of the students racing to get the nearest seats in the large operating theatre where the lecture was given. Chairs in the arena were kept for colleagues or distinguished strangers ; first row for dressers on duty ; operating table in centre ; Mr. Syme on a chair in left centre. In his later days it was a fine cushioned chair called the ' chair of clinical surgery.' (In 1854, it was a meek little wooden chair without arms.) House-surgeon a little behind, but nearer the door ; instrument clerk with his well-stocked table under the big window. He comes in, sits down with a little, a very little, bob of a bow, rubs his trouser legs with both hands open, and signs for the first case. The four dressers on duty, and in aprons, march in (if possible in step), carrying a rude wicker basket, in which, covered by a rough red blanket, the patient peers up at the great amphitheatre crammed with faces. A brief description, possibly the case had been described at a former lecture, and then the little, neat, round-

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

PAGE FROM LETTER BY LORD LISTER

indicating the date of the accompanying photograph



JOSEPH LISTER (1827–1912)

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

shouldered, dapper man takes his knife and begins ; and the merest tyro sees at once a master of his craft at work—no show, little elegance, but absolute certainty, ease and determination ; rarely a word to an assistant—they should know their business if the unexpected happens ; his plans may change in a moment, but probably only the house-surgeon finds it out ; the patient is sent off, still anæsthetised, and then comes a brief commentary, short, sharp, and decisive, worth taking down verbatim if you can manage it ; yet he has no notes, a very little veiled voice, and no eloquence." [1]

Joseph Lister

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

House-surgeon

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

Lister occupied a somewhat unusual position. He was already a Fellow of the Royal College of Surgeons of England, and Syme apparently gave him to understand that he might consider their mutual relations were those of surgeon and consulting-surgeon, so that Lister was allowed the exceptional privilege of deciding as to which of the cases admitted during the night he should himself operate upon.[2] Syme treated him with great affection, and Lister became a constant visitor at Syme's house of Millbank, pleasantly situated in the Grange suburb of Edinburgh. This was the period of the Crimean War, and Dr. R. J. Mackenzie, an Edinburgh surgeon of great promise, had volunteered for service in the Crimea as an operating surgeon. He had intended to be back in Edinburgh by November, 1854, to resume his winter course of lectures on surgery, but in October, 1854, he died of cholera, and Lister's friends at once suggested that he should continue Mackenzie's lectures and apply for his post as assistant-surgeon at the Infirmary.

Lecturer

[1] Edinburgh Hospital Reports, 1893, Vol. I., pp. 22 and 23.
[2] Godlee: "Lord Lister," London, 1917, p. 36.

With the advice of Syme, Lister took Mackenzie's lecture-room at No. 4, High School Yards, was elected a Fellow of the Royal College of Surgeons of Edinburgh, and took lodgings at No. 3, Rutland Street, in the spring of 1855. At the same time he became engaged to Syme's eldest daughter, Agnes, whom he married in April, 1856. He began his course of lectures upon the principles and practice of surgery on 7th November, 1855, to a class of 23 students. In the following year, after a tour on which he visited various continental surgical centres, he returned to Edinburgh in October, 1856, and took the house, No. 11, Rutland Street, being elected in the same month assistant-surgeon to the Royal Infirmary.

Early research

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

In 1856, he started his experiments upon the coagulation of the blood, a subject which was exciting a considerable amount of controversy at the time, and, in 1858, he read a paper on "Spontaneous Gangrene" before the Medico-Chirurgical Society of Edinburgh. During the next year, he was mainly occupied with teaching, hospital work, and the practice which he had been successful in attracting through Syme's influence. In 1860, on the death of Professor James Lawrie, of the chair of surgery in Glasgow, Lister was nominated by the Crown to this post. He was inducted to it on 9th March, 1860, and in May of the same year he commenced his summer course of lectures to 182 students. He was not, however, appointed surgeon to the Glasgow Royal Infirmary till 5th August, 1861. The later researches on inflammation, and especially those on antiseptics, date from 1864 onwards.

Leaves for Glasgow

James Young Simpson

The outstanding figure of Edinburgh medicine about the middle of the 19th century was James (later Sir James) Young Simpson (1811–1870).[5] He was born at Bathgate, being the youngest of seven sons of a baker in this town, and he went to school at the precocious age of four, being even at this early stage

[1] "Lister's Collected Papers," Vol. I., p. 15.
[2] Op. cit., p. 209.
[3] Op. cit., p. 27.
[4] Op. cit., p. 48.
[5] *Edinburgh Medical Journal*, Vol. XV., Part II., p. 1145.

remarkable for the aptitude he showed for lessons. Entering the University of Edinburgh at the age of 14, he graduated M.D. in 1832. Settling in the Stockbridge district, he quickly attracted a large practice, and, in 1840, he was appointed to the chair of midwifery in succession to Professor James Hamilton, at the early age of 28. His residence in later years was at 52, Queen Street, and here the early experiments on anæsthetics, for which he is especially renowned, were carried out.

Sir James Young Simpson (1811-1870)

Research on anæsthetics

In 1846, when news of the first trials of sulphuric ether as an anæsthetic reached Scotland from America, Simpson wrote: "It is a glorious thought, I can think of naught else." An account of the way in which Simpson conducted his experiments, and of the discovery of the anæsthetic powers possessed by chloroform, a substance of which a small supply had been sent to him by Mr. Waldie, a chemist of Liverpool, has been given by his colleague, Professor Miller, and may be quoted here :—

> "Late one evening —it was the 4th of November, 1847—on returning home after a weary day's labour, Dr. Simpson, with his two friends and assistants, Drs. Keith and Matthews Duncan, sat down to their somewhat hazardous work in Dr. Simpson's dining-room. Having inhaled several substances, but without much effect, it occurred to Dr. Simpson to try a ponderous material, which he had formerly set aside on a lumber-table, and which, on account of its great weight, he had hitherto regarded as of no likelihood whatever. That happened to be a small bottle of chloroform. It was searched for, and recovered from beneath a heap of waste paper. And, with each tumbler newly charged,

the inhalers resumed their vocation. Immediately an unwonted hilarity seized the party ; they became bright-eyed, very happy and very loquacious—expatiating on the delicious aroma of the new fluid. The conversation was of unusual intelligence, and quite charmed the listeners—some ladies of the family and a naval officer, brother-in-law of Dr. Simpson. But suddenly there was a talk of sounds being heard like those of a cotton-mill, louder and louder ; a moment more, then all was quiet, and then—a crash. On awaking, Dr. Simpson's first perception was mental—'This is far stronger and better than ether,' said he to himself. His second was to note that he was prostrate on the floor, and that among the friends about him there was both confusion and alarm. Hearing a noise, he turned round and saw Dr. Duncan beneath a chair ; his jaw dropped, his eyes staring, his head bent half under him ; quite unconscious, and snoring in a most determined and alarming manner. More noise still and much motion. And then his eyes overtook Dr. Keith's feet and legs, making valorous efforts to overturn the supper-table, or more probably to annihilate everything that was on it . . ."[1]

Introduction of anæsthesia

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

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

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

" 2. That after having with others proved, in a limited series of cases, the anæsthetic powers of nitrous oxide gas, Dr. Wells proceeded to Boston to lay his discovery before the Medical School and Hospital there, but was unsuccessful in the single attempt which he made, in consequence of the gas-bag being removed too soon, and that he was hooted away by his audience, as if the whole matter were an imposition, and was totally discouraged.

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

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

" 5. That within a few weeks the vapour of sulphuric ether was tried in a number of instances of surgical operations in Boston—Dr. Morton being

[1] Miller : " The Principles of Surgery," Philadelphia, 1852, p. 701.

generally the administrator—and ether vapour was established as a successful anæsthetic in dentistry and surgery.

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

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

Simpson's personal character

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

Christison describes a call which he paid upon Sir James (then Dr.) Simpson, soon after the latter had started practice. The call was in reference to the newly-discovered paraffin which Simpson proposed to patent as a lubricant, and the passage indicates the great attraction which Simpson possessed for patients:—

"Simpson was at this period in the full swing of his marvellous practice. When I called for him, his two reception-rooms were, as usual, full of patients, more were seated in the lobby, female faces stared from all the windows in vacant expectancy, and a lady was ringing the door-bell. But the doctor brushed through the crowd to join me, and left them all kicking their heels at their leisure for the next two hours. We found that the instrument, which marked 100 when arrested by friction without any lubricant, indicated 38 with olive oil, 18 with sperm oil, the usual lubricant then employed, and only 6 with my petroleum. So here was apparently a discovery to make a fortune with."[2]

His works

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

His archæological essays, dealing chiefly with subjects bearing on Scottish history, were published after his death, in two volumes. His collected papers include "Obstetric Memoirs and Contributions," published in 1855; "Selected Obstetric and Gynæcological Works," published after

[1] Simpson: "History of Modern Anæsthetics—a Second Letter to Dr. Jacob Bigelow," Edinburgh, 1870, p. 15.
[2] "The Life of Sir Robert Christison, Bart.," Edinburgh, 1885, Vol. I., p. 396.

ALEXANDER KEILLER (1811–1892)
(Original in the Royal College of Physicians, Edinburgh)

JAMES MATTHEWS DUNCAN (1826–1890)
(Original in the Royal College of Physicians, Edinburgh)

his death in 1871; "Anæsthesia, Hospitalism, and other Essays," in 1871; and "Clinical Lectures on the Diseases of Women," published in 1872, under the editorship of his nephew, Professor A. R. Simpson, who succeeded him in 1870.

Queen's College

The subject of midwifery, which originally included consideration of the diseases of women and children, had been greatly developed in the previous century by Professors Gibson, Young and Alexander Hamilton, and in the early years of the 19th century by Professor James Hamilton, while Sir James Y. Simpson made the Edinburgh School specially distinguished in regard to this department of practice. While Simpson was lecturing in the University, Dr. William Campbell founded a school of obstetrics known as Queen's College, connected with the Royal College of Surgeons. This was largely attended by students, to whom Campbell issued diplomas after examination, in which he was assisted by Dr. Robert Knox. Dr. Campbell was also the first person in Edinburgh, for some years before and after 1840, to give a full course of lectures upon diseases of children. Partly in consequence of the interest created by these lectures, the idea of founding a hospital for sick children came into being about 1856.

William Campbell

Dr. Campbell was assisted and, later, succeeded by his son, Dr. Alexander Dewar Campbell, and he in turn was succeeded, in 1853, as lecturer in midwifery at the Royal College of Surgeons, by Dr. Alexander Keiller (1811–1892).[1]

Dr. William Campbell was lecturing on midwifery in the extra-mural school as early as 1832, and in the same year two other lecturers on this subject were Dr. J. Thatcher and Dr. J. Mackintosh, while Dr. J. Y. Simpson commenced lecturing on this subject in 1839 for a year before he was appointed professor of midwifery in 1840.

Alexander Ziegler

A well-known obstetrician of this period, who taught midwifery specially to his apprentices if he did not lecture on the subject, was Alexander Ziegler, who became a licentiate of the Royal College of Surgeons in 1816, and practised at 30, Buccleuch Place, where he was later assisted by his son, William Ziegler. He invented, about 1830, an ingenious form of the obstetric forceps, in which Smellie's lock was replaced by splitting the shank of one shouldered blade for the passage of the other blade.[2]

Gynæcology

Dr. Alexander Keiller and Dr. J. M. Duncan commenced to lecture upon this subject in 1854.

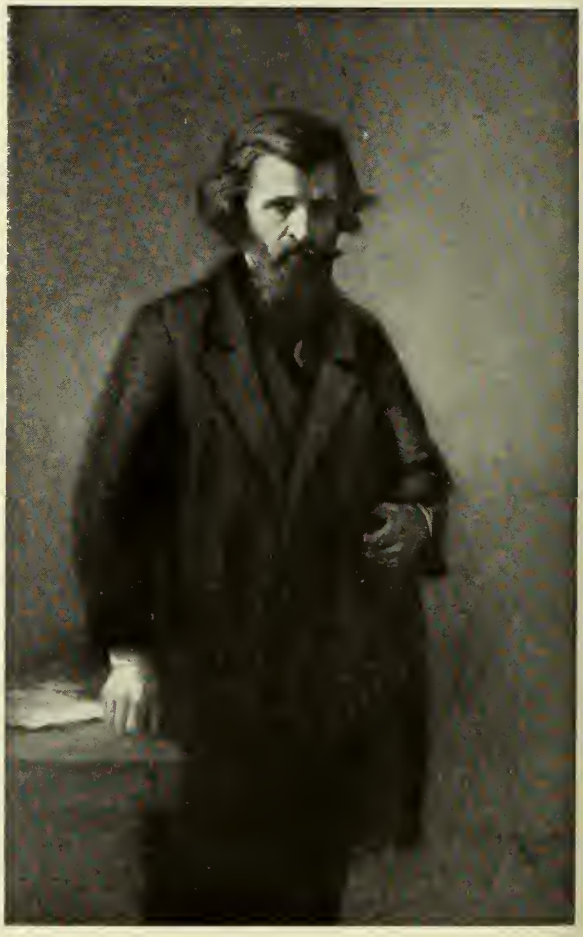
Alexander Keiller

In 1851, Dr. Keiller was elected one of the ordinary physicians to the Royal Infirmary, and, during the 15 years for which he held this post, he arranged with Dr. W. T. Gairdner and Dr. J. Warburton Begbie, who were physicians to the hospital, that he should institute a course of clinical teaching on the diseases of women. Some years after this, an extra ward was set apart for Keiller's course on the subject, and this was the beginning of gynæcological teaching in the Edinburgh Medical School.

[1] *Edinburgh Medical Journal*, Vol. XXXVIII., p. 491.
[2] "Catalogue of Weiss," London, 1831.

J. M. Duncan

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



THOMAS KEITH (1827-1895)
(Original in the Royal College of Surgeons, Edinburgh)

Thomas Keith

Thomas Keith (1827-1895)[1] was apprenticed to Professor James Y. Simpson in 1845, and is said to have been the last medical apprentice in Edinburgh. He formed one of the famous chloroform party in Simpson's dining-room already mentioned. He was afterwards house-surgeon to Syme, and for two years acted as surgeon to the British Ambassador at Turin, where he got into trouble with the local profession for writing against the use of blood-letting. After his return to Edinburgh, he conducted a large practice along with his brother Dr. George Skene Keith, but was particularly attracted to obstetrics and the developing subject of gynæcology.

Ovariotomy

In 1862, he performed his first operation for ovariotomy, having seen the success of operations of this nature which had been commenced some four years previously by Sir Spencer Wells in London. His celebrated series of 136 ovarian operations with 81 per cent. of recoveries was performed in the next ten years. Believing

[1] *British Medical Journal*, 1895, Vol. II., p. 1003.

that general hospitals were not sufficiently aseptic, he converted a house in Great Stuart Street into a private hospital, where most of his early operations were performed. His successful results appear to have been obtained in part by a scrupulous attention to cleanliness in all the surroundings of his operations, but this began before the antiseptic era, and he found that antiseptics, as used in the early days of their employment, interfered with the success of his results. In 1870, the Managers of the Royal Infirmary appointed him an extra surgeon for ovarian disease, a post which he retained for 18 years.

He was also celebrated for his success in the operation of hysterectomy, and, in 1888, he recorded 33 cases of this operation with only three deaths. His early successes in ovariotomy are published in a series of papers in the *Edinburgh Medical Journal* between 1867 and 1874. In 1888, he decided to follow Matthews Duncan and Lister to London, where he continued to practise abdominal operations with his son, Mr. Skene Keith. He was a martyr all his life to the formation of calculi of cystic oxide, for which he underwent numerous operations, and from which he developed a renal sinus that caused much suffering in the latter part of his life.

Physiology

The chair of institutes of medicine had been one of the original professorships of the medical faculty, and the subject, which was sometimes called theory of medicine, was much more closely allied to the practice of medicine than its modern representative, physiology, is at the present day. This chair was to a large extent regarded as a stepping-stone to others.

At the beginning of the century it was held by Andrew Duncan *(senior)*, who, in 1819, retired in favour of his son, Andrew Duncan *(junior)*. He held the chair for two years, when he was transferred to that of materia medica and was succeeded by William Pulteney Alison. Alison in turn held the chair from 1821 to 1842, when he passed to that of medicine, and was succeeded in the professorship of institutes of medicine by Allen Thomson.

Allen Thomson

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

When, in 1842, he came to Edinburgh as professor of physiology, he instituted a celebrated course on microscopic anatomy, which was then quite a new subject. His researches on embryology, while an extra-mural lecturer, had already made him famous. The subject of microscopic anatomy had recently received an enormous impetus from Johannes Müller, who, working in Berlin with the recently-improved achromatic microscope, had, along with Henle and Schwann, made many notable discoveries in the minute structure of the body. This line of research was taken up by Allen Thomson in the domain of normal anatomy, and by William Henderson and Hughes Bennett in the field of pathological anatomy. Thus a great deal of credit for extending this aspect of medical knowledge belongs to the Edinburgh

Medical School in the 'forties of last century. The natural historian of earlier times came, at this period, to be replaced by the biological teachers of the present day, and Allen Thomson was one of the leaders of the movement. He took up the professorship of anatomy at Glasgow, in 1848.

John Hughes Bennett

John Hughes Bennett (1812–1875), who succeeded him as professor of physiology in 1848, had graduated M.D. at Edinburgh in 1837. During his student days his intimate associates had included the Goodsirs, Edward Forbes, John Hutton Balfour and John Reid, all of whom became distinguished biologists of the new school. After graduation, Bennett spent two years in Paris at clinical work, and two years in Germany devoted to research. On his return to Edinburgh,

Lectures on histology

in 1841, he commenced a course of lectures on histology, and was the first to teach the use of the microscope systematically, and to recognise its importance in the clinical investigation of disease. This was the first attempt at the practical teaching of physiology and pathology in Great Britain. In the same year he published a treatise on "Cod-Liver Oil as a Therapeutic Agent." This substance had long been used by the fisher population of Scotland, but following Bennett's advocacy, it now came into general vogue as a remedy.

BLOOD FILMS FROM HUGHES BENNETT'S CASE OF LEUCOCYTHÆMIA published on 1st October, 1845

In accordance with the views of the time, institutes of medicine was regarded as a subject intimately connected with clinical medicine rather than one of abstruse scientific interest, and Bennett, like his predecessors, was elected one of the physicians to the Royal Infirmary.

He was a great teacher of clinical physiology. About 1841, he introduced regular polyclinic teaching in medicine at the Royal Public Dispensary, as Syme did in surgery at Minto House. He was later pathologist to the Royal Infirmary, and at the same time lectured on medicine and pathology. All his pathological cases were carefully annotated and illustrated with microscopic drawings by his own hand. As a lecturer he enjoyed a high reputation with the students, being possessed of great histrionic ability, inherited from his mother. His leading idea was to teach the student method, and it was said of him by an old pupil that "each lecture with him was a work of art, on which he spared no pains."

On pathology

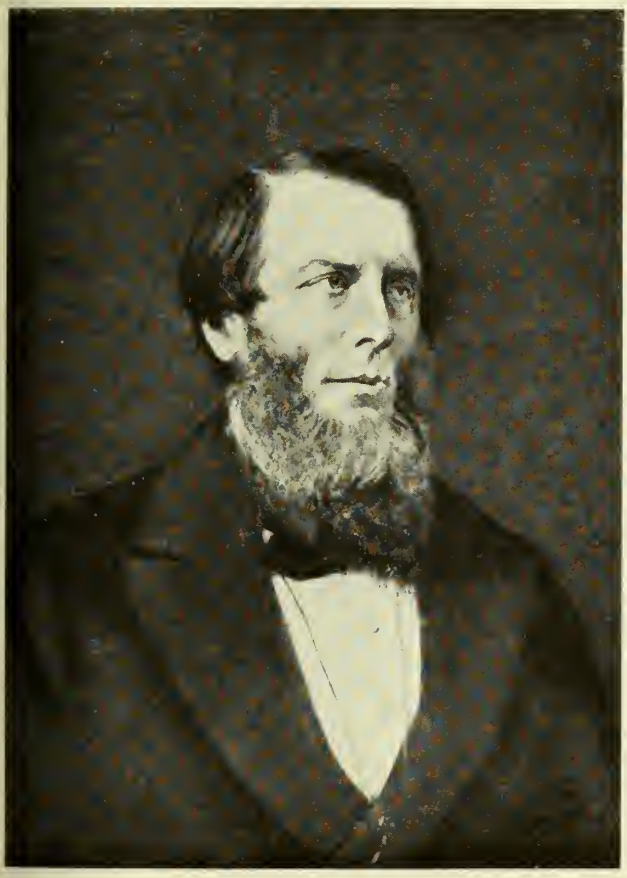
To the class of histology which he had inaugurated, were later added courses of physiological chemistry and on physiological methods of research, and this complete course of instruction in physiology was developed by his successive assistants Dr. Argyll Robertson, Dr. William Rutherford, and Dr. J. G. McKendrick. He taught physiology and medicine for over a quarter of a century, and his "Clinical Lectures on the Principles and Practice of Medicine" was one of the most widely read text-books of its time, passing through five editions in Britain, six in the United States, and being translated into French, Russian and other languages.[1]

On medicine

[1] *Edinburgh Medical Journal*, Vol. XXI., Part I., p. 466.

The chief scientific achievements associated with his name are his original description of the disease leucocythæmia, and the great change to which his investigations led in the current treatment of pneumonia. Leucocythæmia was the first disease of the blood to be described (1845), and its recognition opened up an entirely new branch of medicine. (Addison described pernicious anæmia four years later, in 1849.) The question of priority in the discovery of leucocythæmia is sometimes debated, for, like other discoveries in medicine, it was made simultaneously by different men, three cases of leucocythæmia being independently recorded for the first time in the year 1845. Hughes Bennett's history of the matter, given in his treatise on "Leucocythæmia," in 1852, shows that the credit of priority belongs to him. He had first described leucocythæmia in the *Edinburgh Medical and Surgical Journal* of 1st October, 1845.

Leucocythæmia



JOHN HUGHES BENNETT (1812–1875)

Bennett's treatise on "The Restorative Treatment of Pneumonia," published in 1865, when he was professor of the institutes of medicine, belongs to a type of medical research much more difficult to appraise. The practice of bleeding had come down from the 18th century as a moderate method, and had been developed by the French school of Broussais, by Gregory of Edinburgh, and others, into a powerful weakening or "antiphlogistic" regime, which was supposed to be requisite in order to abort the fever. Hughes Bennett's treatise is a masterly survey of different methods then in vogue for treating pneumonia, which he compares by means of the statistical plan of Louis. By showing that the method of profuse bleeding was followed by death in one case

Pneumonia

out of three, while of 129 cases treated by him on the "restorative" principle, only four had died, he did more than anyone else to banish excessive bleeding as a routine method of treatment.

Bennett was an indefatigable writer, and produced some hundred and five papers. He was also the author of an "Introduction to Clinical Medicine," of a work on "Outlines of Physiology" (1858), as well as of the celebrated text-book, "Clinical Lectures on Medicine" (1856). He held the chair till 1874, when he was succeeded by William Rutherford.

Extra-academical lecturers

In the extra-academical school there were several lecturers on physiology from about 1830 onwards. Of these the best known was Allen Thomson, who afterwards occupied the university chair. Another lecturer on this subject was John Reid, who commenced his lectures in 1836, and afterwards transferred as professor of medicine to St. Andrews. Later lecturers were John Struthers and W. R. Sanders, who are more fully mentioned elsewhere.

Medicine

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

W. P. Alison

William Pulteney Alison (1790–1859)[1] was a brother of Sir Archibald Alison, the historian, and a grandson of John Gregory. He graduated M.D. at Edinburgh in 1811, and, in 1815, was appointed physician to the New Town Dispensary, where he made a special study of the fevers then prevalent in the city. His quarterly reports, published in the *Edinburgh Medical Journal* from 1817 to 1819, were important contributions to the knowledge of fevers, and especially his description of smallpox as modified by vaccination, which was then a novel mode of treatment. In 1820, while professor of medical jurisprudence, he also assisted his uncle, James Gregory, in the chair of medicine, and, in 1821, be became secretary of the Medico-Chirurgical Society of Edinburgh, founded in that year.

Researches on poverty and disease

From his early experience among the poor, he had been impressed by the manner in which poverty and unfavourable social conditions assisted the spread of disease. In 1822, writing on scrofulous disease, he urged as causes of this condition the debilitating mode of life and the deficient light and air which operated on the health of the masses of population, and particularly of the children in great cities. Typhus and relapsing fever were then diseases of great prevalence. An epidemic of fever in 1827–28 was supposed by him to be the result of the hard conditions produced by the commercial crisis of 1825. He was very active during the cholera epidemic of 1831–32, and in this again saw the conditions of poverty as an important causal factor.

[1] *Edinburgh Medical Journal*, Vol. V., p. 469.

Between 1832 and 1840, the annual number of fever cases in Edinburgh had risen so high that the number treated in the Edinburgh Infirmary was always over 650, while in 1838 the number reached 2244. Alison saw in this something completely wrong in social organisation. In 1840, he published an important pamphlet entitled "Observations on the Management of the Poor in Scotland, and its Effects on the Health of the Great Towns."

Scottish Poor Law

The matter at issue was the following: The Scottish system of Poor Law administration depended mainly on voluntary contributions distributed in each parish. In 1818, the General Assembly reported on the Poor Laws, and was opposed to the "pernicious tendency of compulsory taxation." At this time there was no legal provision for relief of destitution, and as a result, large numbers of the population were constantly on the verge of starvation, except for relief afforded by private charity, and, as had happened from time to time for several centuries, there were great swarms of beggars. In England at this time, on the contrary, there was little mendicancy and no serious destitution, but, at the same time, there was a vast misapplication of public money collected by compulsory assessment.

The English Poor Law Amendment Act, passed in 1834, and a similar Irish Poor Relief Act of 1838, did much to remedy the abuses that existed, but the General Assembly of the Church of Scotland again advocated the Scottish charitable system in 1839. Dr. Alison took a firm stand against it, and his "Observations on the Management of the Poor in Scotland" asserted that legal assessment for the relief of the poor was not an evil but an absolute necessity of every highly civilised country; that it relieved pressure of population on the means of subsistence by raising the standard of comfort among the destitute classes and improving their habits; and he showed that, despite errors of administration, the English Poor Law had permanently improved the destitute classes in that country, and had helped to abolish mendicancy, while private charity at the same time had become more active and discriminating. He also showed that destitution was greater in Scotland than in other European countries, and that its increase was responsible for the increase of epidemic disease. A Royal Commission was appointed to investigate the subject in 1844, and Alison's recommendations were to a large extent embodied in the Poor Law passed in 1845.

Other publications were issued by Alison on the subject of the Poor Laws and the relation between epidemic disease and destitution. His work in this connection was undoubtedly of profound social importance. He was celebrated for benevolence and kindliness of manner, and the influence of his social work is still felt in present-day legislation.

Medical works

In 1831, Alison had published "Outlines of Physiology," a work which included much of his philosophy in regard to the vital attraction and repulsion which he considered to be characteristics of life as exhibited by the tissues. He wrote various articles dealing with subjects such as vital affinity and inflammation, which modern thought has meantime left on one side.

WILLIAM PULTENEY ALISON (1790-1859)

THOMAS LAYCOCK (1812-1876)

He conducted a large consulting practice, and, in 1842, was appointed professor of practice of medicine. In 1844, he published a text-book on this subject, "Outlines of Pathology and Practice of Medicine," which attained a moderate degree of success. In 1846, as a result of his strenuous labours, he became liable to epilepsy and resigned the chair in 1855. He acted as president of the British Medical Association Meeting at Edinburgh in 1858, and died in the following year.

Thomas Laycock

He was succeeded in the chair of medicine by Thomas Laycock (1812–1876).[1] Laycock was an Englishman, had qualified as M.R.C.S. in 1835, and had graduated M.D. at Göttingen in 1839, and studied under Lisfranc and Velpeau at Paris. In 1840, he had published "A Treatise on Nervous Diseases of Women, comprising an Enquiry into the Nature, Causes and Treatment of Spinal and Hysterical Disorders." This was the result of much profound observation, and to a great extent it anticipated the similar work done by Charcot and other French observers. In 1844, in a paper read before the British Association at York, he had formulated the theory of reflex action of the brain, by which he accounted for the phenomena of delirium, dreams and somnambulism.

In 1855, he succeeded William Pulteney Alison in the chair of medicine at Edinburgh, and, in 1856, published his "Lectures on the Principles and Methods of Medical Observation and Research." His "Mind and Brain" (1860) prepared the way for the study of unconscious cerebration, to which he afterwards chiefly devoted himself, and in which he described mental phenomena that have received due recognition only in the last few years, in connection with the great numbers of nervous cases arising out of the war. He was a prolific writer, and some 300 papers on medical subjects emanated from his pen, but he had not great success as a teacher, because his lectures were too abstract for the average student. He introduced a course on medical psychology at Edinburgh University, which he taught for many years. He died in 1876, and was succeeded by Thomas Grainger Stewart.

Psychology

During the middle period of the 19th century, while Home, Alison and Laycock successively held the university chair of medicine, the extra-mural school was particularly strong in this subject, and over 30 lecturers delivered courses of lectures in medicine for various periods of years. Of these, seven became professors in different subjects at Edinburgh and other schools, and many attained distinction by their writings or in other ways.

Among the best known of the lecturers on medicine in the extra-mural school during this period were the following :—

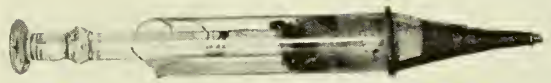
David Craigie

Dr. David Craigie, a physician to the Royal Infirmary, who was a great linguist and a voluminous writer upon clinical and pathological subjects, and who had also lectured upon anatomy, began to teach medicine in 1834. Dr. William Thomson, brother of Allen Thomson, and later professor of medicine in Glasgow, lectured upon medicine from 1836. Dr. Robert Spittall (1804–1852), who was one of the earliest

[1] *Edinburgh Medical Journal*, Vol. XXII., Part I., p. 476.

ALEXANDER WOOD *(secundus)* (1817–1884)

(Original in the Royal College of Physicians, Edinburgh)



ORIGINAL HYPODERMIC SYRINGE OF

DR. ALEXANDER WOOD

THE FIRST USED IN GREAT BRITAIN

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

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

physicians to introduce the methods of Laennec to Edinburgh practice, and who, in 1830, issued "A Treatise on Auscultation, Illustrated by Cases and Dissections," delivered a course of lectures upon medical acoustics in 1838, and in the following year began a regular course of lectures upon medicine. In the same year, William Henderson, afterwards professor of pathology in the university, commenced a course of extra-academical lectures on medicine.

Alexander Wood

Alexander Wood, who began an extra-mural course of lectures on medicine in 1839, was the first person in Britain to use the hypodermic syringe, though priority of discovery cannot be claimed for him, since Pravaz had already used this form of medication in 1851, and published a description of his syringe in 1853. The idea of administering morphia hypodermically for the relief of pain appears to have occurred independently, in 1853, to Wood, who, after unsuccessful experiments to inject morphia by means of acupuncture needles and otherwise, utilised one of the small syringes recently introduced for surgical purposes. Subsequently he extended its application to the administration of atropine and other substances in his "New Method of Treating Neuralgia by the Direct Application of Opiates to the Painful Points" (1855). He enjoys, at all events, the merit of having been the first to introduce this now universal method into Great Britain.

Hypodermic medication

His actual words are :—

> "Having occasion, however, about the end of 1853, to endeavour to remove a nævus by injection with the acid solution of perchloride of iron, I procured one of the elegant little syringes, constructed for this purpose by Mr. Ferguson of Giltspur Street, London. While using this instrument for the nævus, it occurred to me that it might supply the means of bringing some narcotic to bear more directly than I had hitherto been able to accomplish on the affected nerve in neuralgia. I resolved to make the attempt, and did not long lack opportunity. . . ."
>
> "Accordingly, on November 28th, I visited her at 10 p.m. to give the opiate the benefit of the night. Having ascertained that the most tender spot was the post clavicular point of Valleix, I inserted the syringe within the angle formed by the clavicle and acromion, and injected twenty drops of a solution of muriate of morphia, of a strength about double that of the officinal preparation.
>
> "In about ten minutes after the withdrawal of the syringe the patient began to complain of giddiness and confusion of ideas ; in half an hour the pain had subsided, and I left her in the anticipation of a refreshing sleep."[1]

Dr. John Hughes Bennett was an extra-mural lecturer on medicine from 1845 and subsequently became professor of the institutes of medicine in the university, as already described.

W. T. Gairdner

Dr. William (afterwards Sir William) Tennant Gairdner (1824–1907) was one of the most distinguished of the younger physicians to the Royal Infirmary about

[1] *Edinburgh Medical and Surgical Journal*, Vol. LXXXII., 1855, p. 266.

the middle of the 19th century. As pathologist to the Royal Infirmary in 1848, he entered upon a career of great scientific energy, and, in 1853, became physician to the Royal Infirmary, next year commencing to lecture upon medicine in the extra-mural school. Meanwhile, he was engaged on the preparation of his classic work on clinical medicine, and his notable volume on " Public Health in Relation to Air and Water," which was published after he had gone to Glasgow (in 1862) as professor of medicine. In a series of early papers, " Contributions to the Pathology of the Kidney " (1848), he supplied an early description of waxy disease, and in the " Pathological Anatomy of Bronchitis and Diseases of the Lung connected with Bronchial Obstruction " (1850), he was one of the earliest observers to describe the condition of bronchiectasis.

James Warburton Begbie

James Warburton Begbie (1826–1876) was the son of Dr. James Begbie, also an Edinburgh physician. About 1852, he settled in Edinburgh, becoming in 1854 physician of the (temporary) Cholera Hospital ; in 1855, physician to the Royal Infirmary; and (1856) lecturer on medicine in the extra-mural school. Here also he gave a short annual course of lectures on the history of medicine. In middle life he was generally regarded as the most popular and highly esteemed physician in Scotland, and it has been said that for some years no one could die happy in Scotland without having been seen by Begbie in consultation. He wrote numerous short memoirs, but his best-known work was " A Handy Book of Medical Information and Advice by a Physician," published anonymously in 1860.

Dr. Alexander Keiller and Dr. J. Matthews Duncan, who later specially devoted themselves to diseases of women, at an earlier stage in their career lectured on medicine, the former commencing in 1856 and the latter in 1862. Dr. W. R. Sanders, who later became professor of pathology in the university, commenced an extra-mural course of lectures on medicine in 1862, and Dr. Thomas (afterwards Sir Thomas) Grainger Stewart, who subsequently became professor of medicine in the university, similarly began an extra-mural course in 1870.

G. W. Balfour

Dr. D. R. Haldane and Dr. G. W. Balfour, who later became eminent as a specialist on diseases of the heart, began to lecture on medicine in 1863 and 1866 respectively. Balfour's " Hæmatophobia," published in 1858, was a valuable contribution to the question of blood-letting, which at that time agitated the medical profession ; his " Introduction to the Study of Medicine " embodies a philosophic outlook upon the aims of medical practice, and is still read ; he published numerous papers dealing with the physical examination of the chest, especially in relation to the diagnosis of heart disease ; while his " Clinical Lectures on Diseases of the Heart and Aorta," first published in 1876, and " The Senile Heart " were classic monographs upon the disorders of this organ at a time when few methods of instrumental investigation were available.

Materia medica Robert Christison

In the chair of materia medica, Andrew Duncan *(junior)* was succeeded, in 1832, by Dr. (later Sir) Robert Christison (1797–1882), who held it till 1877. He was the son of the professor of Latin in Edinburgh University, and had graduated M.D.

at Edinburgh in 1819. Thereafter, he studied in London and in Paris, where he paid especial attention to chemistry under Robiquet, and to toxicology under Orfila. He also attended the demonstrations of Pelletier and Caventou in the French Institute on the separation and character of alkaloids, a subject which he later made a special matter of personal research. Returning to Edinburgh in 1822, he was immediately appointed professor of medical jurisprudence, and to this developing subject he applied the scientific principles of Orfila's great work. He speedily attained a reputation as a medical witness of great precision, and, in 1829, published his celebrated "Treatise on Poisons," which established his reputation. The voluntary class of medical jurisprudence increased in numbers under his tuition from 12 to 90 students.

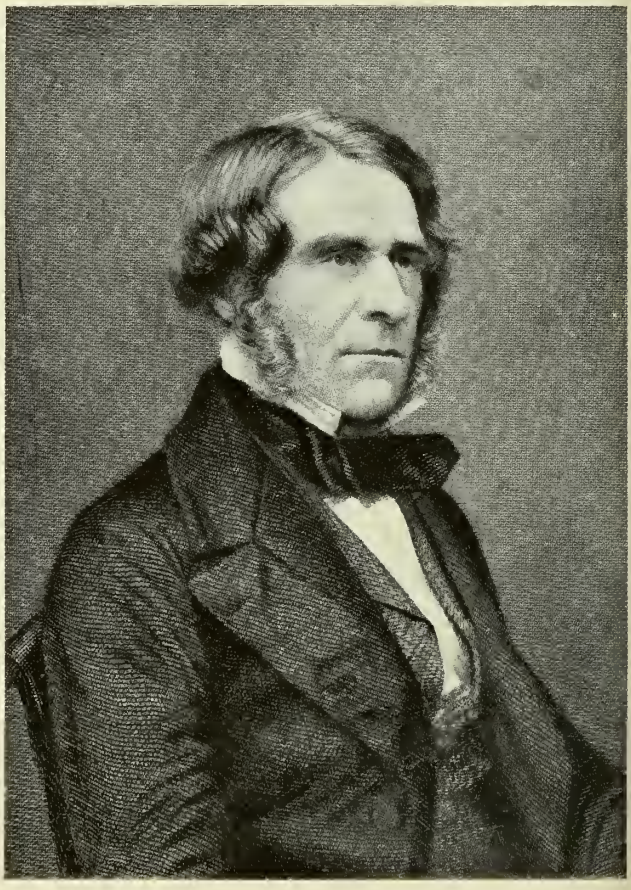
JAMES WARBURTON BEGBIE (1826-1876)

Christison as expert witness

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

Christison as toxicologist

In toxicology, his work on the effects of oxalic acid, on the action of water on lead, and on cases of arsenic poisoning, was of great value. Christison had spent a period of his early life in study, mainly chemical, at Paris, where Magendie was then introducing the subject of experimental pharmacology and Orfila was busy with toxicology. His partiality to chemical and toxicological science is shown in the "Dispensatory," which he published in 1842; this was founded to some extent upon the Dispensatory of his predecessor in the chair of materia medica, Andrew Duncan, and constituted a kind of commentary upon the pharmacopœias of Edinburgh and other places, containing also records of Christison's own experiments and observations. This work prepared the way for the first Pharmacopœia of Great Britain and Ireland, issued in 1864 by a Committee of the General Medical Council, of which Christison acted as chairman.



Sir Robert Christison (1797-1882)

Among his best known pharmacological discoveries were that of conine, the active principle of hemlock (1836), of the action of Calabar bean (1855), and of the therapeutic uses of digitalin (1855); for though he did not originally isolate this active principle, he was the first in this country to point out its valuable properties, especially as a diuretic. Christison's work on the action of conine is interesting as being one of the earliest pharmacological experiments to be done in this country. He showed that it acted by abolishing the functions of the spinal cord, the action being "the counterpart of the action of nux vomica and its alkaloid strychnia." Other active drugs investigated by Christison were

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

In later life he acquired a leading position as a consulting physician, and withdrew from hospital practice. He acted for several years as editor of the *Edinburgh Medical Journal*, and rendered valuable service to the university in its business affairs. He also took a leading part in the building of the new Royal Infirmary and of the New University Buildings, when the Old University became too small for the great accession of students. He held the chair through the long period of 45 years and, retiring in 1877, died five years later.[2]

Anatomy

In anatomy, Alexander Monro *(tertius)* who had been appointed as colleague and successor to his father in 1798, held the university chair up till 1846. Throughout his tenure of office there was a brilliant succession of extra-mural lecturers beginning with John Barclay, and continuing with Robert Knox and the surgeon-anatomists who have been described at the beginning of this chapter. During the tenure of the chair by Professor Monro *(tertius)*, surgery had been successfully separated from anatomy as already described, and anatomy had somewhat changed its character and had come to embrace a more scientific conception of comparative anatomy and biology in addition to the purely descriptive anatomy of former times. When he resigned in 1846, he was succeeded by John Goodsir.

John Goodsir

John Goodsir (1814–1867)[3] was born at Anstruther, where his father and grandfather had been medical practitioners, and where he subsequently practised for a time as assistant to his father. After an arts course at St. Andrews, he was apprenticed to Mr. Nasmyth in Edinburgh, an eminent dental surgeon, and studied anatomy under Knox. He was one of a band of distinguished fellow-students, including Edward Forbes, Samuel Brown, George Wilson, J. Y. Simpson and James Spence. After becoming a licentiate of the Royal College of Surgeons, and while assistant to his father, Goodsir pursued enthusiastically the study of comparative and morbid anatomy, and succeeded in making a valuable collection, even in the primitive and rural surroundings of village practice. In 1839, he published his celebrated memoir on the Development of the Teeth, and shortly afterwards was appointed Conservator of the Museum of the Royal College of Surgeons of Edinburgh. About this time he published various papers on marine zoology along with Edward Forbes, and discovered the sarcina ventriculi.

The Edinburgh school at this time played a notable part in the great movement of the first half of the 19th century, which resulted in the recognition of the cell as the morphological unit in vital processes. In 1845, Goodsir, along with his brother Dr. Harry D. S. Goodsir, who succeeded him as Conservator and afterwards perished

[1] "Life of Sir Robert Christison, Bart.," Edinburgh, 1885.
[2] *Edinburgh Medical Journal*, Vol. XXVII., Part II., p. 852.
[3] Op. cit., Vol. XII., Part II., p. 959.

William Sharpey (1802-1880)

John Goodsir (1814-1867)

in Sir John Franklin's expedition to the Arctic, published a work on "Anatomical and Physiological Observations," which contained his best work on Centres of Nutrition, Structure of Bone, Ulceration of Cartilage, etc.

Cellular doctrines

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 those "On the Mechanism of the Knee-Joint," "On the Morphological Constitution of Limbs," etc.

Success as teacher

In 1844, Goodsir was appointed demonstrator of anatomy in the university, and in 1846, became professor. The class of anatomy under Professor Monro *(tertius)* had become very small, but it soon rose to between 300 and 400 students. Goodsir gave voluntary courses on comparative anatomy every summer for several years, which were largely attended, and he also for a time conducted the class of natural history for Professor Jameson. He greatly enlarged the anatomical museum of the university. In 1850, he commenced "Annals of Anatomy and Physiology," but of this only three parts appeared. Despite ill-health of several years' duration, he continued to produce observations on anatomy and to lecture to his class, but died in 1867, when he was succeeded by William (later Sir William) Turner.

Other anatomists

An extra-academical lecturer of a slightly earlier 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 and later on anatomy, 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.

At the time when Knox's class in anatomy was beginning to fall off, Peter David Handyside (1808–1881) began in 1834 to conduct a class in anatomy. He continued to lecture upon this subject throughout his life, and published a large number of contributions in regard to it. About 1840 he was also appointed one of the surgeons to the Royal Infirmary.

When Knox left Edinburgh in 1844, he was succeeded by his assistant, Henry Lonsdale, who afterwards wrote a life of this teacher. Dr. R. H. Gunning was another lecturer at the same period, who afterwards took up practice in

Rio de Janeiro and founded the Gunning Victoria Jubilee lectureship and prizes in Edinburgh University. James Spence (1812–1882) was also an extra-mural lecturer and a surgeon to the Royal Infirmary prior to becoming professor of surgery in the university.

WILLIAM HENDERSON (1810–1872)

In 1847, John (later Sir John) Struthers became a lecturer on anatomy, and in 1862, surgeon to the Royal Infirmary. During his Edinburgh period, Struthers published important anatomical and physiological observations and took a considerable part in the agitation for improving the teaching in the Scottish universities. His " Historical Sketch of the Edinburgh Anatomical School " forms a valuable account of the teachers in anatomy before his time. He succeeded A. J. Lizars as professor of anatomy in the University of Aberdeen in 1863, and his connection with this medical school has been described in Chapter XXI.

Pathology

The chair of pathology was founded in the university in 1831. In the early years of the century, the teaching of pathology had been part of the duties of James Russell, professor of clinical surgery, who had duly included information upon this subject in his somewhat systematic "clinical" lectures. The subject, by 1831, had developed so far as to be one of practical importance, and the Government decided to appoint a professor. Dr. John Thomson held the chair of pathology till 1842, when he was succeeded by William Henderson (1810–1872).[1] Henderson graduated M.D. at Edinburgh in 1831, and next year was appointed physician to the fever wards and pathologist to the Royal Infirmary.

William Henderson

He published a series of clinical studies on "Diseases of the Heart and Larger Blood Vessels" in the *Edinburgh Medical and Surgical Journal* between 1835 and 1837. He was one of the first to apply the microscope to the study of the organs in disease, describing (1841) the minute appearances of the lung in pneumonia, and other pathological conditions. He is credited with the merit of having been one of the first to distinguish, in 1843, between typhus and relapsing fevers, both of which were very important diseases of the time.

Adopts homœopathy

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

Chemistry

In the chair of chemistry, Thomas Charles Hope continued to teach for almost half a century, till he was succeeded in 1844, by William Gregory (1803–1858),[2] the fourth son of James Gregory, the late professor of medicine. William Gregory had graduated M.D. at Edinburgh in 1828, and had studied chemistry in various continental schools. In 1831, he made a discovery which has been found of the greatest commercial importance in the manufacture of the active principles of drugs. In 1816, the Hanoverian, Sertürner, had discovered the alkaline base "morphium" in opium, and in April, 1831, Dr. Gregory published, in the *Edinburgh Medical and Surgical Journal*, his valuable discovery of the preparation of hydrochlorate of morphia without the use of alcohol or any solvent other than water.

William Gregory

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

[1] *Edinburgh Medical Journal*, Vol. XVII., Part II., p. 1054.
[2] Op. cit., Vol. III., p. 1151.

greater cost than the equivalent dose of laudanum, and in a state of great purity. As is well known, the hydrochlorate, and the subsequently prepared sulphate of morphia, have largely superseded in use the other purified galenical preparations of opium. As a development of this discovery, Edinburgh has become one of

WILLIAM GREGORY (1803–1858)

the chief commercial centres in the United Kingdom for the manufacture of the active alkaloidal principles derived from numerous plants.

William Gregory began an extra-mural class of lectures at Edinburgh in 1832, and successively held the posts of lecturer on chemistry at the Andersonian College in Glasgow and at Dublin, and of mediciner and professor of chemistry at King's College, Aberdeen. He published his "Outlines of Chemistry" in 1845, and was greatly interested in the subject of animal magnetism, but was better known on account of his translations of German works. About this time, Liebig had been conducting his celebrated researches upon chemistry in connection with animal bodies, and Gregory translated his "Animal Chemistry" and other works into

English. When Gregory died, his successor, Lyon Playfair, was even more distinguished in the same direction.

Lyon Playfair

Lyon Playfair (later Lord Playfair) (1818–1898), had studied at St. Andrews, Glasgow and Edinburgh and had worked at chemistry with Thomas Graham at University College, London, and with Liebig at Giessen. He had been influenced by Liebig to turn his attention to the applications of chemistry to agriculture and plant physiology, a subject which at the time became of great social and commercial importance. In 1845, he had been appointed chemist to the Geological Survey, and had conducted researches into the type of coal best suited for steam navigation. He was the discoverer of nitro-prussides, and, along with Bunsen, investigated the gases developed in blast furnaces. His most important activity had been the part he took in 1850 in the organisation of the Great Exhibition promoted by the Prince Consort, and, as a sequel to this, in the development of technical instruction and in the various applications of science to industry. Even after his appointment to the chair of chemistry at Edinburgh, in 1858, he was still occupied on many Royal Commissions and other forms of public work. He held the chair till 1869, when he became Member of Parliament for the University and removed to London. He was succeeded by Alexander Crum Brown.

Forensic medicine

In 1807, the Crown had decided to establish a chair of medical jurisprudence or forensic medicine in the university. It had been represented by Dr. Andrew Duncan *(senior)* that professorships in this subject existed in many universities on the Continent, although there was no such chair at the time in Great Britain. Dr. Andrew Duncan *(junior)* (1773–1832),[1] who has already been mentioned as the first editor of the *Edinburgh Medical Journal*, was the first incumbent of the new chair. He was the son of Andrew Duncan *(senior)*, had been apprenticed to Alexander Wood, and had studied in London under Matthew Baillie, as well as at various foreign universities. After holding this chair for 12 years, he was appointed professor of institutes of medicine in 1819, and, in 1821, became professor of materia medica, holding the latter post till his death in 1832.

The chair of forensic medicine was afterwards filled for a year by Dr. William Pulteney Alison, who, in 1821, followed Dr. Andrew Duncan *(junior)* in the chair of institutes of medicine, and held this till 1842, when he was in turn transferred to the chair of medicine. The chair of forensic medicine in the first 20 years of its existence seems to have been regarded as a stepping-stone to other professorships, and Alison was succeeded in this chair, in 1822, by Dr. Robert Christison, who, in 1832, was transferred to the chair of materia medica.

T. S. Traill

The latter was then succeeded in the chair of forensic medicine by Dr. Thomas Stewart Traill (1781–1862).[2] Traill had graduated M.D. at Edinburgh in 1802, and immediately settled in practice at Liverpool. He became notable in Liverpool as a lecturer on chemistry, and, as the first secretary, founded the Literary and Philosophical Society of that city, as well as taking a large part in the

[1] *The Lancet*, 1831–32, Vol. II, p. 249.
[2] *Edinburgh Medical Journal*, Vol. VIII., Part I., p. 389.

foundation of the Royal Institution and Liverpool Mechanics' Institution. He edited the eighth edition of the "Encyclopædia Britannica." After his appointment to the chair of medical jurisprudence in Edinburgh at the age of 51, he prepared the "Outlines of a Course of Lectures on Medical Jurisprudence," which was published in 1836 and went through several editions. He contributed over 70 papers on scientific subjects to various journals, and, on his death in 1862, was succeeded in the chair by Dr. (later Sir Douglas) Maclagan.

The subject of medical jurisprudence in the 19th century included public health as one of its departments, although the latter subject became of much greater importance towards the end of the century.

John Roberton's treatise

Dr. John Roberton, who practised in St. James's Street, Edinburgh, at the beginning of the century, had published a "Treatise on Medical Police," in 1809. This was the first notable treatise in English upon the subject of public health. Johann Peter Frank[1] had directed attention to the importance of this subject in his "Complete System of Medical Polity," published at Mannheim in several volumes from 1779 onwards, and Roberton was the next writer after him to pursue this subject. He devotes one book to discussing the causes of diseases in Edinburgh, and another to those in London.

Other lecturers

The extra-mural school had several distinguished lecturers upon this subject. Dr. David Skae commenced to deliver lectures in 1839, and, in 1845, Dr. John (afterwards Sir John) Rose Cormack (1815–1882) lectured upon this subject while one of the physicians to the Royal Infirmary. He had graduated at Edinburgh in 1837, and after a time he left Edinburgh and took up practice in London and later in Paris. Other extra-mural lecturers were Alexander Keiller, who began to lecture in 1850, Dr. D. R. Haldane, who commenced a course in 1854, and Henry (later Sir Henry) Duncan Littlejohn.

Dr. Littlejohn had graduated M.D. at Edinburgh in 1847, and began to lecture on medical jurisprudence in 1856. He took a special interest in matters affecting the health of the city, and was later appointed the first Medical Officer of Health for Edinburgh. Many of the early improvements dealing with drainage, water supply and overcrowded localities were suggested by him. He succeeded Sir Douglas Maclagan in 1897, the chair now being known as forensic medicine, while public health was erected into a separate professorship in 1898.

Ophthalmology

Diseases of the eye formed one of the earliest "special departments" which were instituted in Edinburgh. Alexander Watson was surgeon to the Royal Infirmary in 1837, and commenced to lecture on clinical surgery in 1839. He devoted a good deal of attention to diseases of the eye, and published a treatise on this subject in 1830. He afterwards, on succeeding to a property, changed his name to Watson Wemyss. The earliest person to give a special course on diseases of the eye had been Dr. J. Hunter in 1838.

John Argyll Robertson, a lecturer on surgery from 1834 in the extra-mural school, had at an early date devoted himself chiefly to ophthalmic surgery. He died in 1857, but his work in this special department was continued by his son,

[1] Walker : "Pioneers of Public Health," Edinburgh and London, 1930, p. 35.

D. M. C. L. Argyll Robertson, who was the first to describe the phenomenon connected with the pupil which now goes by his name. The subject of ophthalmology, in consequence of the new operations introduced by von Graefe and the invention of the ophthalmoscope by Helmholtz, developed into an

JOHN ARGYLL ROBERTSON (died 1857)

important specialty shortly after the year 1850. This new development was speedily recognised by the management of the Royal Infirmary, and William Walker, a surgeon who had given much attention to ophthalmology, was the first ophthalmic surgeon on the staff of this institution, elected in July, 1855, to take office on the 1st September following. He commenced a course of lectures on this subject in 1858, and John Struthers commenced a course in the following year. Dr. D. M. C. L. Argyll Robertson commenced to lecture on this subject in 1863, and succeeded William Walker as ophthalmologist to the Royal Infirmary.

Edinburgh lecturers to 1870

PROFESSORS AND LECTURERS IN THE EDINBURGH MEDICAL SCHOOL UP TO 1870. In the Extra-Academical School there is no complete record of lecturers prior to 1832, but a few names of the many persons who from time to time gave courses of lectures have been inserted. There is also a blank for the years 1840–1845. The list has been compiled from the Edinburgh University Calendar and Oliver & Boyd's yearly Almanac.

SUBJECT	UNIVERSITY		EXTRA-ACADEMICAL SCHOOL OF MEDICINE AND SURGERY	
MEDICINE	1685	Robert Sibbald		
		James Halket		
		Archibald Pitcairne		
	1724	William Porterfield	1724	Andrew St. Clair
	1726	Andrew St. Clair		John Rutherford
		John Rutherford		
	1747	Robert Whytt		
	1766	John Gregory	1770	Andrew Duncan
	1773	William Cullen		Gregory Grant
	1790	James Gregory	1782	John Aitken
	1821	James Home		
			1832	J. Mackintosh
				William Campbell
			1833	J. Gregory
			1834	T. Shortt
				G. Borthwick
				D. Craigie
			1836	Dr. Glover
				W. Thomson
			1838	T. Wood
				W. Reid
			1839	R. Spittal
				Wm. Henderson
	1842	William Pulteney Alison		Alex. Wood
			1845	J. H. Bennett
				G. Paterson
			1848	A. H. Douglas
			1854	W. T. Gairdner
	1855	Thomas Laycock	1855	W. Robertson
			1856	Alex. Keiller
				J. W. Begbie
			1862	W. Sanders
				J. M. Duncan
			1863	D. R. Haldane
			1866	G. W. Balfour
				R. E. Scoresby-Jackson
ANATOMY			1694	A. Monteith
	1705	Robert Elliot	1702	A. Pitcairne and Colleagues
	1708	Adam Drummond		
	1716	John M'Gill		
	1720	Alexander Monro		
	1754	Alexander Monro *(secundus)*		
			1782	John Aitken
			1786	John Bell
	1798	Alexander Monro *(tertius)*	1797	John Barclay
			1799	Charles Bell
			1808	John Gordon
				Alexander Walker
			1818	David Craigie
			1823	William Cullen
			1825	Robert Knox
			1832	John Aitkin

ANATOMY *(continued)*			1832	Wm. Sharpey
				Alex. J. Lizars
			1834	P. D. Handyside
			1835	E. P. Sheriffs
			1838	W. M'Donald
			1839	A. Thomson
			1845	James Mercer
				Henry Lonsdale
				David Skae
				Alexander Hunter
				J. S. Fowler
				R. H. Gunning
				James Spence
	1846	John Goodsir		Alex. Keiller
			1847	John Struthers
			1849	James Struthers
	1867	William Turner		
SURGERY	1777	Alexander Monro *(secundus)*	1772	James Rae
	1798	Alexander Monro *(tertius)*	1782	John Aitken
	1831	John William Turner	1801	John Thomson
			1832	Robert Liston
				John Lizars
	1836	Charles Bell		Wm. Fergusson
			1834	J. A. Robertson
	1842	James Miller	1845	James Duncan
			1850	R. J. Mackenzie
				James Spence
			1856	Joseph Lister
			1858	P. H. Watson
				J. Struthers
			1859	A. M. Edwards
	1864	James Spence	1864	Joseph Bell
			1865	Thomas Annandale
CLINICAL SURGERY	1803	James Russell	1770	James Rae
	1833	James Syme	1832	James Syme
			1834	John Lizars
				Robert Liston
			1839	Messrs. Watson and Fergusson
			1845	James Duncan
			1856	James Dunsmure
			1857	James Spence
	1869	Joseph Lister	1864	J. D. Gillespie
MILITARY SURGERY	1806	John Thomson		
	1823	George Ballingall		
			1865	P. H. Watson
			1869	A. Gordon Miller
MIDWIFERY	1726	Joseph Gibson		
	1739	Robert Smith		
	1756	Thomas Young		
	1780	Alexander Hamilton	1782	John Aitken
	1800	James Hamilton	1787	John Bell
			1832	J. Thatcher
				J. Mackintosh
				Wm. Campbell
			1839	J. Marr
	1840	J. Y. Simpson		J. Y. Simpson
			1849	Alex. D. Campbell
			1854	Alex. Keiller
				J. M. Duncan
			1868	Andrew Inglis

			1697	A. Monteith
	1713	James Crawford	1724	Andrew Plummer
	1726	Andrew Plummer		John Innes
		John Innes		
CHEMISTRY AND MEDICINE	1755	William Cullen		
	1766	Joseph Black	1776	Andrew Duncan
				Charles Webster
			1780	John Brown
			1782	John Aitken
	1795	Thomas Charles Hope	1790	William Nelson
			1832	John Murray
				Wm. Gregory
			1834	D. B. Reid
			1835	Andrew Fyfe
CHEMISTRY	1844	William Gregory	1845	Wm. Reid
				George Wilson
				Thos. Anderson
	1858	Lyon Playfair	1856	Stevenson Macadam
			1861	Murray Thomson
	1869	Alexander Crum Brown	1864	A. C. Brown
	1676	James Sutherland		
BOTANY	1706	Charles Preston		
	1712	George Preston		
	1738	Charles Alston		
MEDICINE AND BOTANY	1761	John Hope		
	1786	Daniel Rutherford		
	1820	Robert Graham		
	1845	John Hutton Balfour		
BOTANY			1832	Wm. Howison
			1861	John Bayldon
	1768	Francis Home	1770	Andrew Duncan
	1798	James Home		
	1821	Andrew Duncan *(secundus)*		
	1832	Robert Christison	1832	Wm. Howison
				J. A. Robertson
MATERIA MEDICA				Edward Milligan
				Thos. Aitkin
			1834	Wm. Bathgate
			1838	Wm. Seller
			1839	D. Maclagan
			1863	R. E. Scoresby-Jackson
			1868	Angus Macdonald
	1724	William Porterfield		
	1726	Andrew St. Clair		
		John Rutherford		
	1747	Robert Whytt		
	1766	William Cullen		
	1773	Alex. Monro Drummond		
	1776	James Gregory		
	1789	Andrew Duncan	1794	John Allen
	1819	Andrew Duncan *(secundus)*	1810	John Gordon
PHYSIOLOGY	1821	William Pulteney Alison	1832	R. M. Hawley
				Wm. Howison
				Dr. Fletcher
				Thos. Aitkin
				Edward Milligan
			1833	Allen Thomson
			1837	John Reid
	1842	Allen Thomson	1845	John Struthers
	1848	John Hughes Bennett	1856	W. Sanders

MEDICAL JURISPRUDENCE	1807	Andrew Duncan *(secundus)*		
	1820	William Pulteney Alison		
	1822	Robert Christison		
	1832	Thomas Stewart Traill		
			1833	Dr. Fletcher
			1835	Alex. Miller
				Wm. Howison
			1839	David Skae
			1845	John R. Cormack
				A. D. Campbell
			1850	Alex. Keiller
			1854	D. R. Haldane
			1856	H. D. Littlejohn
	1862	Douglas Maclagan		
NATURAL HISTORY	1770	Robert Ramsay		
	1779	John Walker		
	1804	Robert Jameson		
	1854	Edward Forbes		
	1855	George James Allman		
PATHOLOGY	1831	John Thomson		
	1842	William Henderson	1856	R. Haldane
	1869	W. R. Sanders	1864	T. G. Stewart
NATURAL PHILOSOPHY	1708	Robert Stewart		
	1742	John Stewart		
	1759	Adam Ferguson		
	1764	James Russell		
	1774	John Robison		
	1805	John Playfair		
	1819	John Leslie		
	1833	James David Forbes	1838	George Lees
				J. Russel
			1845	George Glover
	1860	Peter Guthrie Tait	1856	William Lees
MEDICAL ACOUSTICS			1838	R. Spittal
DISEASES OF THE EYE			1838	J. Hunter
			1858	Wm. Walker
			1859	J. Struthers
			1863	D. Argyll Robertson
HISTORY OF MEDICINE			1857–1865	J. Warburton Begbie
TROPICAL DISEASES			1858	A. W. P. Pinkerton
DENTAL SURGERY			1856	John Smith
VENEREAL DISEASES			1859	P. H. Watson
HISTOLOGY			1859	W. Sanders
INSANITY			1859	Dr. Skae
VACCINATION			1863	William Husband
DISEASES OF CHILDREN			1867	A. Keiller
			1868	T. Grainger Stewart
			1869	Wm. Stephenson

LISTER'S MALE WARD IN THE ROYAL INFIRMARY OF GLASGOW

(From a replica in The Wellcome Historical Medical Museum)

Chapter XXIV

The Glasgow School towards the End of the Nineteenth Century

The medical faculty at Glasgow University, in 1860, consisted of the following professors: Thomas Anderson (chemistry), G. A. Walker Arnott (botany), Allen Thomson (anatomy), Andrew Buchanan (institutes of medicine), Harry Rainy (forensic medicine), John Macfarlane (practice of medicine), John M. Pagan (midwifery). The professor of surgery, James A. Lawrie, had died in the end of the previous year. Medical faculty in 1860

This year was one of important developments at Glasgow as at the other Scottish schools of medicine, and a great impetus came from the Universities' (Scotland) Act of 1858, as well as from the Medical Act of the same year.

Still greater developments took place some ten years later when the university was transferred, in 1870, from the Old College in the High Street to the new buildings at Gilmorehill, and when the adjacent Western Infirmary was opened and became available for clinical teaching in 1874.

St. Mungo's College, which has done important work in medical education outside the university, was instituted in the following way. When the medical classes were moved from the Old College to Gilmorehill, and particularly when the Western Infirmary was opened in 1874, the Royal Infirmary was to a large extent deprived of students and the connection which had subsisted between the Royal Infirmary and university teaching for some 80 years came practically to an end. St. Mungo's College

To remedy the grave defect which was caused by the Royal Infirmary ceasing to be a medical school, the Managers, in 1875, obtained a supplementary charter from the Crown, which gave the following privilege: "We do hereby further declare, constitute and appoint, that it shall be lawful for the said Corporation to afford facilities and accommodation to individual Teachers for instructing Students in Medicine, Surgery and the collateral sciences usually comprehended in a medical education, in addition to encouraging the clinical instruction of Students as hitherto in the said Infirmary."

Following upon this concession, the Managers appointed lecturers on the various subjects required for the medical curriculum, and, in 1876, opened a medical school under the name of the Royal Infirmary Medical School. Funds were collected from the public, and a building, suited for the purpose of a college, was completed in 1882, with ample class-room and laboratory accommodation for three or four hundred students. The distance of the school from Gilmorehill, however, practically prohibited university students from taking out classes at the Royal Infirmary

END SECTION OF LISTER'S MALE WARD IN THE ROYAL INFIRMARY OF GLASGOW

At the circular table surrounding the supporting pillar, much of Lister's research work was done

(Preserved in The Wellcome Historical Medical Museum, London)

school, and, to afford greater facilities, the school was, in 1889, converted into an incorporated college, known as St. Mungo's College, by licence of the Board of Trade. This college instituted a complete medical faculty with professors and all the requirements of classes, laboratories, museums and libraries necessary for a medical course.[1]

The position of the Royal Infirmary as a teaching school was still further improved when several university chairs were instituted in the Royal Infirmary by special ordinances in and about the year 1911.

Admission of women

The movement for the admission of women to medical practice took place comparatively late in Glasgow, and was amicably effected. An association for the higher education of women had been formed in 1877, and, in 1883, Queen Margaret College had been founded. After the Universities' (Scotland) Act of 1889 had enabled universities to graduate women, a medical school was added, in 1890, to Queen Margaret College. The women, who presented themselves only in small numbers, were taught in separate classes and received their clinical instruction at the Royal Infirmary till after the end of the century. The earliest woman graduate in medicine of this university, Miss Marion Gilchrist, received the degree of M.B., C.M., in 1894.[2]

Surgery

On 28th January, 1860, Queen Victoria issued a commission to Joseph Lister, Esq., who was at the time a lecturer on surgery in Edinburgh, to be professor of surgery at Glasgow. He was admitted to office as professor of surgery on 9th March, 1860, after reading, according to the fashion of the time, a Latin dissertation, "De Arte Chirurgica Recte Erudienda."[3]

Joseph Lister

For more than a year after his appointment as professor of surgery, Lister was without a hospital appointment, although he was busy enough with private practice. He took up residence at 17, Woodside Place, and was appointed surgeon to the Royal Infirmary on 5th August, 1861. He became immediately very popular with the students, and his class on systematic surgery numbered 182 in the first year. He was at that time greatly occupied in devising the best means for performing amputation of limbs, which was then regarded as a much more important operation than it is at the present day, and shortly afterwards, about 1864, he devised a method for excision of the wrist in tuberculous disease, then a new form of operation. His great work in Glasgow, however, began in 1865, when he turned his attention to hospital gangrene and other septic conditions, with the object of devising a means for avoiding them.

Hospital gangrene

At that period the Glasgow wards sometimes had to be closed on account of the frightful mortality which arose from time to time in consequence of epidemics of septic infection among the surgical cases. The germ theory of disease had hardly been thought of, and only a few enlightened pathologists had begun to grasp its meaning and to see its practical importance. Pasteur had, only a few years earlier, from 1857 to 1860, been publishing his researches showing that putrefactive changes were due to growth of minute forms of life.

[1] "Calendar of St. Mungo's College for the year 1893–94," p. 18.
[2] Coutts: "A History of the University of Glasgow," Glasgow, 1909, p. 458.
[3] Coutts: Op. cit., p. 582.

Septic practices

It was recognised that these disasters were favoured by dirt and overcrowding, especially by overcrowding with patients who had suppurating wounds, but even the cleanest wards of that time offered only a few basins and towels for the ablutions of the staff, and nothing more powerful than soap and water was used to purify their hands. Probes and other instruments circulated from patient to patient, and the sponges which were then in common use for washing wounds were simply rinsed in water. Operating coats were generally garments which had been discarded as unfit for any other purpose and were used year after year; and it was the regular custom for the surgeon to carry the ligatures, which he was to use for tying arteries, threaded through his buttonhole.

In 1865, Dr. Thomas Anderson, the professor of chemistry, drew Lister's attention to the work and writings of Louis Pasteur, who had shown that decomposition was set up by access of air and was a type of fermentation due to organisms carried on the dust. Various antiseptics such as tincture of benzoin, alcohol, glycerin, chloride of zinc and tincture of iodine had already been used intermittently for the treatment of wounds, but Lister was the first to decide upon making a systematic attempt to kill the organisms in wounds by some chemical antiseptic. Dr. Thomas Anderson supplied him with a sample of crude carbolic acid with which he proceeded to treat compound fractures, by passing freely over the wounded surfaces a piece of calico soaked in this fluid. The blood and carbolic acid were found to form a tenacious crust of which the antiseptic properties were renewed from time to time by painting the outer surface with more carbolic acid. A purer sample was later obtained which was soluble in 20 parts of water, and, to almost any extent, in oil, and these solutions were afterwards used by Lister.

Carbolic acid

Successful use

The paper which recorded his first observations on the antiseptic system of surgery was "On a New Method of Treating Compound Fracture, Abscess, etc., with Observations on the Condition of Suppuration," and appeared in *The Lancet* between March and July, 1867. Out of 11 cases recorded in this paper as treated by the antiseptic method, nine had been successful, and this was for that epoch a great achievement which quickly attracted the attention of the medical world.

On 20th October, 1867, Lister was able to write to his father: "I now perform an operation for the removal of a tumour, etc., with a totally different feeling from what I used to have; in fact, surgery is becoming a different thing altogether."[1] A good deal of criticism followed the introduction of Lister's method, and it was pointed out that Lemaire had already written a book upon the use of carbolic acid in surgery, but the great merit of the method introduced by Lister appears to have lain in the thoroughness with which he applied the antiseptic. British surgeons from other great hospitals, such as Edinburgh and London, began to come to Glasgow and to visit the Royal Infirmary for several days, in order to study Lister's methods; and year by year Lister's students went out to teach and practise his principles. In this connection Dr. (later Sir Hector) Cameron may be mentioned as having been Lister's house-surgeon in 1866, and afterwards his assistant in his private practice and in his experiments.

[1] Godlee: "Lord Lister," London, 1917, p. 198.

From about 1868, Lister gave up the use of undiluted carbolic acid, and found that a 1 in 20 watery solution was strong enough for his purposes, while an irritant action on the wound was to some extent obviated by the use of a "protective" tissue, for which he tried tinfoil, gold leaf, and finally settled upon oiled silk covered with copal varnish. Much of the criticism directed against Lister's method appears to have been due to the fact that he paid a disproportionate amount of attention to excluding from wounds the dust of the atmosphere, which he assumed to be laden with germs of septic infection.

Experiments on putrefaction

An elaborate series of experiments was devised by him in 1868, to show that the putrefaction of fluids in flasks occurred in consequence of dust particles falling into them, and these flasks, which were shown to many generations of students, have become classic. Later surgeons have found that the germs on the dust are of relatively little importance to wounds.

Improvement of ligatures

Incidentally, the question of the ligature, which in the old days was presumably often septic before it was introduced into a surgical wound, had to be settled. It was obvious to Lister that these ligatures were sources of irritation, because the blood occupying their meshes formed a favourable nidus for the growth of germs. He pointed out that a needle or a spicule of glass may lie for an indefinite period in the living tissues without inducing suppuration, and that a silk or linen thread could by itself be no more irritating than these hard substances.

He suggested that if the thread were steeped in some liquid to destroy the life of the germs in its interstices the ligature might be left with confidence in the wound, instead of the ends being left hanging from the wound as was then the practice, so that they could later be pulled out. His first practical test on this matter was carried out on 12th December, 1867, by tying the carotid artery of a horse with a piece of unwaxed silk which had been steeped in a watery solution of carbolic acid ; healing took place by primary union and the silk was afterwards found to be unchanged. The same method was afterwards used in tying the femoral artery of a patient, with complete success.

Lister next turned his attention to finding material which might gradually be absorbed by the tissues, and the first that occurred to him was catgut, which had, from time to time, been used for ligatures, but had always been given up as unsatisfactory. During the Christmas holidays of 1868, he tied the carotid artery of a calf with ligatures of this material, and a month later, when the calf had been killed and the parts dissected, the original catgut was found to have almost completely disappeared. In order to render the catgut both free from germs and more slowly absorbable, he next steeped it in a mixture of carbolic acid and oil for several months, and catgut thus prepared was found to be so satisfactory that it remained in use for some ten years. Still he continued making researches with various other substances to harden the catgut, finally giving preference to chromium sulphate and corrosive sublimate.

Appointment at Edinburgh

In 1869, Lister's teaching connection with Glasgow and his early experiments on antiseptic surgery in that city came to an end with his appointment in August, 1869, to the chair of clinical surgery at Edinburgh in succession to his father-in-law, James Syme.

The following extracts from articles by Lister at various times illustrate some of his ideas in regard to the practice of antiseptic surgery, and the changes which it underwent in process of time and in the light of collateral discoveries by other surgeons :—

Development of Listerism

1867 ON COMPOUND FRACTURE. In the course of the year 1864 I was much struck with an account of the remarkable effects produced by carbolic acid upon the sewage of the town of Carlisle, the admixture of a very small proportion not only preventing all odour from the lands irrigated with the refuse material, but, as it was stated, destroying the entozoa which usually infest cattle fed upon such pastures.

My attention having for several years been much directed to the subject of suppuration, more especially in its relation to decomposition, I saw that such a powerful antiseptic was peculiarly adapted for experiments with a view to elucidating that subject, and while I was engaged in the investigation the applicability of carbolic acid for the treatment of compound fracture naturally occurred to me.

My first attempt of this kind was made in the Glasgow Royal Infirmary in March, 1865, in a case of compound fracture of the leg. It proved unsuccessful, in consequence, as I now believe, of improper management ; but subsequent trials have more than realised my most sanguine anticipations.[1]

1868 ON THE ANTISEPTIC SYSTEM OF TREATMENT IN SURGERY. In speaking of the antiseptic system of treatment, I refer to the systematic employment of some antiseptic substance, so as entirely to prevent the occurrence of putrefaction in the part concerned, as distinguished from the mere use of such an agent as a dressing. The latter has long been practised in many parts of the world. The former originated rather more than three years ago in this city (Glasgow). . . . Hence it appeared likely that chloride of zinc would answer better for my purpose than carbolic acid, and I determined on the first suitable occasion to give it a trial. . . . Subsequent trials, however, proved it to be very inferior to carbolic acid, except in one class of cases, viz., those in which, from the circumstances of the part concerned, it is impossible to maintain an efficient external antiseptic dressing, so that the application must be made once for all at the time of the operation.[2]

Introduction of the spray

1871 ADDRESS IN SURGERY TO BRITISH MEDICAL ASSOCIATION. When the surgeon operates on a previously unbroken integument, he has the opportunity of preventing the septic particles from entering in an active state at all, by operating in an antiseptic atmosphere. This is readily provided for in small operations by using a watery solution of carbolic acid with Richardson's apparatus for local anæsthesia. . . . Supposing this were the site of the incision in a case of psoas abscess, as long as I choose I can perfectly protect it with the antiseptic atmosphere, and then put on what we have called, for the sake of distinction, a " guard "—a piece of rag dipped in the one to one hundred watery solution of carbolic acid, after which the spray can be removed with security ; the surrounding parts having then been cleansed from any discharge there may be, the spray is once more made to play on the part during the exposure of the wound until the permanent antiseptic dressing is re-applied.[3]

Its disuse

1890 ON THE PRESENT POSITION OF ANTISEPTIC SURGERY. As regards the spray, I feel ashamed that I should ever have recommended it for the purpose of destroying the microbes of the air. If we watch the formation of the spray and observe how its narrow initial cone expands as it advances, with fresh portions of air continually drawn into its vortex, we see that many of the microbes in it, having only just come under its influence, cannot possibly have been deprived of their vitality. . . . If, then, no harm resulted

[1] Lister, On Compound Fracture, *The Lancet*, March, 1867, p. 327.
[2] Lister, On the Antiseptic System of Treatment in Surgery, *British Medical Journal*, July, 1868, p. 53.
[3] Lister, Address in Surgery to British Medical Association, *British Medical Journal*, August, 1871, p. 227.

from the admission day after day of abundant atmospheric organisms to mingle unaltered with the serum in the pleural cavity, it seems to follow logically that the floating particles of the air may be disregarded in our surgical work; and, if so, we may dispense with antiseptic washing and irrigation, provided always that we can trust ourselves and our assistants to avoid the introduction into the wound of septic defilement from other than atmospheric sources.[1]

1893 ON THE ANTISEPTIC MANAGEMENT OF WOUNDS. What we have to attend to is to prevent the entrance into our wounds during operations of the grosser forms of septic mischief, such, for instance, as exist in impure sponges, on dirty instruments, or in any unclean material upon our hands or on the skin of the patient. Then, again, the *entourage* of the seat of the operation must be considered. To speak first of this last point, we cover the region round about the field of operation with towels soaked in a trustworthy antiseptic solution, and then we are quite sure that if we touch any neighbouring object there can be no chance of our contaminating the wound as the result of this contact. . . . This same 1 in 20 carbolic solution is what we use for purifying our instruments, our hands, and the skin of the patient.[2]

1908 HISTORY OF ANTISEPTIC SURGERY. I used the 1 to 20 watery solution for rendering the patient's skin and the hands of myself and my assistants aseptic throughout the 40 years during which I practised on the antiseptic principle, and I never had any reason to doubt its efficacy. No long time is required for its action. In my private practice the purification of the skin was as a rule not begun till I entered the patient's room to perform the operation. The part concerned was then thoroughly washed with the 1 to 20 carbolic solution and was kept covered with lint soaked with the same lotion while the instruments were being attended to and the anæsthetic administered, the whole process occupying only about a quarter of an hour. Yet experience showed that this brief period was sufficient.[3]

Adherence to carbolic lotion

Lister was succeeded in the chair of surgery by George (later Sir George) Husband Baird Macleod (1828–1892). He was the son of Dr. Norman Macleod, of St. Columba Church, Glasgow, and a younger brother of the more celebrated Dr. Norman Macleod, the great preacher. After graduating M.D. at Glasgow in 1853, he served in the Crimean War as a surgeon in the Civil Hospital at Smyrna, and afterwards returned to take up practice in Glasgow. In 1859 he became professor of surgery in Anderson's College, and, in 1869, succeeded Lister in the university. He was a clinical and practical surgeon rather than a surgical pathologist, although he worked with great enthusiasm at the developing subject of antiseptic surgery. A colleague said of him :—

G. H. B. Macleod

> "Inheriting the natural ability common to his race, possessed of a mind characterised by logical precision of thought and great powers of generalisation and classification, endowed with an unusual facility of grasping and utilising details, and enjoying the benefit of a dignified and lordly presence, Sir George was well able to seize the opportunities of advancement as they came in his way, and ultimately to discharge with credit and acceptance the duties of the high station to which he was called in civil and academic life."[4]

Macleod died in 1892, and was succeeded by William (later Sir William) Macewen, (1848–1924).

William Macewen

[1] Lister, On the Present Position of Antiseptic Surgery, *British Medical Journal*, August, 1890, p. 378.
[2] Lister, On the Antiseptic Management of Wounds, *British Medical Journal*, January, 1893, p. 161.
[3] Lister, History of Antiseptic Surgery, *The Lancet*, June, 1908, p. 1816.
[4] *Glasgow Medical Journal*, 1892, Vol. XXXVIII., p. 270.

Sir George Husband Baird Macleod (1828-1892)

Sir William Macewen (1848-1924)

Macewen was intimately connected with the Glasgow medical school throughout his life.[1] Born in the island of Bute in 1848, he graduated M.B. at Glasgow University in 1869, and thus during his student days was a dresser in the wards of Lister. It cannot be said, however, that he showed at first any trace of the Listerian influence. After serving as a resident in the Royal Infirmary, first on the medical side with Dr. M'Call Anderson, and afterwards on the surgical side with Dr. G. H. B. Macleod (who had succeeded Lister), he became, in 1870, superintendent of Belvidere Fever Hospital, which had been opened in 1865 as a municipal fever hospital. He thus took part early in his career in the important movement to separate infectious from other diseases, for up to 1865, fevers had been treated in the Royal Infirmary and in the poorhouse hospitals.

In a subsequent period of private practice he held the office of casualty surgeon to the Central Police Station, where his attention was greatly occupied with the best method of treating wounds sustained under septic conditions. After holding appointments on the junior staff of the Royal Infirmary, he was, in 1877, appointed visiting surgeon to this institution and held the post for 15 years, till, in 1892, he was appointed regius professor of surgery in the university, and moved to the Western Infirmary.

He had accepted the teaching of Lister in regard to the antiseptic treatment of wounds, but his deeper interest in the subject is evinced by a paper on "Wounds in Relation to the Instruments which Produce Them" (1878), and another in 1881 on "The Immediate Treatment of Wounds." The success with which he carried out the antiseptic precepts is illustrated by his papers on "Antiseptic Osteotomy for Genu Valgum" (1878) and his book on "Osteotomy" (1880). The latter contributed to his fame more perhaps than any of his other works.

Macewen's researches on bone

The development and growth of bone continued to provide for him throughout life a side interest to which he devoted much thought and unsparing amount of time spent in laboratory investigation. His work on this line of research has undoubtedly been responsible for suggesting much of the recent work that has been carried out upon tissue growth. It revolutionised ideas in regard to the manner in which bones are formed, and was of great practical importance in relation to the transplantation and reformation of the skull and long bones by operation. His work of nearly 40 years on this subject is summed up in his volume "On the Growth of Bone," published in 1912, in which occurs the sentence—"While not underestimating the periosteum as a limiting and protecting membrane of great use in physiological and pathological conditions, there are no data to indicate that it can of itself secrete or reproduce bone. It has no osteogenic function."

His improvements on Lister

His success in operating for hernia by a special method of obliterating the sac was introduced about 1880, and depended for its success to a large extent upon the careful aseptic methods that he used. Although he had practised the Listerian principles of antiseptic surgery, he had already passed a considerable distance beyond Lister into the regions of aseptic surgery. Even at this period, he was boiling gauze

[1] *Glasgow Medical Journal*, 1924, Vol. CI., p. 217.

for dressings and swabs, and had abolished bone and wooden handles for his instruments, instead of relying upon chemical antiseptics for their sterilisation. He was thus one of the earliest surgeons to prosecute systematically operations upon present-day aseptic lines, as opposed to the antiseptic methods which were for another 15 years largely used by other surgeons.

Macewen's catgut

Macewen introduced the use of catgut hardened in chromic acid, which not only rendered ligatures of this substance aseptic, but lengthened the period of their absorption by the tissues. In 1873, he performed a successful operation for ovariotomy, using catgut ligatures and sutures for the purpose.[1] With regard to this case, Dr. John Macewen has kindly given me the following interesting note.

> " I am fairly sure that this case is one of which my father used to tell me a story. It had been the fashion to clamp pedicle stumps and leave them outside the wound. He was very anxious to try ligaturing with catgut and drop the pedicle inside the abdomen. When he got the chance of doing this case, he tried to see Lister to ask if he thought it would be a justifiable proceeding. Lister was not in town, but he wrote him, and got no answer. He therefore decided to go ahead, and did so. On his return from the operation he found Lister's answer awaiting him—he thought it would be a very risky thing to do and advised him not to try. My father had several days of misery in consequence, until, the case going well, he realised the delay had been a blessing in disguise."

Aseptic surgery

By 1879, Macewen was teaching that, after an operation, if the temperature of the body remained about normal, and if there was immunity from pain and absence of discharge, the wound ought not to be touched for a fortnight, and at the end of that time the dressings might be removed, the wound having remained completely aseptic throughout. Osteotomies, compound fractures and other operation wounds were all treated in this way, and it is to Macewen particularly that surgery is indebted for this aseptic, as contrasted with antiseptic, procedure. The avoidance of unnecessary damage to the tissues, the minimal use of antiseptics and the importance of absorbable ligatures were emphasised in lectures published in 1881,[2] and in a paper " On the Results of Antiseptic Osteotomy " in 1880 (with records of 557 operations).[3]

The same fact with reference to the harmful properties of strong antiseptics had been noted by Thomas Keith in Edinburgh, as regarded ovarian operations, between five and ten years earlier.

His other works

Lustre was also shed by Macewen upon the developing school of Glasgow surgery by tireless work on other lines. His operations upon the lung in cases of tuberculosis, sarcoma and the like were new to surgery when he commenced them in 1895. His address to the British Medical Association meeting at Glasgow, in 1888, upon brain surgery, and his work on " Pyogenic Infective Diseases of the Brain and Spinal Cord," published in 1893, have become classics in the surgery of the central nervous

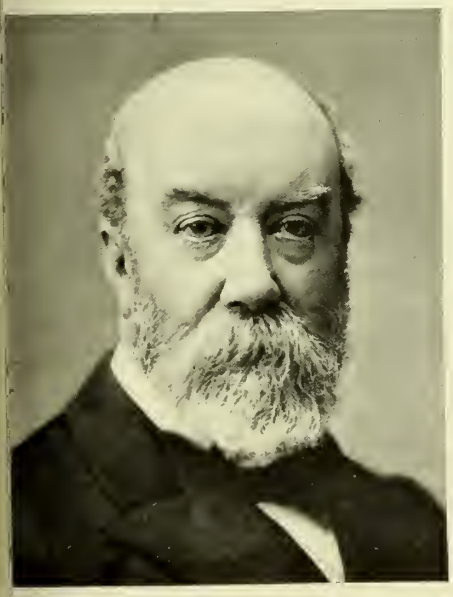
[1] *Glasgow Medical Journal*, 1874, Vol. VI., p. 87.
[2] *British Medical Journal*, 1881, Vol. I., pp. 150 and 185.
[3] *The Lancet*, 1880, Vol. II., p. 450.

system. In addition to his practical skill as a surgeon and to the vision which enabled him to be a pioneer in many branches of surgery that have been further developed by other men in other places, Sir William Macewen was an unwearied contributor of the results of his work to medical journals, and, between 1870 and 1924, his published works included some 70 papers, lectures and addresses.

Clinical surgery

In May, 1874, the chair of clinical surgery was founded in the university and the right of presentation to it was vested in the University Court. The first incumbent of the chair was George Buchanan (1827–1906).[1] He was the son of Dr. Moses Buchanan, a lecturer on anatomy in the Portland Street School, and later professor of anatomy in the Andersonian University. George Buchanan had studied at the Andersonian University and had graduated M.D. at St. Andrews. He served in the Crimean War as a civil surgeon and afterwards took up practice as a surgeon in Glasgow, being appointed surgeon to the Royal Infirmary in 1860, and transferred to the Western Infirmary when it was opened in 1874. In the latter infirmary he acted as professor of clinical surgery till 1900, making some contributions to the literature of the subject, such as papers on Lithotrity and Talipes varus. He was succeeded in 1900 by Sir Hector C. Cameron, who held the chair till 1910.

George Buchanan



GEORGE BUCHANAN (1827-1906)

H. C. Cameron

Hector (later Sir Hector) Clare Cameron (1843–1928)[2] had studied at St. Andrews University and afterwards at the Universities of Edinburgh and Glasgow. In Glasgow he graduated M.B. in 1866, and, having been a student under Lister, now became his house-surgeon, and was associated with him in the early work of antiseptic surgery. He continued his connection with the Glasgow Royal Infirmary as extra dispensary surgeon from 1870 to 1874, and for six years, thereafter, as surgeon to this infirmary. In 1881, he was transferred to the Western Infirmary and, in 1900, became professor of clinical surgery there. He was connected as surgeon with various other hospitals in Glasgow, and during the war became Red Cross Commissioner for the West of Scotland. He retired from the chair of clinical surgery in 1910.

In the latter year the provisions of a university ordinance altered the title of the chair to that of the St. Mungo chair of surgery, the duties of the professor were modified, his locus changed to the Royal Infirmary, and the patronage was now vested in 11 curators, chosen partly by the University Court, partly by the

[1] *Glasgow Medical Journal*, 1906, Vol. LXV., p. 354.
[2] Op. cit., 1928, Vol. CX., p. 357.

Managers of the Royal Infirmary, and partly by the Governors of St. Mungo's College. The first appointment to the chair, altered in this way, was made in 1911, when Robert Kennedy was elected professor. He was succeeded in 1924 by Peter Paterson.

SIR HECTOR CLARE CAMERON (1843–1928)

St. Andrew's Ambulance Association

George T. Beatson

An important part in the development of surgery was played by the improvement in transport which took place from the time that the St. Andrew's Ambulance Association was formed in 1882. The person chiefly responsible for the foundation of this association was Dr. George (later Sir George) Thomas Beatson, who acted for many years as a member of its executive committee and as its chairman. The St. John Ambulance Association had been started in London in 1878, and centres had soon afterwards been established in Edinburgh, Dundee, Falkirk and other

places, which, however, were gradually displaced by the increasing activity of the St. Andrew's Association. Courses in first-aid and home nursing were early established, and an ambulance handbook was prepared by Sir George Beatson, which has remained in use throughout the succeeding half century.

At a later period ambulance corps were organised under the association at various collieries throughout Scotland, and from these the important mine rescue organisation later developed.[1]

Medicine W. T. Gairdner

In regard to the teaching of practice of medicine, William (later Sir William) Tennant Gairdner (1824–1907) was one of the strongest figures in the Glasgow medical school of the later 19th century. He was the son of Dr. John Gairdner, a distinguished Fellow of the Royal College of Surgeons of Edinburgh, and historian of this body. Born at Edinburgh in 1824, William Tennant Gairdner was educated in that city and studied medicine at Edinburgh University under Hope, Alison, Allen Thomson, John Thomson, Christison, Simpson and Syme. As Gairdner often said in later days: "they were giants in these days; but they were very quarrelsome giants."

After graduation in 1845 and a visit to Rome, he became resident physician's clerk with Dr. Andrew, and later with Dr. Halliday Douglas, acting later still as surgeon's clerk to Mr. James Miller. After some 18 months spent in residence at the Royal Infirmary of Edinburgh, he was appointed, in 1848, pathologist to this institution, and in this connection some of his most important publications were issued. In the year 1853, he was appointed physician to the Royal Infirmary, began a course of lectures on practice of medicine in the extra-mural school, and soon attained a great reputation as a practical physician and successful teacher.

His earlier works

A great number of publications on pathological and clinical subjects issued from his pen, but the most important of these were two that appeared in the year 1862, of which one called "Public Health in Relation to Air and Water" was of the greatest value to the sanitary science of the time, and the other, entitled "Clinical Medicine; Observations recorded at the Bed-side, with Commentaries," was a record of the scattered observations which he had made during his connection with the Royal Infirmary of Edinburgh.

In this year (1862) he was appointed to succeed Professor Macfarlane in the chair of medicine at Glasgow University. Here the medical faculty at the time consisted of Allen Thomson (anatomy), Henry D. Rogers (natural history), Joseph Lister (surgery), John Pagan (midwifery), George Walker Arnott (botany), Thomas Anderson (chemistry), Andrew Buchanan (physiology), and Harry Rainy (forensic medicine).

Work on public health

The subject of public health was one that had begun to excite much interest in Glasgow as well as in other places before the middle of the 19th century. When Dr. William Gairdner came to Glasgow, he became the first medical officer of health for the city in 1863, and held the office till 1872, when he was succeeded by

[1] *Red Cross and Ambulance News*, Vol. IV., Glasgow, 1910, p. 52.

Dr. James Burn Russell (1837–1904),[1] who held the post until 1898, and was responsible for many important changes in sanitary law and its practical application, which had a profound influence upon the health of Glasgow. Dr. Russell had graduated M.D. at Glasgow in 1862, and had been the first superintendent of the Parliamentary

Sir William Tennant Gairdner (1824–1907)

Road Fever Hospital, which was erected mainly to relieve the pressure upon the wards of the Royal Infirmary caused by epidemics of typhus and other infectious fevers. The sanitary condition of Glasgow, about the middle of the century, is vividly described by numerous contemporary observers.

Hygienic state of Glasgow

Speaking of the condition in the year 1838, J. C. Symons, Assistant-Commissioner on the Condition of Handloom Weavers, reported as follows:—

"I can advisedly say, that I did not believe, until I visited the wynds of Glasgow, that so large an amount of filth, crime, misery and disease existed

[1] Russell: "Public Health Administration in Glasgow," Edited by A. K. Chalmers, Glasgow, 1905.

on one spot in any civilised country. The wynds consist of long lanes, so narrow that a cart could with difficulty pass along them ; out of these open the ' closes,' which are courts about fifteen or twenty feet square, round which the houses, mostly of three storeys high, are built ; the centre of the court is the dunghill, which probably is the most lucrative part of the estate to the laird in most instances, and which it would consequently be esteemed an invasion of the rights of property to remove . . . In the lower lodging-houses, ten, twelve, and sometimes twenty persons, of both sexes and all ages, sleep promiscuously on the floor in different degrees of nakedness. These places are generally, as regards dirt, damp and decay, such as no person of common humanity would stable his horse in . . .

" I visited the parts of Edinburgh likewise, where the lowest portion of the community reside, but nothing which can for a moment be compared with the wynds of Glasgow exists there. It is my firm belief that penury, dirt, misery, drunkenness, disease and crime culminate in Glasgow to a pitch unparalleled in Great Britain." [1]

Mr. Chadwick, Secretary to the Poor Law Commissioners in 1842, said :—

" It might admit of dispute, but, on the whole, it appeared to us that both the structural arrangements and the condition of the population of Glasgow were the worst of any we had seen in any part of Great Britain." [2]

Under such appalling conditions, which involved some 90 acres of the older part of the city, serious epidemics of typhus and cholera were constantly breaking out. Between 1818 and 1854, there were five epidemics of the former and three of the latter in Glasgow, with many thousands of deaths. To remedy this state of affairs, there had been eight Glasgow Police Acts up to 1862, but the powers under these being limited, little improvement had resulted. Immediately on the passing of the eighth Police Act in 1862, however, a Sanitary Committee was appointed and this Committee nominated Dr. W. T. Gairdner, in 1863, as the first medical officer of health, with a small room in the Central Police Buildings as an office.

First fever hospital

The first municipal fever hospital of wood on brick foundations, was hurriedly erected and opened with 136 beds in 1865. The methods then used in attacking typhus fever consisted of hospital isolation of the sick and supervision of the contacts in " reception-houses," but especially upon an application of powers recently obtained for " ticketing " small houses with the number of inmates permitted, and thus preventing excessive over-crowding. These measures during Dr. Gairdner's period of office had brought typhus fever well under control by the early 'seventies.

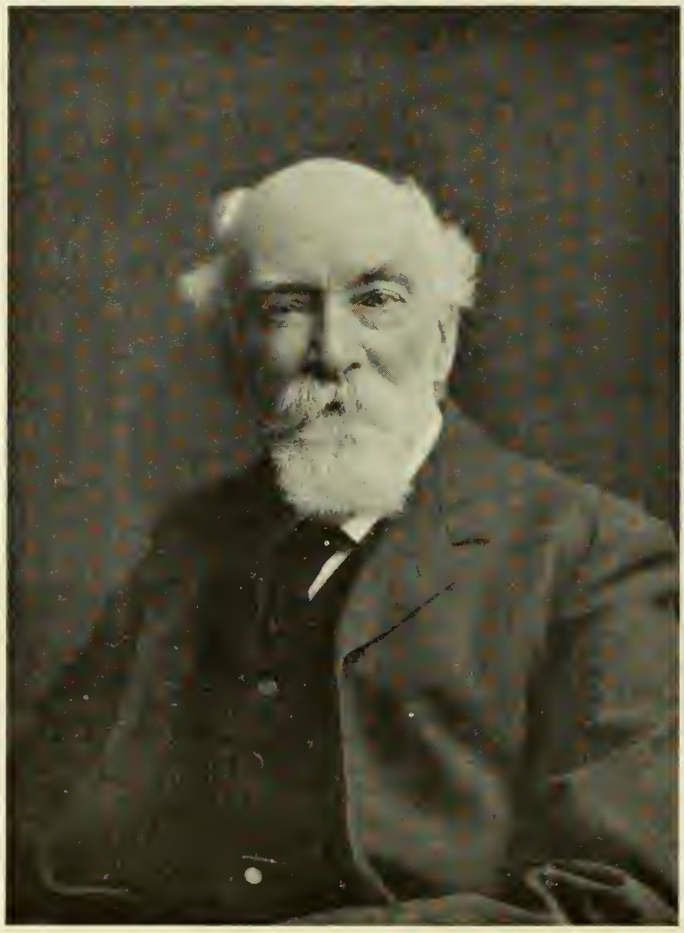
Succeeded by J. B. Russell

When Dr. Russell took office in 1872, one of his earliest activities was the tracing of the nature of infection in enteric fever. The bacillus of this disease was not isolated until 1880, but Dr. Russell was able, in several epidemics, to trace the infection back to cases in the families of dairymen, and thus to show the necessity

[1] " Reports from Assistant Handloom Weavers Commissioners," Parliamentary Paper, issued 27th March, 1839.
[2] " Report of Poor Law Commissioners on an Enquiry into the Sanitary Condition of the Labouring Population of Great Britain." Presented to Parliament, July, 1842.

for reforming the conditions of dairy farms in rural districts. The Dairies and Milkshops Order of 1879 was chiefly the outcome of his efforts.

Various Glasgow Acts for improvement of buildings and streets were gradually obtained in the 'seventies and 'eighties, and sporadic attempts were made by an



JAMES BURN RUSSELL (1837-1904)

Improvement Trust to better the housing conditions in the older part of the city. In 1889, the Improvement Trust commenced reconstruction on a wider scale, and after the Housing of the Working-Classes' Act in 1890, demolition of the bad houses went on systematically.

The Infectious Diseases (Notification) Act was adopted by Glasgow in 1890, and the Glasgow Police (Amendment) Act of the same year added to the powers for dealing with infectious disease, uninhabitable houses, etc. The purification of the

river Clyde, begun by the opening of the Dalmarnock Purification Work in 1894, was another great sanitary effort under the regime of Dr. Russell.

On his retirement in 1898, these various measures were continued by his successor, Archibald Kerr Chalmers, and in the establishment of modern municipal hospitals, provision of clinics, and the other developments which have characterised sanitary enterprise in the 20th century, Glasgow maintained the position which this city had achieved in the very forefront of progress in matters affecting the public health.

Gairdner's later work

Gairdner resigned the position of medical officer of health in 1872, and devoted himself to the duties connected with his chair, his wards and his practice, in which he was continuously occupied for the next 30 years. Many of his addresses and publications during this period have become classics of medicine, such as an article upon " Angina Pectoris and Allied States, including certain kinds of Sudden Death." He was one of the most active members of the Medico-Chirurgical Society, and founded the Pathological and Clinical Society, of which he was the first president in 1873.

As a systematic teacher, Gairdner is pronounced by a contemporary, Dr. G. A. Gibson, to have had in the second half of last century no superior.[1] He was endowed with great originality of mind and looked upon every question from a fresh point of view, so that he was enabled to throw new light upon many of the medical problems with which he concerned himself throughout his career. As a member of the Hunterian Society, during his undergraduate days, he had been a keen debater, and in the records of the Medico-Chirurgical Society of Edinburgh his name is to be found in the minutes of almost every meeting, contributing articles, demonstrating specimens or criticising papers. He pursued the same course after his transference to Glasgow, and his presence was a stimulating factor in the medical circles of the west of Scotland. He was also a prolific writer, and his various papers, addresses and books number well over 100.

James Finlayson

An important work connected with the teaching in the Glasgow medical school was the " Clinical Manual for the Study of Medical Cases," by Dr. James Finlayson (1840–1906), which first appeared in 1878, and passed through three editions in this country, and two under the title of " Clinical Diagnosis " in the United States. This was the first of numerous manuals of a similar type dealing with clinical medicine, produced in other schools.

Dr. Finlayson was a physician to the Glasgow Western Infirmary for over 30 years, and a prolific contributor to medical literature during this time. As librarian to the Faculty of Physicians and Surgeons, a post which he held for 25 years, he took a special interest in medical history, organised numerous bibliographical demonstrations for his medical colleagues, and his account of the life and works of Mr. Peter Lowe, the founder of the Faculty, is one of the best-known publications of this kind.

[1] Gibson : " Life of Sir William Tennant Gairdner," Glasgow, 1912, p. 193.

JAMES FINLAYSON (1840–1906)

SIR THOMAS M'CALL ANDERSON (*ca.* 1836–1908)

T. M'Call Anderson

On the retiral of Gairdner from the chair of medicine in 1900, he was succeeded by Thomas (later Sir Thomas) M'Call Anderson (*ca.* 1836–1908).[1] His father had practised medicine in Glasgow and his grand-uncle had been Dr. John Anderson, founder of the Andersonian University. After graduating M.D. at Glasgow in 1858, M'Call Anderson lectured on medicine in Anderson's College and became physician to the Royal Infirmary, where he quickly gained the reputation of a good teacher.

Chair in clinical medicine

In 1874, a chair of clinical medicine was founded in the university, the right of presentation being vested in the University Court. When the Western Infirmary was opened in 1874, M'Call Anderson was transferred to this infirmary as the first incumbent of the new clinical medicine chair. In 1900, he succeeded Gairdner as professor of practice of physic in the university.

M'Call Anderson was one of the founders of the Hospital for Skin Diseases, which at first consisted of a clinic in Elmbank Street, and later came to an arrangement with the Managers of the Western Infirmary whereby two wards were set apart for the treatment of in-patients suffering from diseases of the skin. His treatise on "Diseases of the Skin," published in 1887, was a well-known book in its time, as were also his work on "Diagnosis and Treatment of Syphilitic Affections of the Nervous System" and his clinical lectures on "Acute Phthisis." Most of his other works dealt with diseases of the skin, a department in which he specially interested himself. M'Call Anderson died in 1908, when he was succeeded in the chair of medicine by Samson Gemmell, who held the post till 1913, when he in turn was succeeded by Thomas Kirkpatrick Monro.

When M'Call Anderson became professor of practice of physic in the university in 1900, he had been succeeded as professor of clinical medicine by Samson Gemmell, who held this chair till 1908. When Gemmell was transferred to the chair of practice of medicine in 1908, the title of the clinical chair was altered to that of the Muirhead chair of medicine, the duties of the professor were modified, his locus changed to the Royal Infirmary, and the patronage was vested in 11 curators. By an agreement between the University Court and the Managers of the Royal Infirmary, the professor of the Muirhead chair of medicine was to be provided in this infirmary with accommodation and facilities for teaching. The first incumbent of the chair, elected in 1911, was Walter King Hunter.

Midwifery

J. M. Pagan

The department of midwifery had been under the charge of John McMichan Pagan (1802–1868),[2] whom the Crown had appointed to the chair in 1840. He was an Edinburgh graduate who had practised for a time at Preston and afterwards settled in Glasgow, where he had become surgeon to the Royal Infirmary in 1827. For a time he lectured on forensic medicine in the Portland Street School, and prior to the passing of the Lunacy Act, published an important paper on the medical jurisprudence of insanity.

After his election to the chair, he took much interest in the University Lying-in Hospital and Dispensary, but, owing to his decided views on the spread of puerperal

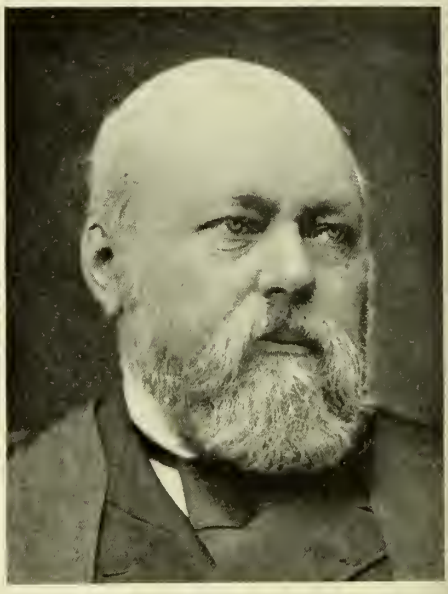
[1] *Glasgow Medical Journal*, 1908, Vol. LXIX., p. 196.

[2] Op. cit., 1869, Vol. I., New Series, p. 129.

fever, the wards connected with this charity were discontinued ; and the patients, who numbered some 750 annually, were treated in their own homes. This was probably a most salutary measure at a time before the introduction of antiseptic procedures, when septic conditions were extremely rife in hospitals.

William Leishman

Pagan died in 1868, and was succeeded by William Leishman (1833–1894).[1] Leishman was a son of the parish minister of Govan and had graduated M.D. at Glasgow in 1855. He engaged in general practice and lectured on medical jurisprudence in Anderson's College, but, about 1860, began to contribute papers on obstetrics and gynæcology to the *Glasgow Medical Journal*. In 1862, he was one of the editors of this periodical, and on the death of Pagan, the Crown appointed him professor of midwifery in the university. His chief work was the publication of "A System of Midwifery" which appeared in 1870, was widely used, and reached a fourth edition by 1888.



WILLIAM LEISHMAN (1833–1894)

He was a great advocate of the influence of nature in obstetrical procedure, and strongly opposed to meddlesomeness in midwifery and gynæcology. Much of his time was given to public work in the Senate and Court of the university, and on the General Medical Council. His name is better known as that of his more distinguished son, who ultimately became director-general of the Army Medical Service.

Leishman was succeeded in the chair, in 1894, by Murdoch Cameron, who held the chair till 1927, when he in turn was succeeded by John M. Munro Kerr.

Chairs at Royal Infirmary

As in the case of medicine, surgery and pathology, a chair of obstetrics and gynæcology (Muirhead chair) was, in 1911, founded in connection with the Royal Infirmary. By an agreement between the University Court and the Managers of the Royal Infirmary, the professor was provided at that Infirmary with accommodation and facilities for teaching. The first incumbent of the chair was John M. Munro Kerr, who, on his transference to the chair of midwifery, was, in 1927, succeeded by James Hendry.

Forensic medicine

In the professorship of forensic medicine, Harry Rainy was succeeded, in 1872, by Pierce Adolphus Simpson (1837–1900).[2] He had been born in Ireland, and educated in medicine at Edinburgh, afterwards graduating M.D. in 1861, at

[1] *Glasgow Medical Journal*, 1894, Vol. XLI., p. 197.
[2] *The Lancet*, 25th August, 1900, ii., p. 632.

St. Andrews. Prior to his appointment as professor in the university, he had lectured for some years on medical jurisprudence at Anderson's College and had been a physician to the Royal Infirmary. He was also for a time editor of the *Glasgow Medical Journal*. He resigned in 1898, and was succeeded by John Glaister, who, retiring in 1931, was followed by his son, John Glaister *(junior)*.

Anatomy

John Cleland

In the chair of anatomy John Cleland (1835–1925)[1] succeeded Allen Thomson. Born at Perth in 1835, where his father had been a well-known physician, he graduated M.D. at Edinburgh in 1856, and became junior demonstrator of anatomy under Goodsir, with Dr. William Turner as his senior. In 1867, he went to Glasgow as assistant to Allen Thomson and, in 1874, was appointed professor of anatomy and physiology in Galway, returning to Glasgow three years later as professor of anatomy. He enjoyed a position of high place and honour in the memories of his students, to whom he was familiarly known as "Johnny."

He was the author of several valuable text-books, such as the "Directory of Dissection," and a text-book of anatomy of which he was joint author with Professor John Yule Mackay, and he was also joint editor of the ninth edition of Quain's Anatomy. He was much engaged in research, upon which he published several important papers, and he possessed high talent both as an artist and a poet, as witnessed by his "Scala Naturæ and other poems." On his retirement, in 1909, he was succeeded in the chair by Thomas H. Bryce.

Physiology

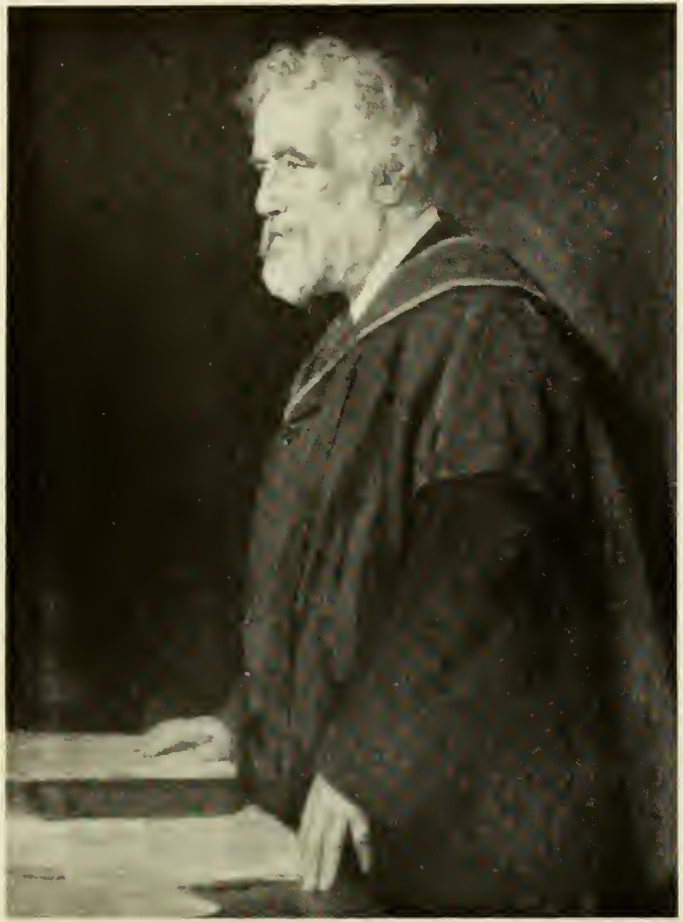
The chair of physiology underwent great development during the latter half of the 19th century, and the changes that took place in regard to the teaching of this subject afford a good example of the progress in general medicine which rendered them necessary.

Andrew Buchanan

Andrew Buchanan (1798–1882),[2] the first professor of physiology, had graduated M.D. at Glasgow in 1822, and a few years afterwards had been appointed professor of materia medica in Anderson's College, a post which he held till made a professor in the university. When Badham had been appointed to the professorship of practice of medicine, the Crown had intimated that it reserved the right to institute a professorship on theory or institutes of medicine (physiology). Badham had shown himself unequal to the task of teaching the two subjects, and with the advances of knowledge that had taken place in medicine, the time appeared to have come, in 1839, to have a special professor in the latter subject.

Andrew Buchanan was a general practitioner in Glasgow with a special inclination towards surgery, but in his earlier years he conducted a considerable amount of laboratory investigation and was, for example, one of the first to investigate the phenomenon of the coagulation of blood. In 1847, he devised the rectangular staff for the operation of lithotomy, and, in his later years, he created some stir by a paper on the mechanical theory of the predominance of the right hand, which led to considerable discussion. A peculiarity was his belief that examinations afforded no test of a student's capacity or attainments, which he

[1] *Glasgow Medical Journal*, 1925, Vol. CIII., p. 233.
[2] Op. cit., 1882, Vol. XVIII., p. 134.



JOHN CLELAND (1835–1925)
(Original in Glasgow University)

PIERCE ADOLPHUS SIMPSON (1837–1900)

preferred to ascertain by essay writing, a form of test which sometimes produced curious results. He had a long and useful life in the city, and his coachman John, his brougham and his old white horse, were for long familiar figures on its streets. He held the chair for the long period of 37 years, retiring finally in 1876.

Field covered by physiology before 1876

The development of this chair is an interesting example of the change which took place in medicine during the 19th century. Prior to the establishment of the lectureship on the institutes of medicine in 1833, to which Dr. Harry Rainy had been appointed, physiology, pathology and what was considered necessary of forensic medicine, were taught by Dr. Jeffray, professor of anatomy, as part of his course.

When Buchanan was appointed in 1839, his subject included the modern departments of physiology, pathology, therapeutics and hygiene, which were treated in a course of systematic lectures. There was no practical instruction in these subjects, but after Buchanan had held the chair for many years, a weekly lecture on microscopical and practical physiology was added, the work being limited to the exhibition of a few objects under microscopes, through which the students looked in turn. After the removal of the university to Gilmorehill in 1870, Buchanan was provided with two assistants, one for practical physiology and microscopy, and the other for pathology, but even at this time no laboratory was considered necessary.

ANDREW BUCHANAN (1798–1882)

McKendrick, on coming to Glasgow in 1876, describes the facilities for teaching physiology which had been left by Dr. Andrew Buchanan as follows:

> "Although latterly he had a share of the new buildings at Gilmorehill, having flitted from the ancient University, he did not consider it necessary to obtain adequate accommodation, and when I obtained the chair there was nothing that could be called a laboratory; there were a few old microscopes, a few ancient diagrams and a sphygmograph. It is said that one day he showed the class a large modern microscope, all bright, beautiful brass work, with mysterious screws and moveable stage. He enlarged on the novel instrument, which was, he said, of the most modern construction, and he added, 'Look at it, gentlemen, but do not touch it.' An irreverent voice came from a back bench, 'Then what the devil did you bring it here for?'"[1]

[1] McKendrick: "The Story of my Life," Aberdeen, 1919, p. 103.

J. G. McKendrick

When Buchanan resigned in 1876, he was succeeded in the chair, of which the name was now changed to physiology, by John Gray McKendrick (1841–1926)[1] under whom the subject developed widely. McKendrick was born at Aberdeen in 1841, and graduated there in 1864. Having a liking for physiology, he came to

JOHN GRAY MCKENDRICK (1841–1926)

Edinburgh, in 1869, as assistant to Professor Hughes Bennett, and in 1872 became a lecturer on physiology in the extra-mural school at Edinburgh. At the time when he succeeded to the Glasgow chair, Ludwig, Helmholtz, Marey, and others were developing the experimental side of this subject and making their influence universally felt.

McKendrick, who is described by a colleague as "a splendid teacher and one of the best popular lecturers of his time," devoted much energy to original research,

[1] *Edinburgh Medical Journal*, 1926, Vol. XXXIII, p. 176.

and his love of music led him particularly to the study of sound production and hearing. For a great part of his tenure of the chair there was no professorship of pathology and he was obliged to teach this subject, with the help of an assistant, in addition to that of physiology. His laboratory consisted originally of only two rooms, and he had a great ambition to found a physiological institute, a project which was realised in 1903, when the Glasgow public put the necessary money at the disposal of the university.

McKendrick retired in 1906, and was succeeded by Diarmid Noël Paton, who in turn was succeeded, in 1928, by Edward P. Cathcart. In 1919, this department was still further strengthened by the foundation of the Gardiner professorship of physiological chemistry, to which Edward P. Cathcart was appointed, and also by lectureships in psychology, histology, etc.

Chair in pathology

The development of medicine towards the end of the 19th century in Glasgow is still further illustrated by the separation from physiology of pathology, in which a chair was founded in 1893.

Joseph Coats

Joseph Coats (1846–1899)[1], was the first professor of this subject, appointed in 1894, and, by arrangement with the Western Infirmary, the professor was appointed pathologist to this institution. Coats was born in 1846, at Paisley, his grand-uncle having been the founder of the well-known firm of cotton spinners, J. & P. Coats. After graduating with honours at Glasgow in 1867, he was resident with Gairdner and Lister, and afterwards studied in Germany with Carl Ludwig, so that when he came back to Glasgow, in 1869, he was thoroughly imbued with the continental ideas in regard to physiology and pathology.

From 1869 to 1875, Coats was pathologist to the Royal Infirmary, and, after 1875, pathologist to the Western Infirmary. During a great part of this time he was assistant to Professor Andrew Buchanan in physiology, and from 1876 he had charge of the pathological section of this department.

In 1877, he began a practical pathology course with four students, and, as an example of the difficulty with which research was then carried on, a contemporary mentions that for 20 years his work-room was "a small den, perhaps 12 feet square, with a table at which he and his assistants were wont to work and frequently to lunch."

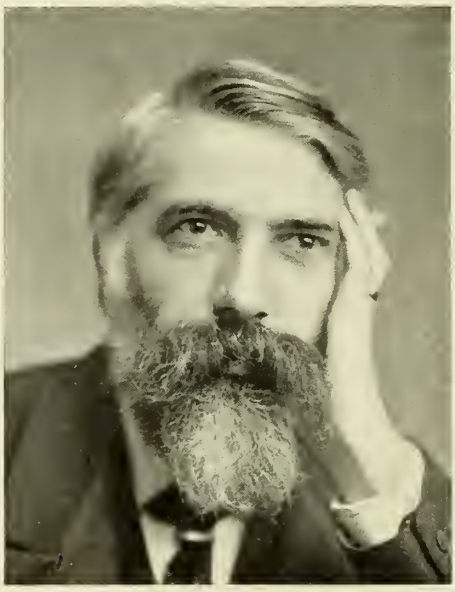
Pathology laboratory

From this small laboratory a great deal of microscopic pathology was communicated to various journals. In 1883, his well-known "Manual of Pathology" appeared, and ten years later, in 1893, a chair of pathology was founded, to which Coats was appointed. In 1896, a scheme towards which he had worked for 20 years came to fruition in the establishment of a pathological laboratory, opened in this year in the Western Infirmary. He died in 1899, and was succeeded by Robert Muir.

[1] *Glasgow Medical Journal*, 1899, Vol. LI., p. 108.

Later developments

In 1919, the same year in which the department of physiology was expanded by the institution of the Gardiner chair in physiological chemistry, the department of pathology was amplified by the institution of the Gardiner chair of bacteriology, to which Carl H. Browning was appointed professor. Prior to this, in 1911, when the St. Mungo chair of surgery and the Muirhead chair of medicine were established in connection with the Royal Infirmary, a St. Mungo (Notman) chair of pathology was also established in the Royal Infirmary. By arrangement with the Managers of this institution, the professor was appointed its pathologist, and John H. Teacher was installed as the first incumbent of the chair. He died in 1930, and was followed by John Shaw Dunn.



Joseph Coats (1846–1899)

John Black Cowan (1829–1896)

Materia medica
J. B. Cowan

In the chair of materia medica Easton was succeeded, in 1865, by John B. Cowan (1829–1896).[1] Professor Cowan came of a family which had practised medicine in Glasgow and in the neighbouring district since early in the 17th century. After graduating M.D. at Glasgow in 1851, he had studied in Germany and at Paris, Edinburgh and Dublin, and, in 1852, commenced practice in Glasgow. The practice was interrupted by his taking up work in the Crimea during the war of 1855, but by 1862, he had returned to Glasgow where he was a lecturer in Anderson's College, first in medical jurisprudence and afterwards in medicine. In 1865, he was appointed by the Crown professor of materia medica in the university, a post which he held till his retiral in 1880. He took an active part in the medical reform of his time

[1] *Glasgow Medical Journal*, 1896, Vol. XLVI., p. 192.

and in the transference of the medical school to the Western Infirmary, and for a period he acted as editor of the *Glasgow Medical Journal*.

The next professor of materia medica was Matthew Charteris (1840–1897).[1] He had graduated M.D. in 1863, at Edinburgh, studied abroad and practised for a time in Airdrie. Having entered upon practice in Glasgow, in 1876, he became professor of medicine in Anderson's College, and, in 1880, professor of materia medica in the university. He wrote a text-book on "Practice of Medicine" which was very popular in its day and went through seven editions, as also a handbook on "Home and Foreign Health Resorts," and his researches in regard to salicylic

M. Charteris

MATTHEW CHARTERIS (1840-1897)

[1] *Glasgow Medical Journal*, 1897, Vol. XLVIII., p. 51.

acid and chlorobrom were noteworthy. In 1897, he was succeeded by Ralph Stockman.

Radiology

John Macintyre

The Royal Infirmary of Glasgow very early developed the subject of radiology. This was due to Dr. John Macintyre (1857–1928).[1] He had begun life as an electrician, but having an ambition to join the medical profession, graduated M.B. at Glasgow in 1882, and almost immediately devoted himself to the study of laryngology, a specialty in which he ultimately gained considerable eminence. At a later date he became editor of the *British Journal of Laryngology*, and was president of the British Laryngological Association, making numerous contributions to the literature of this subject. His early training as an electrician, however, led him to adopt as a hobby the applications of electricity in medicine, and in this also he published numerous useful papers.

When Röntgen published the discovery of the X-rays in 1896, Macintyre at once recognised this as a wonderful adjunct to surgical diagnosis, and within a few months of Röntgen's discovery, Macintyre had organised a radiological department in Glasgow Royal Infirmary. It is believed that this department was the second installation of its kind in the world, and under his supervision, it maintained its place as one of the finest in this country. He was one of the first to construct a portable X-ray apparatus, and before 1900 he was able to take satisfactory radiograms in any part of the hospital, as, for example, one showing the disposition of the fragments in a fractured thigh bone, without removing the splints and while the patient lay in bed. This was a notable advance at the time.

The Glasgow medical school underwent still further development after the first decade of the 20th century, largely due to the effect of the appointment of a principal having special medical interests in the person of Sir Donald MacAlister.

Later chairs and lectureships

In addition to the chairs founded at various periods during the 19th century, several new professorships have been subsequently added to the medical faculty. A Henry Mechan chair of public health was founded in 1923, and J. R. Currie was appointed the first professor. A chair of medical pædiatrics (Samson Gemmel chair) was founded in 1924, and Leonard Findlay was appointed professor, while a lectureship (Barclay lectureship) upon surgery and orthopædics had already been instituted in 1919, and Alexander MacLennan appointed to the post.

A lectureship on insanity was founded as early as 1880, the lecturer being physician superintendent to the Royal Asylum at Gartnavel, and physician to the department for nervous disorders at the dispensary of the Western Infirmary. David Yellowlees was the first incumbent of the lectureship, which was subsequently held from 1905 by L. R. Oswald, and from 1922 by David K. Henderson.

A lectureship on ophthalmology had been instituted by the university in 1828, when William Mackenzie was appointed to this post, which since his time has been successively held by George Rainy, Thomas Reid, A. Maitland Ramsay and A. J. Ballantyne.

[1] *Glasgow Medical Journal*, 1928, Vol. CX., p. 363.

Lectureships on psychological medicine, diseases of the ear, diseases of the nose and throat (Western Infirmary), diseases of the ear, nose and throat (Royal Infirmary), the M'Call Anderson lectureship in dermatology (Western Infirmary), dermatology (Royal Infirmary), venereal diseases, electrical diagnosis and therapeutics, and clinical tuberculosis have also been founded since the end of the 19th century.

The development of the Glasgow medical school after the passing of the Medical Act is indicated by the numbers of medical students at successive decades. The numbers of medical students matriculated at Glasgow University were as follows :—1859–60, 311 ; 1869–70, 336 ; 1879–80, 539 ; 1889–90 (immediately before extension of course took effect), 800 ; 1899–1900, 684 ; 1909–10, 698 ; 1919–20 (peak of post-war influx), 1835 ; 1929–30, 829. These figures do not include the students attending the extra-academical schools of Anderson's College and St. Mungo's College, who have averaged respectively 467 and 122 in each of the past five years.

PROFESSORS AND LECTURERS IN THE GLASGOW MEDICAL SCHOOL APPOINTED FROM 1860 TO 1900. The list has been compiled from the Glasgow University and Anderson's School of Medicine Calendars, and from the Annual Reports of the Glasgow Royal Infirmary.

SUBJECT	UNIVERSITY	ANDERSONIAN	ROYAL INFIRMARY MEDICAL SCHOOL AND ST. MUNGO'S COLLEGE
MEDICINE	1862 W. T. Gairdner	1863 John Black Cowan	
		1866 Thomas M'Call Anderson	
		1874 Algernon Wood Smith	
		1875 Matthew Charteris	1876 A. W. Smith
		1880 Samson Gemmell	1881 J. W. Anderson
	1900–1908 Thomas M'Call Anderson	1900 Robert Stevenson Thomson	1889–1901 Alexander Robertson
ANATOMY		1860 George Buchanan	
	1877–1909 John Cleland	1874–1919 Alexander Macgregor Buchanan	1876 Henry E. Clark
			1892–1900 R. T. Kent
SURGERY	1860 Joseph Lister	1860 G. H. B. Macleod	
	1869 G. H. B. Macleod	1869 James Dunlop	
			1876 H. C. Cameron
			1881 W. Macewen
			1889 David N. Knox
	1892–1924 Wm. Macewen	1895–1902 Thomas Kennedy Dalziel	1892–1906 Henry E. Clark
MIDWIFERY	1868 William Leishman	1863 James G. Wilson	
		1881 Abraham Wallace	1876–1903 James Stirton
		1889 William L. Reid	
	1894–1927 Murdoch Cameron	1896–1910 John Edgar	

SUBJECT	UNIVERSITY	ANDERSONIAN	ROYAL INFIRMARY MEDICAL SCHOOL AND ST. MUNGO'S COLLEGE
CHEMISTRY	1874–1915 John Ferguson	1870 Thomas Edward Thorpe 1874 William Dittmar 1889–1919 James Robertson Watson	1876 John Clark 1883 James M. Milne 1893–1901 T. Rhymer Marshall
BOTANY	1868 Alexander Dickson 1879 I. B. Balfour 1885–1925 Frederick O. Bower	1863 Roger Kennedy 1877 Robert Henry Paterson 1879 Alexander Stoddart Wilson 1889 Thomas King 1897 Benjamin George Cormack	1889–1926 James Swanson
MATERIA MEDICA	1865 John B. Cowan 1880 Matthew Charteris 1897 Ralph Stockman	1885 James Morton 1888 Alexander Napier 1893–1905 Robert Barclay Ness	1876–1907 John Dougall
PHYSIOLOGY	1876–1906 J. G. McKendrick	1876 David Caldwell M'Vail 1880 John Barlow 1884 James Christie 1891 Donald Campbell Black 1897–1902 William E. F. Thomson	1876 W. J. Fleming 1883–1902 John Barlow
MEDICAL JURISPRUDENCE	1872 P. A. Simpson 1898 John Glaister	1863 William Leishman 1868 P. A. Simpson 1872 Alexander Lindsay 1887 Ebenezer Duncan 1891 Thomas Kennedy Dalziel 1895 Robert Macneil Buchanan 1899 Carstairs Cumming Douglas	1876 W. McEwen 1881 John Glaister 1898–1908 Hugh Galt
NATURAL HISTORY	1866–1902 John Young	1891–1912 George Bell Todd	1890 Edward E. Prince 1894–1906 Malcolm Laurie
OPHTHALMOLOGY	1828 William M'Kenzie 1868 George Rainy 1869–1900 Thomas Reid	1869 John R. Wolfe 1889–1909 Thomas S. Meighan	1889 John R. Wolfe 1892 Francis H. Napier 1897–1911 A. Maitland Ramsay

SUBJECT	UNIVERSITY	ANDERSONIAN	ROYAL INFIRMARY MEDICAL SCHOOL AND ST. MUNGO'S COLLEGE
MENTAL DISEASES	1880–1905 David Yellowlees	1891–1914 John Carswell	1876 Alexander Robertson 1889–1901 A. C. Clark
PATHOLOGY	1894 Joseph Coats 1899 Robert Muir		1876 D. Foulis 1881 D. Newman 1889 J. Lindsay Steven 1895–1908 Charles Workman
DISEASES OF THE EAR	1895–1916 Thomas Barr	1879 Thomas Barr 1895 James Erskine 1899 James G. Connal	1878 James P. Cassells 1880 Johnston Macfie 1892–1912 James K. Love
DISEASES OF THE NOSE AND THROAT	1895–1919 James W. Downie	1891–1922 John Macintyre	1885 D. Newman 1892–1912 Robert Fullerton
PUBLIC HEALTH		1878 James Christie 1891 Peter Caldwell Smith 1894 William Campbell Downs 1895 John Pearson Munro 1898–1908 Joseph Carroll	1887 John Glaister 1890 John C. McVail 1898–1908 Hugh Galt
DENTAL SURGERY			1878–1888 James C. Woodburn
GYNÆCOLOGY			1889–1908 James K. Kelly
DISEASES OF CHILDREN			1889 James A. Adams D. C. Black 1892–1911 Charles Workman

SUBJECT	UNIVERSITY	ANDERSONIAN	ROYAL INFIRMARY MEDICAL SCHOOL AND ST. MUNGO'S COLLEGE
DERMATOLOGY			1889 James Provan 1892–1914 Alexander Morton
BACTERIOLOGY			1889 Neil Carmichael 1890 Charles Workman 1895–1914 David McCrorie
FEVERS			1890–1900 James W. Allan

SEAL
GLASGOW UNIVERSITY

Chapter XXV

The Edinburgh Medical School after 1870

The last 30 years of the 19th century witnessed many important changes in the Edinburgh Medical School. One of the most important factors in its expansion was the rebuilding of the Royal Infirmary. For a number of years it had become increasingly obvious that the old building, which had been in constant use since 1741, was not in conformity with more modern views regarding hospital requirements. In 1864, an architect had reported that nothing short of a new building would answer the purpose, and, in 1866, the surgeons complained of the sanitary condition and ventilation of the surgical part which had been built in 1853. Much discussion took place as to whether the new building should be erected on the old site at Infirmary Street, or whether a new position on Lauriston Place, in the grounds of George Watson's Hospital, should be chosen. Rebuilding of the Royal Infirmary

For several years the "battle of the sites" went on, and, in 1869, additional ground had actually been secured for putting up a new infirmary upon the old site. Largely, however, owing to the advocacy of Professor Syme, in whose wards attacks of erysipelas and pyæmia had broken out, it was decided that a completely new infirmary should be built on the grounds of George Watson's Hospital. Parliamentary sanction was obtained for this purpose on 20th June, 1870, and later in the same year the foundation stone of the new Royal Infirmary was laid. The building was finally opened on 29th October, 1879, for the reception of patients, and the old buildings in Infirmary Street were sold to the Corporation of the city for a fever hospital. The original "medical house" was demolished, but the surgical part of the old infirmary continued to be used as the City Hospital for infectious diseases until 1903, when the new City Hospital at Colinton Mains was opened.[1]

About the same time the accommodation for medical classes in the Old University was becoming insufficient. In 1869, the number of students in the university had risen to 1500, and that of professors to 33, while there were only 17 class-rooms for their use. An extension committee was therefore formed in 1873, an appeal was made to the public and to the Government for assistance, and the New University Buildings for medical classes, begun in 1878, were partly open for teaching purposes by October, 1880, in immediate proximity to the new Royal Infirmary buildings. New university buildings

The condition of the maternity hospital had also been unsatisfactory, for this institution, founded as the Edinburgh General Lying-in Hospital in 1793, had occupied successively some six different dwellings.[2] Edinburgh had become, under New maternity hospital

[1] Logan Turner: "The Royal Infirmary of Edinburgh, Bicentenary Year, 1729–1929," Edinburgh, 1929, p. 44.
[2] *British Medical Journal*, 1927, Vol. I., p. 576.

Sir J. Y. Simpson, specially celebrated as a school of obstetric medicine, and in view of the researches of Lister, public opinion had decided that a suitable maternity hospital should be provided. Accordingly, in 1879, the Royal Maternity and Simpson Memorial Hospital was erected in Lauriston Place, and adequately fulfilled all the requisites demanded of such a hospital at that date.

Two hospitals came into being about this time, each indicating a new line of public thought in regard to the treatment of the sick. The Chalmers Hospital was opened in Lauriston Place in 1864, with the intention of providing an institution where persons of moderate means, desiring to be independent, could pay for their maintenance during treatment. Up to this time the idea of the nursing home was practically non-existent, and patients fell into the two categories of those who were treated in their own homes, and those who were supported in public hospitals by charity.

In 1875, the Longmore Hospital was opened for the reception of incurable cases, and for studying more carefully the class of disease which had hitherto been considered as incurable ; in the subsequent 50 years of its existence, this hospital treated some 6000 cases of this type.

Changes in nursing

A definite improvement in the nursing of the sick, which gradually produced an incalculably great effect upon medical practice, began about 1870. Prior to this time the matron or governess of the Royal Infirmary hired a cook, chambermaids and one ordinary nurse for each ward. The nurse had to clean the ward, make the beds, attend upon the patients and carry the medicine bottles to and from the apothecary's shop. Supernumerary nurses were engaged for those patients who required special and constant attention. There were no ordinary nurses on night duty, and when a patient required watching after a serious operation, the student dressers were called upon to take four-hourly watches and to see that the patient was properly looked after. The nurses had no training beyond the practical experience that they picked up in the course of their work.

In 1860, the Nightingale School, the first training school for nurses in Britain, had been established in London, and in 1866, as a first step in improvement at Edinburgh, the governess was relieved of the duty of superintending the nurses, and a superintendent was appointed with the sole duty of supervising this department. In 1872, Miss Barclay, from St. Thomas's Hospital, London, was appointed the first lady superintendent, bringing with her a party of nurses, long known as " the Nightingales." The nurses of the old type were gradually ousted, and women of better education and ability were engaged and trained during a course of three years. Other Scottish hospitals followed on the same line at shortly later periods.[1]

Entry of women into medicine

An important aspect of the feminist movement, which appeared in the latter part of the 19th century, concerned the admission of women to the practice of medicine. Edinburgh was one of the chief centres where this struggle took place. Elizabeth Garrett (later Mrs. Garrett Anderson) had been the first woman to qualify

[1] Nutting and Dock : " A History of Nursing," New York and London, 1907, Vol. II.; *also* Logan Turner: "The Royal Infirmary of Edinburgh," p. 39.

in medicine, having, after a course of private instruction, taken the licentiateship of the Apothecaries' Hall in 1865, and been thereafter admitted to the register.[1] This avenue of entrance was later closed to women by a rule preventing students from receiving any part of their medical education privately.

SOPHIA JEX-BLAKE (1840–1912)
(Original portrait in the Edinburgh Hospital for Women and Children)

Miss Jex-Blake

The chief protagonist of this movement, so far as Edinburgh is concerned, was Miss Sophia Jex-Blake (1840–1912).[2] She had been an early adherent of the movement for the higher education of women, joining the recently-opened Queen's College, London, in 1858, and after a period spent in Germany as a teacher, she came to Edinburgh, where she determined, in 1869, to study medicine. Here she found the authorities of Edinburgh University, generally speaking, not ill-disposed towards the desire of women to enter the medical profession.

There were on the professoriate several uncompromising opponents, but by 12th November, 1869, a resolution of the University Court had been approved by the General Council, and had been sanctioned by the Chancellor, which, theoretically at all events, opened the doors of the University of Edinburgh to women. This

[1] Jex-Blake : "Medical Women," Edinburgh and London, 1872, p. 77.
[2] Todd : "The Life of Sophia Jex-Blake," London, 1918.

was the first British university to take such action. The rules drawn up admitted women to the study of medicine in the university, declared that their instruction should be conducted in separate classes confined entirely to women, permitted the professors in the faculty of medicine to hold such classes, and announced that these regulations should take effect from the commencement of session 1869–70.

Public opinion divided

The difficulty at once arose, however, that several of the professors declined to duplicate their lectures for the small fee which could be provided by a few women taking the class, and some of them would have nothing to do with the movement. Seven women students ultimately appeared, and after passing the entrance examination, obtained classes in chemistry and botany from the professors of these subjects. Dr. H. A. Nicholson, who was then lecturer in zoology in the extra-academical school, admitted them to his ordinary class in this subject, the first "mixed class" to be held. Dr. Handyside and Dr. Heron Watson admitted them to classes on anatomy and surgery respectively, and the latter appears throughout to have been a consistent supporter of the movement.

After this, however, there seems to have been a long succession of difficulties. Sir Robert Christison, who was a resolute obstructionist of the movement, refused to hold a class on materia medica, which was the next step necessary towards graduation. The opponents of the movement raised difficulties in the Senatus and University Court, and a certain section of the male students organised demonstrations against the women, while the Managers of the Royal Infirmary were induced to decline their admission to this institution for clinical instruction. A long period of intrigue by a powerful and astute minority opposed to medical women followed. There were plots and counter plots in the Court of Contributors to the Infirmary, actions in the Court of Session, and proposed bills and speeches in Parliament upon the matter.

The subject of the study and practice of medicine and surgery by women was, in 1875, discussed for three days in the General Medical Council, but the furthest pronouncement of this body was "The Council are not prepared to say that women ought to be excluded from the profession." In 1876, Miss Jex-Blake and her friend, Miss Pechey, graduated M.D. at Berne, and obtained a qualification registrable in Britain by taking the licentiateship of the King's and Queen's Colleges, Ireland.

Edinburgh hospital for women

It is difficult now to understand why Miss Jex-Blake and her friends did not attempt to obtain the qualification from the Colleges of Physicians and Surgeons at Edinburgh, but in 1878, she took up practice at 4, Manor Place, Edinburgh, and resumed her assault upon the portals of the university and her attempts to get a medical bill, favourable to women, passed through Parliament. In 1883, she transferred her practice to Bruntsfield Lodge, an old house with a high-walled garden overlooking Bruntsfield Links, where she took resident patients and which later formed the picturesque nucleus of the Edinburgh Hospital for Women and Children.

In 1886, the Royal Colleges of Physicians and Surgeons, Edinburgh, resolved to admit women to the examinations for the joint qualification, and with the

help of numerous extra-academical lecturers, the School of Medicine for Women was founded. Clinical teaching was provided by Leith Hospital from 1887 and by the Royal Infirmary from 1892.

Removal of disabilities

The Universities' (Scotland) Act, 1889, placed women on the same footing as men with regard to graduation in medicine, and in October, 1894, the University of Edinburgh announced its determination to admit women forthwith to graduation in this faculty. There were still some restrictions, which later gradually disappeared, in regard to teaching of women in separate classes, but before the end of the century, they were in all practical matters on the same footing with male students.

Decline of Edinburgh University

The last quarter of the 19th century was, in regard to teaching in the university, rather a period of decline, although this was more than balanced by the exceptional brilliance of teachers in the extra-academical school of medicine and surgery. Partly in consequence of the fact that practical classes were not so highly organised as at the present day, and partly owing to the arrangement of the curriculum, it was a practice commonly followed by students to take out a class of lectures on the same subject twice over, usually from different teachers on the two occasions. As a result, the number of extra-academical lecturers increased and they lectured to large classes, often greatly in excess of the numbers attending the corresponding classes of the professors.

The necessity for research and for the co-ordination of scientific effort in medicine by publication were not regarded as being matters of the same urgency which they are held to possess at the present day. The head of a university department was undoubtedly expected, as in the past, to do some research work, but the duty of organising and superintending research in medicine by a staff of workers was not considered necessarily incumbent upon him. While some of the professors and lecturers in the school, therefore, engaged in private researches, very few of them troubled to attract other workers to their laboratories, and persons in the position of assistants were rather discouraged from, than stimulated to, independent work tending towards the enhancement of their own reputation.

With the advent of the 20th century, this attitude radically changed, so that the attraction of workers and an output of scientific work came to be regarded as one of the main functions of a university department, and a criterion of the efficiency of its head.

Surgery

The development of surgery was one of the prominent features in the Edinburgh medical school towards the close of the 19th century, as the improvement of medicine had been a notable characteristic at an earlier epoch.

Lister's second Edinburgh period

Mr. James Syme, who had occupied the chair of clinical surgery at Edinburgh since 1833, had a severe paralytic stroke early in the year 1869, and, in the summer, decided to resign his chair, for which Joseph Lister became a candidate and to which he was duly appointed. Returning to Edinburgh in October, 1869, Lister took up residence first at 17, Abercromby Place, and afterwards settled at 9, Charlotte Square. He soon became recognised as one of the leading surgeons in Scotland and gained a large consulting and operating practice, in great part through the recommendation

of Syme. In the Royal Infirmary 50 beds were allotted to his charge, situated in that part of the building which had previously been the High School.

His surgical colleagues were Gillespie, Heron Watson, Annandale and James Spence who was professor of surgery, while on the medical side there were Haldane, Balfour and Grainger Stewart with Hughes Bennett, Laycock, Douglas Maclagan and Sanders as professors of clinical medicine. His staff nurse was the celebrated Mrs. Porter, who had been head nurse also under Syme's regime and is well described by Henley, who was a patient in Lister's wards in 1873, in his poem "Staff Nurse; Old Style."[1] The teaching duties consisted of two clinical lectures in the week to a class which might number anything up to 400. The type of lecture delivered by Lister is thus described by Godlee :—

His method of clinical teaching

> "Four dressers, in blue check aprons, brought in the patient on a long wicker basket, and placed him on the table. The notes were read by the clerk, and the professor proceeded to discourse in deliberate and clear language, without show or ornament, but rendered piquant by a very slight stammer and an occasional flash of quiet humour. The special feature of Lister's lectures was that they did not consist so much in a description of the particular pathological condition from which the patient was suffering, or the clinical details of diagnosis or treatment, as in eliciting from each case some fundamental lesson of far-reaching application. He was, therefore, not at great pains to seek out examples of obscure disease. An ulcer of the leg, an old dislocation, a chronic abscess, served his purpose equally well, or even better. The lectures gave what no book could supply, and for this reason were never tedious, but held the close attention of the students. And though some might regret that so many paths led up at last inevitably to the antiseptic doctrine, it was found, by the end of the session, that a large part of the surgical field had been gone over in travelling there. In the course of a single lecture perhaps three or four patients were brought into the theatre; and sometimes, but not always, an operation was performed upon the last, which gave the opportunity of explaining the principles underlying the mechanical art of surgery."[2]

Two important modifications of the antiseptic treatment were introduced during the early part of Lister's second Edinburgh period. One of these was the substitution of a gauze dressing for the plaster containing carbolic acid and other antiseptics with which he had previously covered the wound. This was a muslin gauze impregnated with a mixture of resin, paraffin and carbolic acid, covered with a thin layer of macintosh. It was subsequently replaced by the gauze charged with double cyanide of mercury and zinc.

His carbolic spray

The other important modification was the introduction of the spray. This apparatus was intended to create an antiseptic atmosphere surrounding the wound in all directions, on the supposition that the minute droplets containing carbolic acid would have the power of destroying instantly all the germs with which they

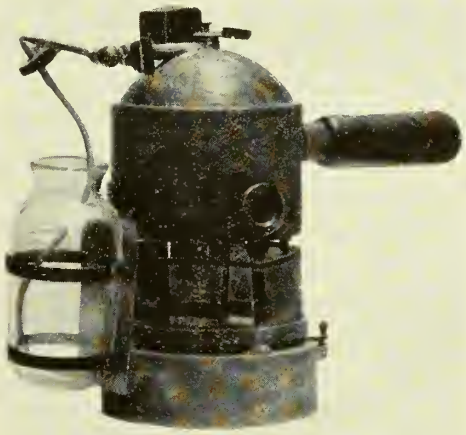
[1] "A Book of Verses," by W. E. Henley, London, 1901, p. 13.
[2] Godlee: "Lord Lister," London, 1917, p. 259.

came in contact. The spray producer, starting from a small instrument worked by a hand bulb, went through a rapid development, the spray ultimately being produced by steam. The spray was first recommended publicly by Lister at a British Medical Association meeting in 1871 ; it was abandoned by other surgeons soon after 1880, but Lister continued to employ it until 1887.[1]

He began to use boracic acid as an antiseptic in 1871, having found that it had long been successfully employed in the preservation of meat, and this substance has been extensively used in surgical practice ever since that time.

Antiseptics in Franco-Prussian war

On the outbreak of the Franco-Prussian war in August, 1870, high hopes were entertained that military surgery might share the benefits that had been conferred upon civil practice by antiseptic procedures. Lister's advice was sought, and he wrote a short article entitled "A Method of Antiseptic Treatment Applicable to Wounded Soldiers in the Present War," which described the simplest method he could devise for using carbolic acid in the field. In 1875, he paid a visit to the chief German surgeons of the day and discussed with them the practical aspects of antiseptic surgery, and in August, 1875, he delivered an important address upon the subject to the British Medical Association meeting in Edinburgh.



STEAM SPRAY USED BY LISTER
(Original in The Wellcome Historical Medical Museum)

In 1877, when Lister was in his fiftieth year, Sir William Fergusson, professor of clinical surgery at King's College, London, died, and the chair of clinical surgery in King's College was offered to Lister. It is an indication of the great popularity which his personal character no less than his important discoveries had created for him among the Edinburgh students, that a petition signed by about 700 medical students was presented to him asking him to remain in Edinburgh. He had, however, long shown an inclination to return to London, and he severed his connection with Scottish medicine at the end of the winter session of 1876–77.

Thomas Annandale

On Lister's retirement, the chair of clinical surgery was filled by the appointment of Thomas Annandale (1839–1908),[2] who had graduated M.D. at Edinburgh in 1860 and had been house surgeon and assistant to Syme. He was a surgeon of proverbial manipulative skill, possessed of a charming personality and sympathetic nature, but he wrote very little and had not the experimental attitude of Lister towards

[1] Godlee: "Lord Lister," London, 1917, p. 279, *et seq.*
[2] *Edinburgh Medical Journal*, Vol. XXIII., 1908, p. 1.

THOMAS ANNANDALE (1839-1908)

JAMES SPENCE (1812-1882)

surgical advancement. He was followed in this chair successively by Francis Mitchell Caird (1908), Harold (afterwards Sir Harold) Jalland Stiles (1919), and John Fraser (1925).

James Spence

In the chair of systematic surgery Professor Miller was succeeded in 1864 by James Spence (1812–1882).[1] Spence had been a demonstrator under Monro, and later had taught anatomy as an extra-mural lecturer with Handyside and Lonsdale at No. 1, Surgeons' Square. He had become surgeon to the Royal Infirmary in 1854, in the absence of Mr. R. J. Mackenzie in the Crimea. He made numerous contributions to the literature of surgery and anatomy in such papers as " Remarks on the Sources of Hæmorrhage after Lithotomy," and " Inquiry into the Anatomy of the Eighth Pair of Nerves," but he is best remembered by his " Lectures on Surgery " (1868), which formed one of the chief text-books on this subject for some 20 years. He is described by a biographer as " a man of what may be termed an anxious temperament and a somewhat tristful disposition," and this attitude of mind gained for him among the students the name of " Dismal Jimmy."

John Chiene

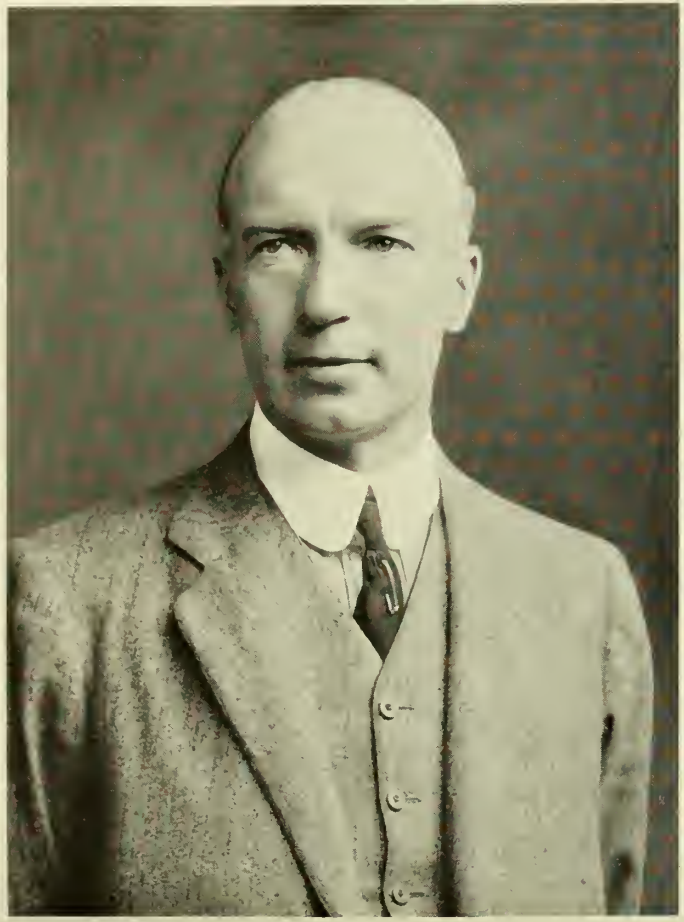
On the death of Professor Spence, John Chiene (1843–1923)[2] was elected to the chair of surgery. He had been house-surgeon to Syme and a demonstrator in anatomy with Goodsir, and had lectured on surgery in the extra-mural school. Between 1869 and 1877, he was associated with Lister, to whose principles in their primitive simplicity he adhered throughout the tenure of his office. Although not himself possessed of the attributes of an investigator, he early instituted in connection with his work in the Royal Infirmary a laboratory for bacteriology, which is said to have been the first teaching bacteriological laboratory established in the United Kingdom. He was well known in athletic circles as a keen Rugby football player in his earlier days, and was the first president of the Scottish Rugby Union.

Very little, except a small treatise on surgical anatomy, issued from his pen, but he enjoyed a great reputation among his students for the care with which he inculcated the broad principles of surgery in his lectures, and on account of his fondness for aphorisms regarding surgical experience, the conduct of practice, the foibles of patients, and other matters which he believed to be of importance. Many of his old students treasured such phrases as " a pimple on a man's nose is of more interest to *him* than a sarcoma in his neighbour's thigh " ; " never smoke in your consulting room " ; " surgery is nothing but applied anatomy with a little bacteriology," and the like. He had a fondness for plain speaking which earned for him among his students the name of " Honest John."

Henry Alexis Thomson

On the retirement of Professor Chiene in 1909, he was succeeded by Henry Alexis Thomson (1864–1924),[3] who had been a successful lecturer on surgery in the extra-mural school. Thomson had graduated at Edinburgh in 1885, had been house-surgeon to John Duncan, and had studied at St. Thomas's Hospital, London. He began to lecture on surgery in 1894, and had a decisive and epigrammatic style

[1] *Edinburgh Medical Journal*, Vol. XXVIII., 1882, p. 89.
[2] Op. cit., Vol. XXX., 1923, p. 285.
[3] Op. cit., Vol. XXXI., 1924, p. 272.



HENRY ALEXIS THOMSON (1864–1924)

JOHN CHIENE (1843–1923)

pleasing to his students. Many valuable papers on surgical pathology and practical surgery were contributed by him, especially to the *Edinburgh Medical Journal*, of which he acted for a time as editor.

At a later period, in 1904, he published in collaboration with Mr. Alexander Miles "A Manual of Surgery" and "A Manual of Operative Surgery," which formed an exposition of surgical practice at this time in the Edinburgh medical school, and established themselves as standard text-books in many other medical schools at home and abroad. He was succeeded, in 1924, in the chair of surgery by David Percival Dalbreck Wilkie.

In the extra-academical school of surgery, after 1870, several figures stood out with greater prominence than the corresponding professors in the university.

Patrick Heron Watson

In 1858, Patrick (afterwards Sir Patrick) Heron Watson (1832–1908)[1] commenced to lecture upon surgery, and later he held courses upon venereal diseases and upon military surgery. He had graduated M.D. at Edinburgh in 1853, had been house surgeon to Spence, and after joining the Army Medical Service, had served in the Crimea. After returning to Edinburgh, he became assistant to Professor Miller in his surgical practice, to which he afterwards succeeded. Becoming a surgeon to the Royal Infirmary, he commenced to lecture on clinical surgery in 1872, and at this time he was *facile princeps* in the practice of both surgery and medicine in Scotland—a bold, brilliant operator, who commanded the confidence of his patients, and a physician whose advice was sought by persons from all parts of the country.

He was a strong, cultivated, far-seeing man of affairs, celebrated for his imperturbability, and with a manner always sedate, urbane and decisive. In addition to an enormous surgical and medical practice, he acted as a member of the General Medical Council for 25 years, and was a member of the University Commission of 1889, which effected important changes on the medical curriculum of the Scottish universities.

Joseph Bell

A contemporary of the last, as a lecturer on surgery in the extra-academical school, was Joseph Bell (1837–1911),[2] who began to lecture on surgery in 1864, and in 1879 became a lecturer on clinical surgery. He came of a family which had supplied several surgeons to the Edinburgh medical school, beginning with Benjamin Bell, who wrote "A System of Surgery" in the latter part of the 18th century. Joseph Bell had been house-surgeon and assistant with Syme, house-physician with Gairdner and a demonstrator of anatomy under Goodsir. So high an impression did Syme hold of this young assistant's ability, that on one occasion he introduced Bell to a distinguished visitor as the future professor of surgery in Edinburgh, a prophecy which was not fulfilled in fact.

The large classes which he attracted testified to his capacity as a systematic teacher, but it was as a clinical teacher that Bell was in his element, and his theatre and wards were always crowded with students. His skill in making

[1] *Edinburgh Medical Journal*, Vol. XXIII., 1908, p. 3.
[2] Op. cit., Vol. VII., 1911, p. 454.

SIR PATRICK HERON WATSON (1832-1908)

JOSEPH BELL (1837-1911)

diagnoses and unexpected deductions were commemorated by one of his students, Sir Arthur Conan Doyle, in the character of Sherlock Holmes, which this author founded on Bell.

He was not a prolific writer, but his "Manual of the Operations of Surgery" and "Notes on Surgery for Nurses" were very successful and went through many editions.

John Duncan

Another member of this extra-mural group of surgeons was John Duncan (1839–1899).[1] After graduating M.D. in 1862, he also became house-surgeon with Syme. In due course he became a lecturer on systematic surgery in 1873, and later, in 1887, as a surgeon to the Royal Infirmary, lectured upon clinical surgery. His tall silk hat, long grey beard, and pair of high-stepping horses, which he drove in a yellow "dog-cart," made him for many years a well-known figure in the Edinburgh streets. He was recognised in his day as one of the most accomplished and scientific teachers of clinical surgery, and had a peculiar and attractive style of lecturing, discoursing in a subdued strain, really thinking aloud, and all the time interpreting and organising impressions into logical statements and opinions.

Other lecturers of a later date were Alexander Gordon Miller (1843–1929), son of Professor James Miller; C. W. McGillivray; C. W. Cathcart, who, after conducting a course for some years on anatomy, commenced to lecture on surgery in 1885, and produced the "Surgical Handbook" along with F. M. Caird; J. W. B. (later Sir James) Hodsdon (1858–1928); P. H. Maclaren (1837–1911), who published an "Atlas of Venereal Diseases" and was a recognised authority upon this subject many years before it attained its present-day importance; Joseph Montagu (afterwards Sir Montagu) Cotterill, who was one of the earlier surgeons in Britain to develop the surgery of the central nervous system; David (afterwards Sir David) Wallace, who commenced a class in surgery in 1897 and at a later date played a large part in the organisation of the Red Cross work during the Great War.

F. M. Caird

One of the greatest figures in the extra-academical surgical school was Francis Mitchell Caird (1853–1926),[2] who lectured on surgery from 1887. In early life he had been an assistant in the botanical department of the university, and here he attained a great facility in making sketches, with which he later added to the value of his notes in surgical cases. After graduation in 1877, and frequently on subsequent occasions, he paid visits to the continental schools of surgery, being particularly influenced by the work of Professor Mikulicz of Breslau.

Develops abdominal surgery

At this period, between 1878 and 1883, Billroth of Vienna was a pioneer in performing a large number of intestinal resections and enterorrhaphies, and Caird, influenced by this work, was performing gastric and intestinal operations at an earlier date and on a larger scale than any of his colleagues in Edinburgh. For many years before his appointment as surgeon to the Royal Infirmary in 1900, he was performing these operations with success, often amid adverse surroundings. The development of abdominal surgery in Edinburgh at an early date was mainly

[1] *Edinburgh Medical Journal*, Vol. VI., 1899, p. 389.
[2] *British Medical Journal*, 1926, Vol. II., p. 911.

JOHN DUNCAN (1839–1899)

FRANCIS MITCHELL CAIRD (1853–1926)

due to him, and many surgeons of a later period, who were his pupils, owe much to his precept and training. As a lecturer on surgery, and later on clinical surgery, he was distinguished for great clearness of exposition as well as forcefulness and brevity of expression—qualities which attracted large classes of students.

Extensive writer

He was a prolific contributor to current medical literature, especially of the results of long series of cases, such as on the results of operation for perforated gastric ulcer, of excision of the rectum for carcinoma, and of excision of the tongue for cancer. These comprehensive articles had a great influence on the practice of surgery outside Edinburgh. He was joint author with C. W. Cathcart of "A Surgical Handbook," which passed through many editions. On the death of Professor Annandale in 1908, he was appointed professor of clinical surgery in the University of Edinburgh, a post which he held till 1919.

Dental school

An important offshoot from surgery was the practice of dentistry, which began to be taught about the middle of the 19th century. Up to this time, the instruction of dentists had been by apprenticeship only. Occasional lectures upon subjects connected with the teeth had been given by James Rae, John Goodsir and others, but the first regular course of instruction was that commenced by Dr. John Smith in 1856 upon the physiology and diseases of the teeth. He was surgeon-dentist to the Royal Public Dispensary, and in 1860, with the co-operation of Drs. Naysmyth, Imlach and Orphoot, he opened the Edinburgh Dental Dispensary in Drummond Street.

The staff of this dispensary, together with a committee appointed by a meeting of Scottish dentists in 1877, approached the Royal College of Surgeons of Edinburgh to establish a diploma in dental surgery. As a result of the passing of the Dentists' Act of 1878, this diploma was instituted, and the Edinburgh Dental Hospital and School was established at 30, Chambers Street, though it retained the name of the Edinburgh Dental Dispensary till 1880. Mr. Bowman Macleod was the first dean of this school, and various courses of lectures and practical instruction were immediately established. He was succeeded in the position of dean, in 1899, by Dr. William Guy, who has continued in that post to the present time, and under whom the school expanded greatly, and opened its new building in 1928.

Medicine

T. Grainger Stewart

In medicine Professor Laycock was succeeded in 1876 by Thomas (later Sir Thomas) Grainger Stewart (1837–1900).[1] He had graduated M.D. at Edinburgh in 1858, and had been resident physician to the wards in the Royal Infirmary under the charge of the clinical professors, especially Hughes Bennett. Later he became pathologist to the Royal Infirmary and a lecturer on pathology in the extra-academical school from 1864. In 1870, he began a course as an extra-mural lecturer on practice of medicine, in the "New Jerusalem Church," which was situated opposite the old infirmary at the head of Robertson's Close, near to where the original infirmary stood. In this class he was very successful, for he contrived to present to his students an impressionist picture of disease which the dullest could carry away, and his lectures were specially useful in regard to treatment.

[1] *Edinburgh Medical Journal*, Vol. VII., 1900, p. 307.

He was physician to H.M. Queen Victoria, and he had a well-known weakness for indicating in conversation his acquaintance or professional relations with titled or important people. A story was current that on one occasion when he was unable to lecture, a notice appeared on the door of his class-room, " The Professor regrets

Sir Thomas Grainger Stewart (1837–1900)

that he cannot meet the class to-day, as he has been summoned to Balmoral," to which a waggish student added a devout " God save the Queen ! "

He was also a voluminous writer, and two of his investigations were especially noteworthy, his early observations on waxy disease of the kidneys, and his later discoveries in regard to multiple neuritis. His " Practical Treatise on Bright's Disease," published in 1868, was a well-known book in its time, and a dramatic poem in blank verse, " The Good Regent," dealing with the times of Mary, Queen of Scots, did not perhaps receive so much attention as it merited. He was

president of the British Medical Association when it met in Edinburgh in 1898. On his death in 1900, Sir Thomas Grainger Stewart was succeeded by John Wyllie, and he successively by George Lovell Gulland in 1915, and William Thomas Ritchie in 1928.

John Wyllie

In the extra-academical school, John Wyllie (1844–1916),[1] who had graduated M.D. at Edinburgh in 1865, lectured on pathology with success, before attendance on this subject was compulsory. In 1875, he became pathologist to the Royal Infirmary, and, in 1879, he began to lecture on practice of medicine and attained great success as the result of the clearness and simplicity with which he brought the essential facts of medicine before his students. Becoming a physician to the Royal Infirmary in 1882, he completed his term of office in 1897, but he was brought back as professor of medicine upon the death of Sir Thomas Grainger Stewart. He was more a teacher than a writer or practitioner of medicine, but his " Disorders of Speech " was a book which enjoyed considerable popularity in its time.

Byrom Bramwell

Byrom (later Sir Byrom) Bramwell (1847–1931) commenced to lecture on medicine in 1880. He had graduated at Edinburgh in 1869 and after a short time in general practice at North Shields, had returned to Edinburgh where he was appointed pathologist and later a physician to the Royal Infirmary. He was an eminently successful teacher of medicine, his especial *forte* consisting in the skilful manner in which he diagnosed the cases of patients applying for out-patient treatment. For many years hardly a single student failed to attend these weekly clinics, which were held at first on Saturdays and afterwards on Wednesdays, and the Wednesday out-patient clinics became one of the features of the Edinburgh medical school, afterwards published as " Clinical Studies." For some 30 years he was perhaps the most outstanding clinician and teacher of clinical medicine in the extra-academical school.

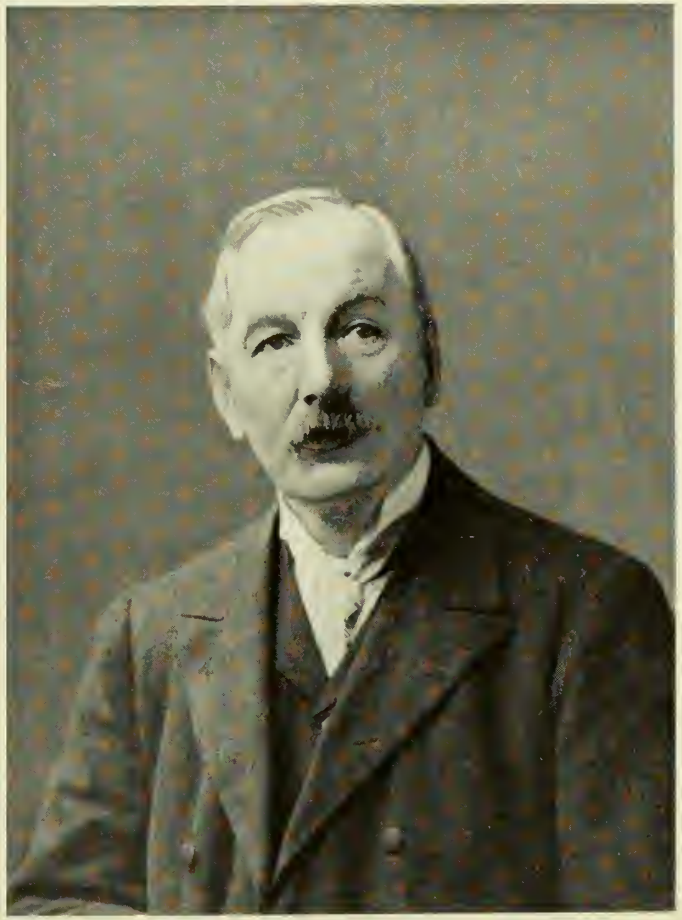
His investigations into diseases of the nervous system did much to clear up intricate subjects such as those of intracranial tumour and aphasia, and his Manuals on Diseases of the Spinal Cord and Diseases of the Heart and Thoracic Aorta were popular text-books in the last 20 years of the 19th century. His " Intracranial Tumours," published in 1888, contained many new facts on this subject drawn from his own observation, and is generally regarded as a medical classic. His " Atlas of Clinical Medicine " was a more comprehensive work, of which three volumes appeared during the 'nineties.

G. A. Gibson

George Alexander Gibson (1854–1913)[2] graduated in medicine at Edinburgh in 1876, and became resident physician to Dr. George Balfour, from whom at this early stage he derived a special interest in disorders of the heart. Two years later he was appointed assistant physician to the General Hospital in Birmingham, where, however, he remained only a year before returning to practise in Edinburgh. In the extra-academical school he began to lecture on materia medica in 1886, afterwards lecturing on medicine from 1890.

[1] *Edinburgh Medical Journal*, Vol. XVI., 1916, p. 223.
[2] *British Medical Journal*, 1913, Vol. I., p. 197.

GEORGE ALEXANDER GIBSON (1854-1913)



SIR BYROM BRAMWELL (1847-1931)

He was a prolific contributor to medical journals, a large number of his articles being concerned with the heart and circulation, upon the elucidation of which he was an earnest investigator at a time when many new aspects and problems of the circulation were opening up as a result of new instrumental methods. With Dr. William Russell he was joint author of " Physical Diagnosis," a manual that enjoyed great popularity with students. He wrote works on Cheyne-Stokes' respiration, on diseases of the heart and aorta, and on nervous affections of the heart, and in his later years he was the biographer of Sir William Tennant Gairdner. He became one of the most widely-recognised authorities on cardiac pathology and therapeutics, as well as one of the best known physicians in Scotland, and he was a clear and vivid lecturer with a magnetic attraction for students.

Other lecturers on medicine in the extra-mural school in the closing years of the century were James (later Sir James) Ormiston Affleck (1840–1922), J. J. Graham Brown (1854–1925), Alexander James, Robert (later Sir Robert) William Philip, and Robert Alexander Fleming.

FIRST TUBERCULOSIS DISPENSARY
13, BANK STREET, EDINBURGH

The Dispensary occupied the first flat above the shops to the left of the corner

One of the most far-reaching efforts of preventive medicine originating in Edinburgh towards the end of the 19th century, was the establishment by Dr. R. W. Philip, in 1887, of the Victoria Dispensary for Diseases of the Chest. This was opened in November, 1887, at 13, Bank Street, and aimed at the detection of tuberculosis and its treatment and prevention in other members of the family of the affected persons. As the result of growing activity and usefulness, the dispensary was removed in 1891 to 26, Lauriston Place, when about 60 cases were being seen three times a week. During 1892, the important step was introduced of visiting patients in their own homes, so as to trace other infected cases among those who had come into intimate contact with the patients. This principle has been followed in tuberculosis dispensaries established in towns not only throughout Britain but in many other countries, and has undoubtedly had a great influence in the avoidance and early detection of infection and in the diminution of pulmonary tuberculosis, which has taken place in recent years.

Control of tuberculosis

In 1894, Craigleith House, on the north side of the town, was taken as a hospital for tuberculosis, and named the Royal Victoria Hospital, and in 1911, the great increase of the dispensary's activity necessitated its removal to the large building which it at present occupies in Spittal Street. At this time over 7000 visits were

JOHN THOMSON (1856-1926)

paid annually by doctors and nurses to tuberculous families. A farm colony was added to the activities of the institution in 1910, and in 1914 the organisation was taken over by the Corporation of Edinburgh. The Tuberculosis Trust, which had been established by the foresight of Sir Robert Philip, continued its activities and instituted another sanatorium colony at Southfield, as well as Gracemount Dairy Farm, which was established in 1923, as one of the early economically-successful institutions for providing certified milk from a herd of tuberculin-tested cows.

A chair of tuberculosis was established in Edinburgh University in 1917, of which Sir Robert Philip was the first incumbent. This was the first chair on this subject within the British Empire. Chair of tuberculosis

As regards diseases of children, mention has been made of the lectures on this subject delivered by Dr. William Campbell about the year 1840. After the founding of the Hospital for Sick Children in 1860, Dr. Keiller, Dr. T. Grainger Stewart and Dr. William Stephenson paid special attention to this department of medicine, and from 1889 onwards, Dr. Joseph Bell did much to develop the surgery of childhood. The Edinburgh medical school was thus early in the field of what has since become a very important branch of medicine, and, as will be pointed out later, the subject of ante-natal care took its origin in this school. Diseases of children

The Edinburgh physician whose name is associated more than that of any other with the advancement of the knowledge of diseases affecting children, was Dr. John Thomson (1856–1926).[1] He graduated at Edinburgh in 1881, and in 1891 began to lecture, dealing with aspects of diseases peculiar to children or showing characteristic differences when they occurred in early life. In 1898, he published one of the earliest text-books on this subject in his "Guide to the Clinical Study and Treatment of Sick Children." This book went through four editions and was translated into French and Spanish. John Thomson

He also did much to further the interest which was arising about this time in the subject of mental defect in children, especially by the publication of a work entitled "Opening Doors," which he described as a book "for the mothers of babies who are long in learning to behave like other children of their age." Among the diseases to which he directed attention, and which had previously been practically unknown to most medical men, were congenital hypertrophy of the pylorus, and pyelitis occurring in children. The study of disease in children received from him a greater impetus, probably, than from any other physician of his time.

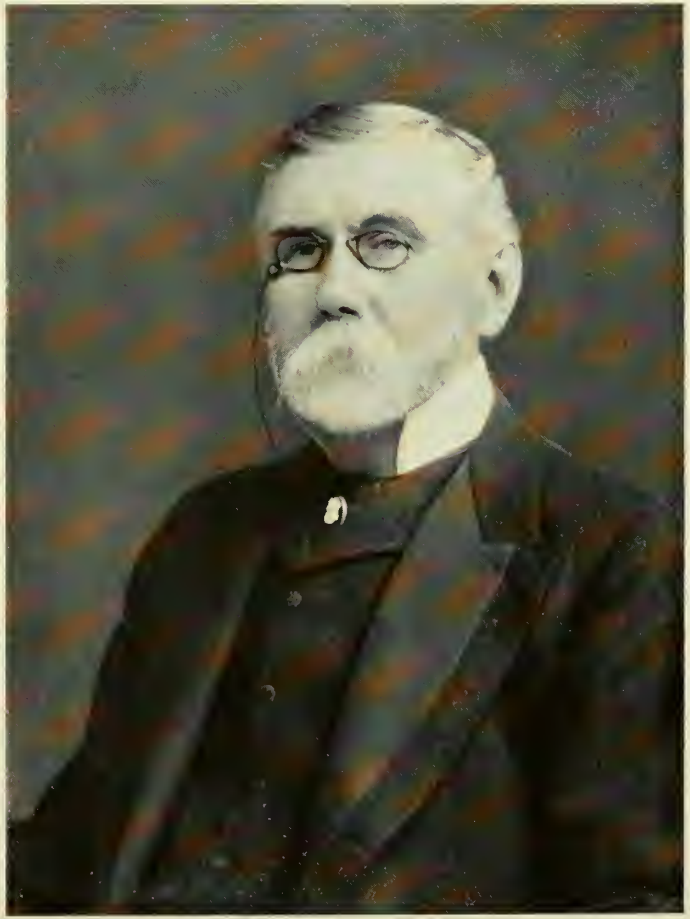
An Edward Clark chair of child-life and health was founded in 1931, with Charles M'Neil as first incumbent.

In the department of midwifery Sir J. Y. Simpson had made the school of Edinburgh famous, and he was succeeded by his nephew, Alexander (later Sir Alexander) Russell Simpson (1835–1916).[2] Dr. Alexander Simpson had been assistant to his uncle and had afterwards practised in Glasgow for some years as a physician and gynæcologist before, in 1870, he was elected to the chair in Edinburgh. He was a voluminous contributor to medical journals, a skilful operator and a successful lecturer. On his retirement in 1905, he was succeeded by Sir John Halliday Croom, and he in 1922 by Benjamin Philp Watson, and in 1926 by Robert William Johnstone. Midwifery A. R. Simpson

In the extra-academical school a lecturer and physician of great force of character was Angus Macdonald (1836–1886),[3] who, after working his way by his Angus Macdonald

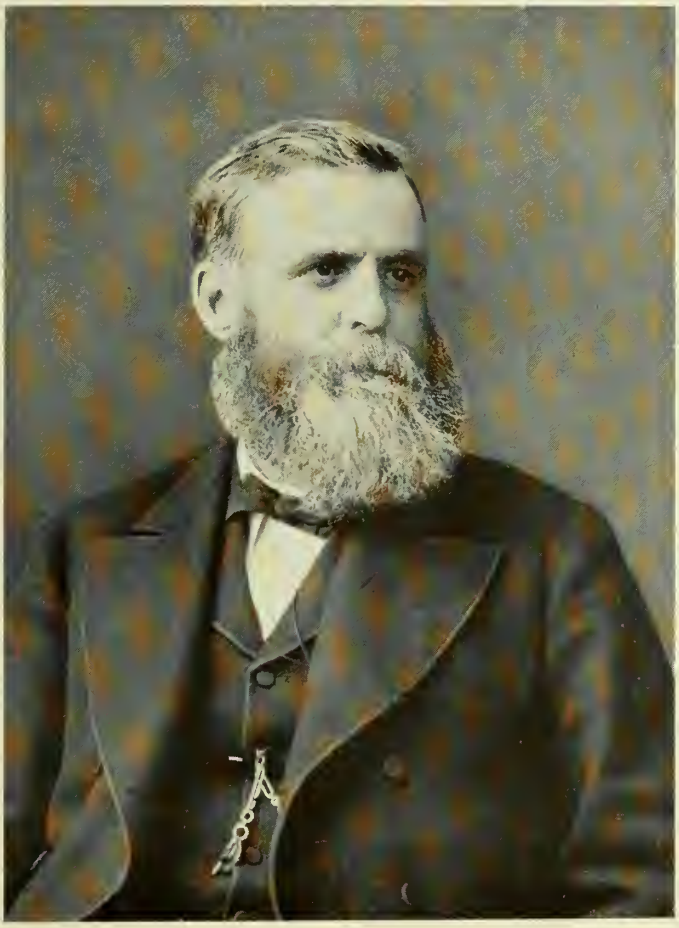
[1] *British Medical Journal*, 1926, Vol. II., p. 95.
[2] *Edinburgh Medical Journal*, Vol. XVI., 1916, p. 383.
[3] Op. cit., Vol. XXXI., 1886, p. 990.

Sir Alexander Russell Simpson (1835-1916)



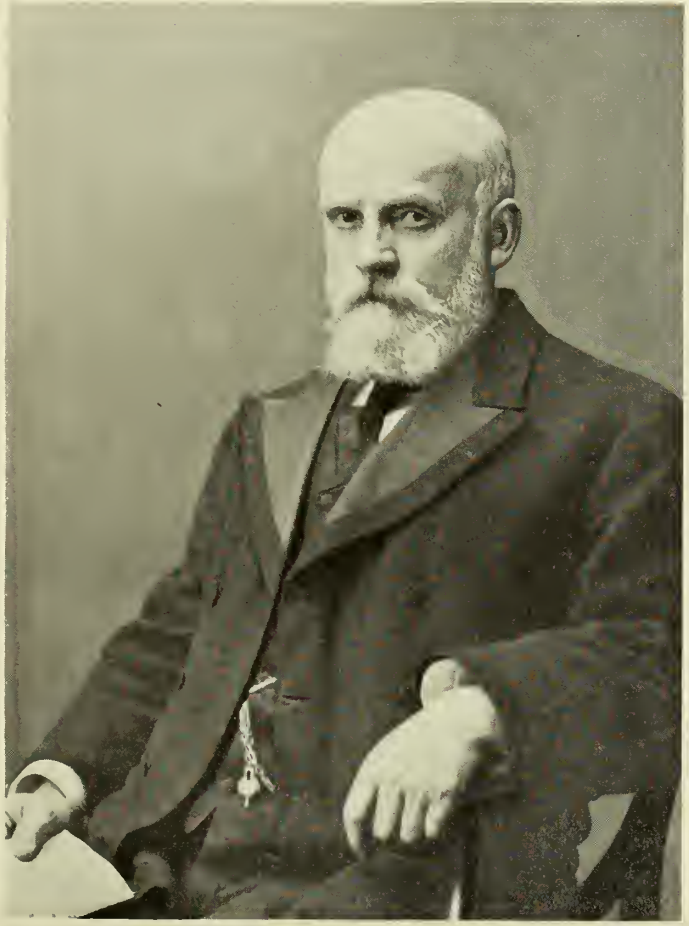
Sir John Halliday Croom (1847-1923)

own endeavours through King's College, Aberdeen, and the medical classes at Edinburgh, in a manner characteristic of many Scottish students of the best type, graduated at Edinburgh in 1864. He lectured for a time on materia medica and, after becoming physician and clinical lecturer on diseases of women in the Royal

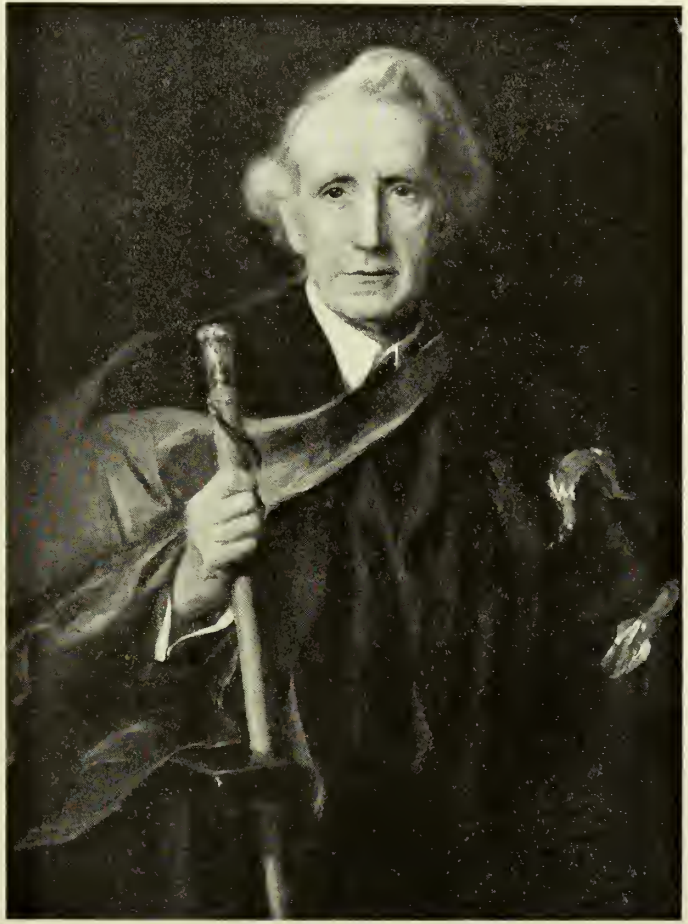


ANGUS MACDONALD (1836-1886)

Infirmary, and physician to the Royal Maternity Hospital, he commenced, in 1872, a course of lectures on midwifery. He published numerous important papers dealing especially with the influence of other pathological states upon the condition of child-bearing, of which the best known was "The Bearing of Chronic Disease of the Heart upon Pregnancy, Parturition and Childbed." His work was of great importance in correlating the subject of obstetrics to general medicine.



DAVID BERRY HART (1851–1920)



ALEXANDER HUGH FREELAND BARBOUR (1856–1927)
(Original by de Laszlo in the Royal College of Physicians, Edinburgh)

John (later Sir John) Halliday Croom (1847–1923)[1] was more celebrated as a lecturer than for anything he did to advance the subject of obstetrics by research. The infinite trouble which he took to prepare every lecture that he delivered was proverbial, and during his time as an extra-academical lecturer, no student's course was considered complete if he had not attended Croom. This success continued from his commencement as a lecturer in 1878, till he was appointed professor of midwifery in the university in 1905. He was the first chairman of the Central Midwives' Board for Scotland. J. Halliday Croom

A. H. Freeland Barbour (1856–1927)[2] was another successful extra-academical lecturer on gynæcology, who gained a world-wide reputation through certain of his publications. The "Manual of Gynæcology," written in conjunction with Dr. Berry Hart, has been described as "a model for all time in the precision of its language, in the accuracy of its references, in the appreciation of the work of others, and in the restraint of its opinions." He followed this a few years later by the "Atlas of the Anatomy of Labour," which exhibited painstaking accuracy of observation, and was the foundation of much subsequent research in pelvic anatomy and in the physiology of labour. A. H. F. Barbour

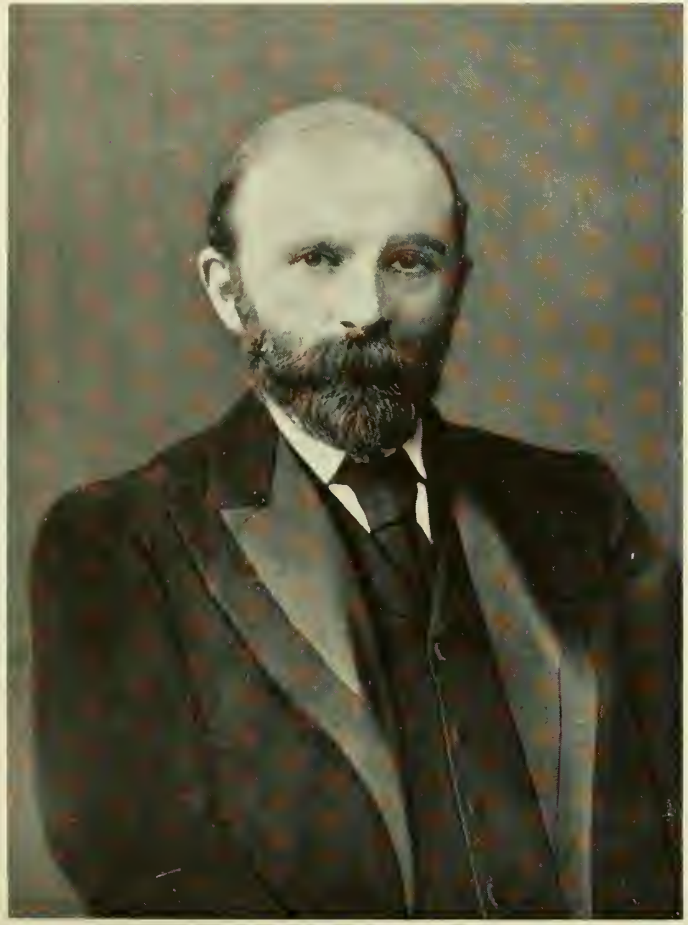
The teacher who did more for the scientific aspects of obstetrics and gynæcology than any of his contemporaries was David Berry Hart (1851–1920).[3] After graduating at Edinburgh in 1877, he became assistant to Professor A. R. Simpson. In 1880, he published his work "The Structural Anatomy of the Female Pelvic Floor." This was of the greatest importance in throwing light, where medical ideas had previously been confused, upon the behaviour of the pelvic floor in various physiological conditions including labour, in the explanation of the true nature of prolapsus uteri, or, as he named it, sacro-pubic hernia, in elucidating the mode of action of the Sims speculum, and in rendering possible the modern method of examining the bladder by cystoscopy. D. Berry Hart

His researches

He introduced the method of investigating various problems of obstetrics by means of frozen sections, a method followed by others in Edinburgh with fruitful results. It has been said that of 12 papers on these subjects, published by him between 1881 and 1883, almost every one was important enough to have, by itself, established his reputation as an original investigator and thinker of the first rank. In 1882, he published, along with A. H. Freeland Barbour, "A Manual of Gynæcology," which passed through many editions, was translated into several foreign languages, and raised the fame of the Edinburgh medical school to a high level in the new specialty of scientific gynæcology. Dr. Hart became an extra-academical lecturer from 1883, in 1889 was physician to the Royal Maternity Hospital, and from 1901, gynæcologist to the Royal Infirmary of Edinburgh. His works

He was the first in Scotland to perform successfully the operation of abdominal section for ruptured tubal pregnancy, but it was rather as an expert scientific investigator than as a brilliant surgeon that he left his mark upon the Edinburgh

[1] *Edinburgh Medical Journal*, Vol. XXX., 1923, p. 603.
[2] Op. cit., Vol. XXXIV., 1927, p. 543.
[3] Op. cit., Vol. XXV., 1920, p. 122.



ROBERT MILNE MURRAY (1855–1904)

JOHN WILLIAM BALLANTYNE (1861–1923)

school. His fame was recognised by his being asked on several occasions to open discussions upon obstetric subjects at foreign congresses. Later works were "Some Phases of Evolution and Heredity," which attracted considerable attention on its publication in 1910, and "A Guide to Midwifery." He collected a valuable museum dealing with his specialty and researches.

J. W. Ballantyne

Another lecturer who, along with D. Berry Hart and A. H. Freeland Barbour, in the late 'eighties and 'nineties, more than upheld the reputation of the Edinburgh school as a centre of obstetrical and gynæcological research, was John William Ballantyne (1861–1923).[1] After graduation in 1883, he became assistant to Professor A. R. Simpson, and in 1889 presented a thesis for the M.D. degree on "Some Anatomical and Pathological Conditions of the New-born Infant in their relation to Obstetrics," following this by never-ceasing work upon the subject of pre-natal conditions. His volumes on "Diseases of the Fœtus" and "Ante-natal Pathology and Hygiene" became standard works, and he gradually forced upon the medical profession his views on ante-natal pathology and the necessity for ante-natal care.

Originates ante-natal clinics

He was the first person in Great Britain to establish a clinic for ante-natal supervision of expectant mothers, and his advocacy of this subject was recognised when a bed for this purpose was endowed, in 1901, in the Royal Maternity Hospital, an ante-natal department being later, in 1915, established in this hospital under his charge.

R. Milne Murray

Robert Milne Murray (1855–1904),[2] after graduation in 1879, was assistant to Dr. Halliday Croom and commenced to lecture on midwifery in 1886, attracting large classes of students. In the axis-traction forceps which he introduced, he brought the application of this instrument to mathematical and mechanical perfection. In addition to being a talented artist and musician, he was well known in the electrical world, and was awarded several prizes by the Royal Scottish Society of Arts for advancements bearing upon applications of electricity. He constructed much electrical apparatus for use in medicine, and possessed a private laboratory of costly and delicate instruments.

Other successful lecturers in the extra-academical school were N. T. Brewis (1856–1924)[3]; F. W. N. Haultain (1861–1921),[4] who instituted the Hospital for Women in Archibald Place, Edinburgh; and James Haig Ferguson.

Anatomy

William Turner

In the subject of anatomy, Professor John Goodsir was followed in the chair by William (later Sir William) Turner (1832–1916).[5] He has been described as "an unrivalled teacher, an enthusiastic investigator, an astute organiser, and a strong ruler." He had begun medical life as apprentice to a surgeon at Lancaster, and afterwards studied at St. Bartholomew's Hospital, London. After qualifying

[1] *Edinburgh Medical Journal*, Vol. XXX., 1923, p. 121.
[2] Op. cit., Vol. XV., 1904, p. 287.
[3] Op. cit., Vol. XXXI., 1924, p. 675.
[4] Op. cit., Vol. XXVII., 1921, p. 149.
[5] Op. cit., Vol. XVI., 1916, p. 218; *see also* Turner: "Life of Sir William Turner," Edinburgh and London, 1919.

from the College of Surgeons of England, he was chosen by Goodsir as his assistant in 1854, and, owing to the increasing illness of the latter, he immediately took over the greater part of the teaching in the Edinburgh anatomical department. He graduated M.B. at the University of London in 1857, and, in 1864, published an

Sir William Turner (1832–1916)

important contribution to anatomy in "The Convolutions of the Human Cerebrum Topographically Considered."

His works

Like Struthers at Aberdeen, he became early interested in the anatomy of the cetacea, upon which he published numerous papers from time to time, and from about 1870 he interested himself upon research in regard to the placenta, delivering in 1875 and 1876 his well-known "Lectures on the Comparative Anatomy of the Placenta" in the Royal College of Surgeons of England. Research in anthropology was another great interest of Turner, and the skeletons and skulls collected by the

"Challenger" expedition were placed in his hands for reports upon the groups of crania, the lumbar curve in different races, and other similar matters. On Goodsir's retiral in 1867, Turner became professor of anatomy in the University of Edinburgh. In 1873, began his connection with the General Medical Council, of which he was for many years a prominent member, becoming its president in 1898.

Throughout his connection with the university, he played a leading part in the management of its business affairs, and the foundation of the New University Buildings for the medical classes was brought about largely by his energy. In 1903, he resigned the professorship to become principal of the university, and was succeeded in this year by Daniel John Cunningham, on whose death, in 1909, Arthur Robinson was appointed to the chair, to be followed in 1931 by James Couper Brash. Principal of university

The extra-academical school of anatomy was continued by a succession of brilliant teachers. In 1880 Johnson Symington (1851–1924)[1] commenced to lecture upon this subject in Minto House. He published an important work on the "Topographical Anatomy of the Child," and in 1893 was appointed to the chair of anatomy in Queen's College, Belfast.

In 1882, C. W. Cathcart became a lecturer on anatomy, afterwards, in 1885, transferring to the subject of surgery, and subsequently becoming surgeon to the Royal Infirmary. In 1885, J. Macdonald Brown took over the extra-mural lectureship in anatomy at Surgeons' Hall and, when he proceeded to London in 1895, was succeeded by J. Ryland Whitaker, whose brilliance as a teacher of anatomy to many generations of students recalled the success of Robert Knox.

In 1896, the number of extra-academical lecturers had become so large that a building off Bristo Street was fitted up for class-rooms and museums. In this building, known as "The New School," James Musgrove commenced to lecture on anatomy in 1896; he became professor of anatomy at St. Andrews in 1901. He was succeeded as lecturer on anatomy in the new school in 1898, by R. J. A. Berry, who later became professor of anatomy in Melbourne.

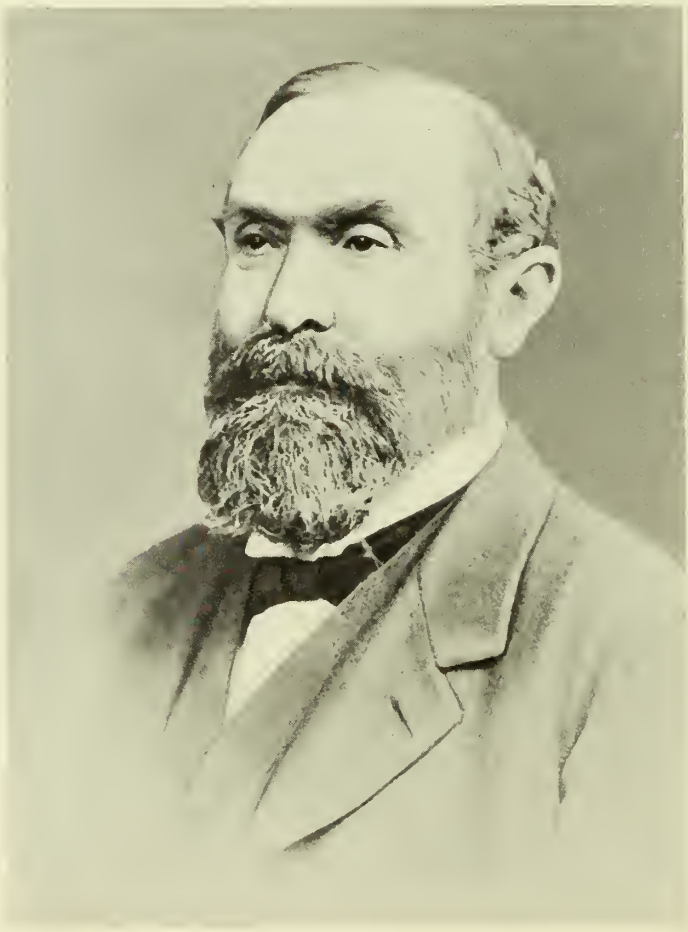
In the subject of physiology, Professor Hughes Bennett held the chair till his retiral in 1874, when he was succeeded by William Rutherford (1839–1899).[2] After graduating at Edinburgh in 1863, Rutherford had demonstrated anatomy under Struthers in the extra-academical school, and had studied the new scientific physiology under Du Bois Reymond in Berlin and Karl Ludwig at Leipzig. Returning to Edinburgh, he was assistant to Hughes Bennett for four years, and in 1869 became professor of physiology in King's College, London. As assistant to Hughes Bennett, he had introduced a practical class of teaching in physiological chemistry, and when he became professor of physiology at Edinburgh, he changed the aspect of this subject, ceasing to act as a physician in charge of patients in the Royal Infirmary, as his predecessors had done. Physiology

William Rutherford

He devoted himself to such experimental work as the investigation of the inhibitory fibres of the vagus, the secretion of bile, and to the development of His teaching

[1] *British Medical Journal*, 1924, Vol. I., p. 447.
[2] *Edinburgh Medical Journal*, Vol. V., 1899, p. 434.

histological knowledge. A great share of his time and energy was devoted to perfecting the preparation of the lectures to his class. The experiments which he demonstrated had been carefully rehearsed with the help of his assistants, and rarely failed to come off as he intended them. He introduced a method of teaching by the



WILLIAM RUTHERFORD (1839–1899)

help of elaborate diagrams, with which the walls of his class-room were daily covered, and he has been described as a perfect master of demonstration, to which his patience, his industry and his wide knowledge of his subject all contributed largely.

His lectures were exceedingly popular with students, who had the habit of taking them out in two successive years, so that the class numbered usually between 400 and 500. A playful but penetrating sarcasm inspired students at the same time

with a certain amount of dread for him, and this attitude was indicated by numberless anecdotes, which were current, such as the following.

On one occasion an oral examination was proceeding with great difficulty, the candidate's answers contributing very little to the conversation. At last Rutherford, out of patience, blandly remarked, " Mr. ——, have you got a calling-card ? " The candidate, scenting a possible invitation to one of Rutherford's at-homes, which were very popular, eagerly produced the desired card. After a glance at it, Rutherford handed it back with the remark, " Ah, Mr. ——, would you be so good as to write on the back of it *all* you know of physiology ? "

His personality and peculiarities afforded Conan Doyle, who had been a student under him, with the basis for his well-known character of Professor Challenger.

On the death of Professor Rutherford, he was succeeded, in 1899, by Edward Albert Schafer (later Sir Edward Sharpey Schafer), under whom this department expanded greatly. The Edinburgh school of physiology became celebrated both for its teaching and for the great amount of research in scientific physiology which was conducted by Professor Schafer and the large number of workers whom he attracted, and of whom many subsequently became professors in other places.

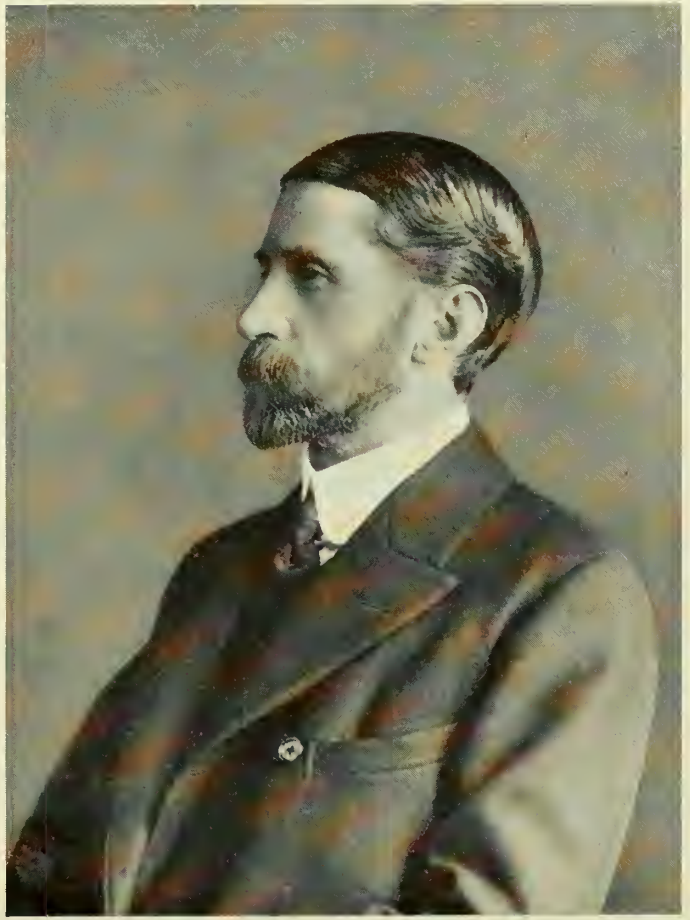
Extra-academical lecturers

In the extra-academical school, William Rutherford Sanders had been teaching physiology from 1856, and, in 1869, became professor of pathology in the university. He was succeeded as a lecturer on physiology in 1870, by Arthur Gamgee (1841–1909),[1] a man of extraordinary versatility, a great linguist and a scientist who paid especial attention to the study of physiological chemistry. He left Edinburgh in 1873, to become the first professor of physiology at Owen's College, Manchester. After his departure, James Bell Pettigrew lectured for a year on physiology before taking up the post of professor in the Chandos chair of medicine at St. Andrews. He was followed, in 1875, by John Gray McKendrick, who had been an assistant to Hughes Bennett and who, one year later, was appointed professor of physiology in Glasgow University. Andrew Smart, Alexander James and James Hunter were other lecturers in this subject.

Diarmid Noël Paton (1859–1928)[2] was a lecturer in physiology from 1888. He was a son of the distinguished artist, Sir Joseph Noël Paton, and after graduation in 1882, he interested himself in research work upon diabetes, rickets and other problems of nutrition. He had held a biological fellowship in the physiology department of the university, until, in 1889, he was appointed director of the newly-established research laboratory of the Royal College of Physicians. Here he continued to carry on important work on urea, the physiology of the parathyroid gland, respiration and the investigation of the relationship subsisting between poverty, nutrition and growth, at the same time conducting a highly successful extra-academical class. He was appointed professor of physiology in Glasgow University in 1906.

[1] *British Medical Journal*, 1909, Vol. I., p. 933.
[2] Op. cit., 1928, Vol. II., p. 679.

ARTHUR GAMGEE (1841–1909)



DIARMID NOËL PATON (1859–1928)

Pathology

The subject of pathology had been taught by Professor William Henderson up to 1869, when he retired and was succeeded by William Rutherford Sanders (1828–1881).[1] He was the son of an Edinburgh physician and had studied at Montpellier and Edinburgh, where he graduated in 1849, with a thesis "On the Anatomy of the Spleen." After two years of further study at Paris and at Heidelberg, where he had paid particular attention to the subject of histology, then in process of development by Henle with the aid of the recently improved microscope, he became conservator of the Royal College of Surgeons' Museum in 1853, and delivered lectures from 1856 to 1858 on the cell theory and similar subjects, which were then being developed by Goodsir and Virchow. At the same time he was an extra-academical lecturer on physiology, which at that time included the outlines of pathology, and in 1861 he became one of the physicians to the Royal Infirmary.

W. R. Sanders

His writings had already attracted considerable attention, especially one upon "The Variation or Vanishing of Cardiac Organic Valvular Murmurs," published in 1869, and in this year he was appointed to the chair of pathology. He had the reputation of being a clinical teacher of the first order as well as a pathologist, but for the last seven years of his tenure of the chair, he was in bad health, and the duties of the office were conducted by David James Hamilton, who afterwards became professor of pathology at Aberdeen.

Professor Sanders was succeeded, in 1881, by William Smith Greenfield (1846–1919).[2] He had been educated at University College, London, and had been demonstrator of pathology to St. Thomas's Hospital. Numerous papers contributed to the Pathological Society of London on such subjects as visceral syphilis, lymphadenoma, pyæmia and granular contracted kidney had attracted much attention, and in 1878, he had been appointed professor of pathology in the Brown Institution, where he worked out the bacteriology of wool-sorters' disease before 1880.

W. S. Greenfield

On his appointment to the chair of pathology in Edinburgh, he introduced a new course of practical pathological histology, which was conducted by his assistant German Sims Woodhead, afterwards professor of pathology at Cambridge. This class was a new departure in the teaching of pathology, and its subject matter formed the basis for Woodhead's well-known manual of "Practical Pathology." Woodhead, in 1892, founded "The Journal of Pathology and Bacteriology," which greatly stimulated research in these developing subjects. Up to the end of Greenfield's tenure of the chair of pathology, the professor of this subject continued to be a professor of clinical medicine, although the two chairs were afterwards separated. He was succeeded, in 1912, by James Lorrain Smith (1862–1931). The latter had graduated M.B. at Edinburgh in 1899, and had afterwards worked and taught at Oxford University under Professor Burdon Sanderson. Here he was closely associated with Dr. John Scott Haldane (M.B., Edinburgh, 1885), with whom he collaborated in important researches on the respiratory functions and the oxygen

G. S. Woodhead

J. Lorrain Smith

[1] *Edinburgh Medical Journal*, Vol. XXVI., 1881, p. 939.
[2] Op. cit., Vol. XXIII., 1919, p. 258.

WILLIAM SMITH GREENFIELD (1846-1919)

WILLIAM RUTHERFORD SANDERS (1828-1881)

capacity of the blood. Lorrain Smith later occupied chairs of pathology in Belfast and in Manchester University. In Edinburgh he devoted himself to research in pathology, continuing his work on the chemistry of the blood, the functions of lymph capillaries, the phenomena of growth, and other studies. He was also

ALEXANDER BRUCE (1854–1911)

consulting pathologist to the Royal Infirmary of Edinburgh and dean of the medical faculty. On his death, in 1931, he was succeeded by A. Murray Drennan.

In the extra-academical school Daniel Rutherford Haldane commenced to lecture on the new subject of pathology in 1856, and was followed, in 1864, by Thomas Grainger Stewart and in 1871 by John Wyllie. All these subsequently became physicians to the Royal Infirmary. The lectureship on pathology was taken up subsequently by T. G. S. Coghill in 1875, and by B. C. Waller and J. B. Buist in 1880.

Alexander Bruce

In 1886, Alexander Bruce (1854–1911)[1] commenced to lecture on pathology at Surgeons' Hall, and became pathologist to the Royal Infirmary. He devoted special attention to the subject of neurology, and his "Topographical Atlas of the Spinal Cord" and "Illustrations of the Mid and Hind Brain" were valuable contributions to the elucidation of the nerve paths, a subject which towards the end of the 19th century was receiving great attention. He founded "The Review of Neurology and Psychiatry," and translated Thoma's "Manual of Pathology" and Oppenheim's "Text-book of Nervous Diseases." He later became a physician and successful teacher of clinical medicine in the Royal Infirmary.

Chair of clinical medicine

In 1888, William Russell, who was also a pathologist to the Royal Infirmary, began to lecture upon this subject, and was an early investigator of the cancer problem. He was later physician to the Royal Infirmary, and in 1913, when a professorship of clinical medicine was instituted by the university, he became the first incumbent of the new chair. He was followed in this chair successively by Francis Darby Boyd in 1919, and by Edwin Bramwell in 1922.

Later lecturers on pathology were R. F. C. Leith (1893), and Theodore Shennan (1900), who later became professor of pathology in the University of Aberdeen.

A lectureship on pathological bacteriology was established by the university in 1894, Robert Muir being the first lecturer. In 1898, he was appointed professor of pathology in the University of St. Andrews, from which he was in 1899, transferred to the professorship of pathology in Glasgow. He was succeeded in the lectureship by D. A. Welsh, who subsequently became professor of pathology in the University of Sydney. Robert Muir, in 1897, had published jointly with James Ritchie (1864–1923)[2] a "Manual of Bacteriology," which subsequently went through many editions and became the leading text-book in English on this subject.

Chair of bacteriology

James Ritchie became superintendent of the laboratory of the Royal College of Physicians in 1907, and was appointed professor of bacteriology in the University of Edinburgh in 1913, when a chair in this subject was founded. He was succeeded in this chair by Thomas Jones Mackie in 1923.

R. C. P. laboratory

The Royal College of Physicians had decided, in 1887, to establish a laboratory for the prosecution of original research. The laboratory was gradually expanded, and, in 1896, was moved to the premises it occupies at present in Bristo Place. In 1899, the usefulness of the laboratory was further expanded by the undertaking of reporting work, and the College of Surgeons in the same year instituted an annual grant for its further support. In 1903, an agreement was concluded with the Carnegie Trustees, by which they purchased the laboratory, while the College of Physicians continued to manage it, and the laboratory proceeded to expand as regards both the carrying on of research and of valuable reporting work. Noël Paton had been appointed the original superintendent of the laboratory in 1889, and in 1907, was succeeded by James Ritchie, and he in turn in 1920, by A. G. McKendrick.

[1] *Edinburgh Medical Journal*, Vol. VII., 1911, p. 64.
[2] Op. cit., Vol. XXX., 1923, p. 124.

Veterinary science was a pursuit which developed a gradually increasing influence upon human medicine, as the diseases of animals came to be more investigated and better understood. Not until almost the end of the 19th century did the medical profession generally realise that a close relationship existed between many pathological conditions of animals and various diseases in human beings. The first great impetus to a study of this relationship came from the development of bacteriology. Veterinary medicine

The veterinary school in Edinburgh had originated from the exertions of William Dick (1793–1866), a blacksmith and farrier in Edinburgh, who conceived the idea of founding a veterinary college in Edinburgh on the lines of the London Veterinary College established in 1791. He attended the anatomical demonstrations of John Barclay, and also the lectures of Professors Gregory and Hope, and after a period of study in the London Veterinary College, he returned to Edinburgh and in 1823 commenced a course of instruction for country farriers in his forge at Clyde Street. This school proved successful, but he was the sole instructor with a course of 24 lectures, chiefly dealing with horses, up to 1844, when he began to form a staff to teach separate departments in the diseases of different animals.

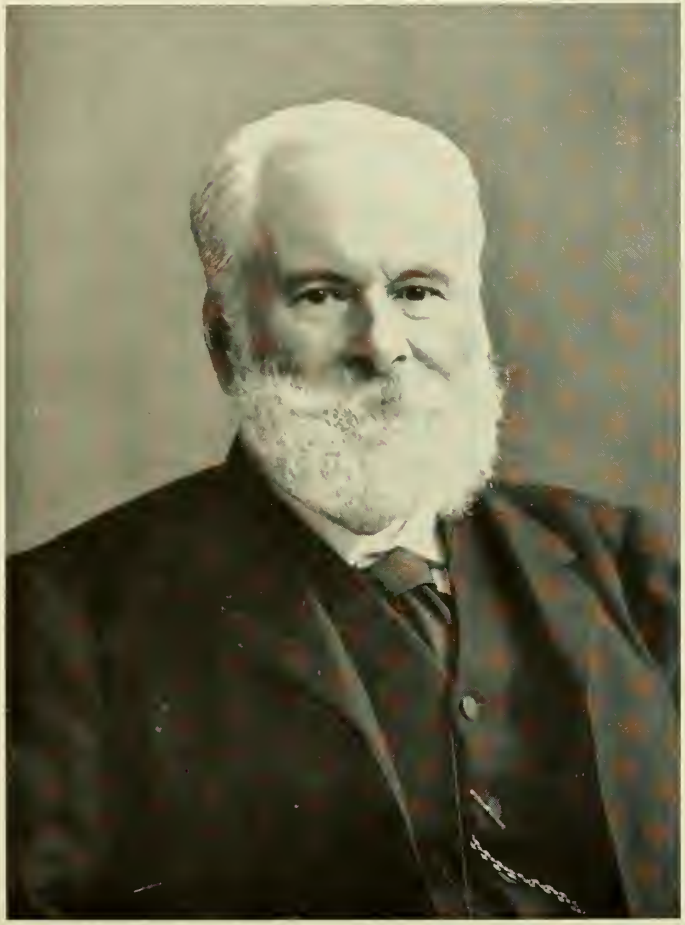
By 1836, Dick was able to claim that students were in the habit of resorting to the Edinburgh veterinary school from all parts of Great Britain and Ireland, and also from America. In 1844 the Royal College of Veterinary Surgeons was founded. The buildings in Clyde Street were gradually augmented and improved as time went on, but the College was not transferred to the buildings which it now occupies at Summerhall until 1916, by which time it possessed professors in anatomy, medicine, surgery, pathology, physiology, chemistry, biology, dietetics, and lecturers on various other veterinary subjects.[1]

In the subject of materia medica Sir Robert Christison, who had held this chair since 1832, was succeeded, in 1877, by Thomas (afterwards Sir Thomas) Richard Fraser (1841–1920).[2] He had graduated at Edinburgh in 1863, with a thesis suggested by Christison dealing with Calabar bean, and was the first to observe the contraction of the pupil under the action of this poison. He introduced this substance to the notice of Dr. Argyll Robertson, who at once found in its alkaloids an agent capable of contracting the pupil when locally applied, which has been of great service in ophthalmology. Fraser was subsequently led to the investigation of other ordeal poisons and arrow poisons, his best known work being on strophanthus, which occupied him during the first 20 years of his professorship. Materia medica

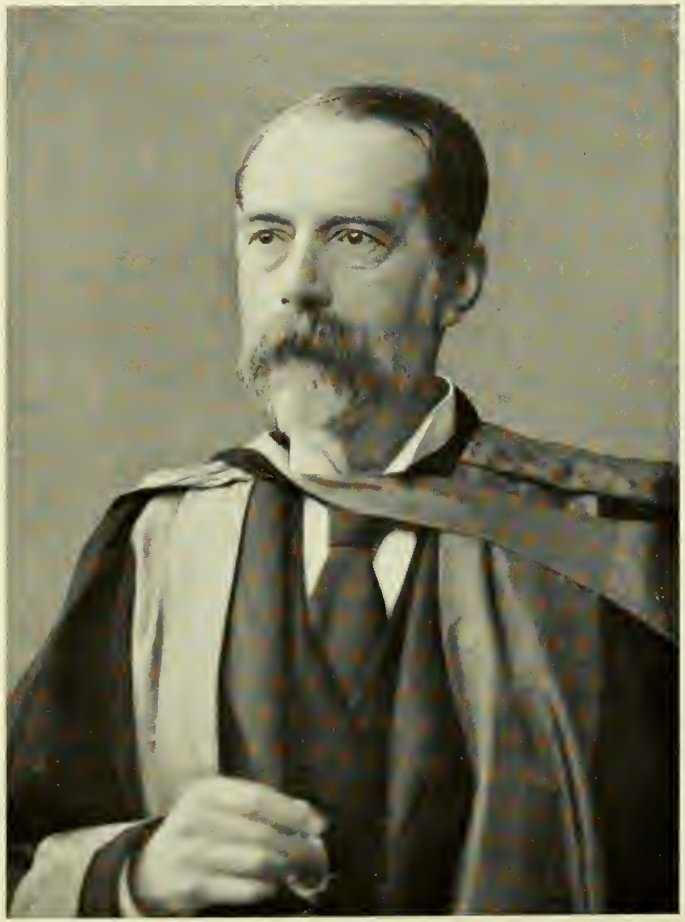
T. R. Fraser

Important contributions to medical science arose out of the researches on Calabar bean and its antagonists, which formed an important part of the doctrine concerning antagonism, while the work on strophanthus led to the introduction of this important remedy into medicine as an alternative to digitalis. Another important line of research taken up by Fraser, largely on the suggestion of His researches

[1] Charnock Bradley : " History of the Edinburgh Veterinary College," Edinburgh and London, 1923.
[2] *Edinburgh Medical Journal*, Vol. XXIV., 1920, p. 125.



ALEXANDER CRUM BROWN (1838-1922)



SIR THOMAS RICHARD FRASER (1841-1920)

Professor Crum Brown, was the relation of chemical constitution to pharmacological action. This seemed to be a fertile field of enquiry, and was subsequently taken up by many other investigators, although the subject has not proved to be of such importance as it appeared 30 years ago.

At the time when Fraser began his pharmacological researches, graphic methods were unknown, and the analysis of the action of substances by physiological operations on animals was in its infancy. Claude Bernard and Ludwig had begun to develop this method, but other investigators were limited to the old methods used by Christison in the application of poisons to animals and simple observation of their effects. Fraser thus depended mainly upon direct observation and the use of simpler apparatus, such as the blood-pressure manometer and the muscle lever. His work formed a link between the old materia medica of Christison and the more modern ways of dealing with pharmacology, and it is therefore of great interest in the history of medicine.

In his later years, Fraser devoted considerable attention to work on snake venom and anti-venene, upon the analogy of the successful use of anti-diphtheritic serum. He was for many years dean of the medical faculty in Edinburgh, a member of the University Court, and a member of the General Medical Council.

He was succeeded in the chair, in 1918, by Arthur Robertson Cushny, and he in turn in 1926, by Alfred Joseph Clark. When Fraser resigned the chair, the subject had expanded so much and the methods of investigating the action of remedies had become so much dissociated from their mere trial in cases of disease, that the time seemed to have come for separating pharmacology from therapeutics. The subsequent professors of materia medica were accordingly relieved from acting as physicians in the Royal Infirmary, and a new chair of therapeutics was established in 1919, of which Jonathan Campbell Meakins was the first professor. He was succeeded in 1924 by David Murray Lyon.

Chair of therapeutics

In the extra-academical school, Angus Macdonald had been lecturing on materia medica from 1868, prior to devoting his attention to gynæcology, and T. R. Fraser acted as a lecturer from 1871, before his appointment as professor of the subject. Other lecturers in the extra-mural school were F. W. Moinet (1875); William Craig (1880); G. A. Gibson (1886), who afterwards became a physician to the Royal Infirmary; Ralph Stockman (1890), who afterwards became professor of materia medica in the University of Glasgow; and A. L. Gillespie (1897).

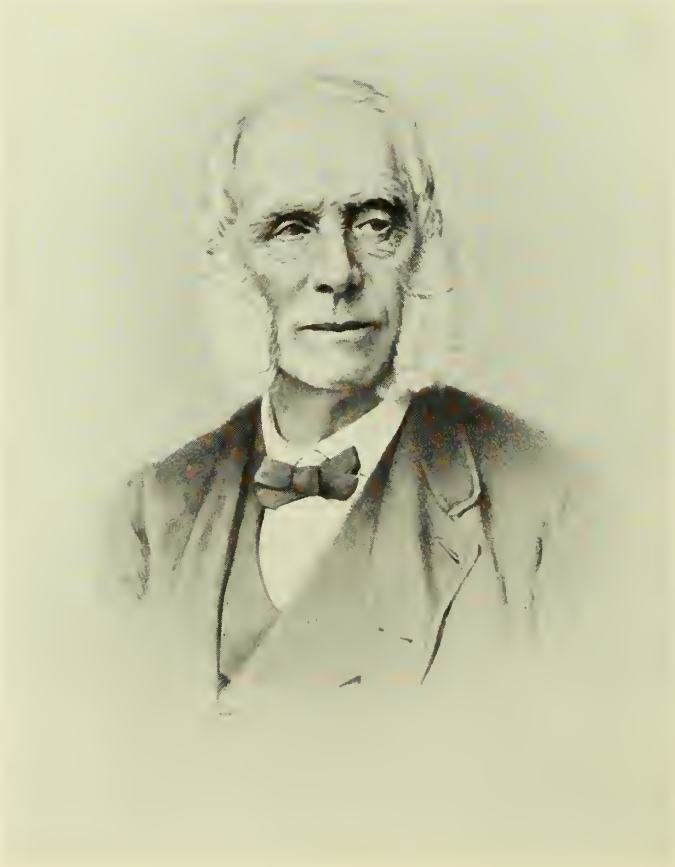
In the subject of medical jurisprudence Andrew Douglas (later Sir Douglas) Maclagan (1812–1900)[1] was appointed professor in 1862. He had qualified in 1833, and had been in early life a surgeon to the Royal Infirmary; he had then abandoned surgery and had lectured on materia medica for 18 years; he had been adviser to the Crown authorities in numerous *causes célèbres* of past times, and also a great social entertainer at the medical gatherings of several generations. In his time there was no retiring age for professors, and to see, even if one could not hear,

Medical jurisprudence

Douglas Maclagan

[1] *Edinburgh Medical Journal*, Vol. VII., 1900, p. 515.

this respectable old gentleman, well over 80 years of age, reading his time-worn lectures in the 'nineties, inspired a student with somewhat the same feeling that he would have experienced if one of the worthies of a bygone age had risen from the dead.



Sir Douglas Maclagan (1812–1900)

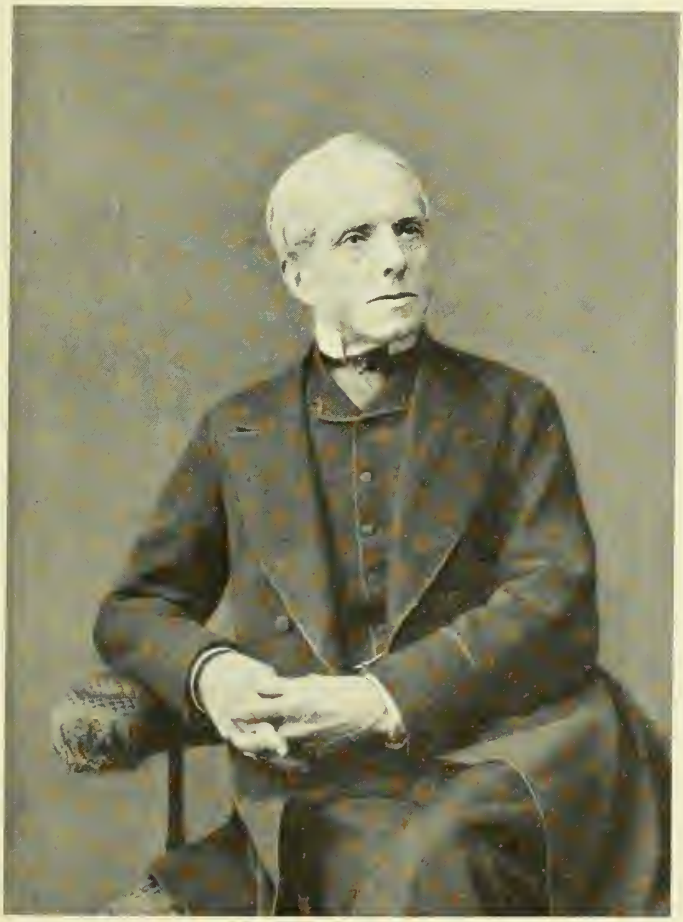
He was in earlier life a recognised wit and raconteur, and possessor of poetic talent, which is well displayed in his "Nugæ Canoræ medicæ. Lays by the Poet Laureate of the New Town Dispensary."

Henry Littlejohn

He was succeeded in 1897, by Henry (later Sir Henry) Duncan Littlejohn (1826–1914),[1] a man of much more enterprising activity even if of less cultivated talent. He graduated at Edinburgh in 1847, was a fellow-student of Dr. John Smith, the founder of the Dental School, and he began to lecture on medical

[1] *Edinburgh Medical Journal*, Vol. XIII., 1914, p. 404.

jurisprudence in 1856. He was a great teacher among a band of the greatest medical teachers in the world, who fascinated and amused his students. His dramatic power was of the first order, and his lectures were never forgotten by his students of law or medicine. His class, which often numbered 250 or more students, was made one



Sir Henry Duncan Littlejohn (1826-1914)

of the most interesting in the curriculum, and no student willingly missed attendance on it. He was businesslike in method, spare and keen in appearance, alert in movement and in mental grasp, and deeply sympathetic or very brusque according to his humour at the time. The way in which he gave evidence before the courts was entirely his own, no advocate could put him in a difficulty, and he always had a reply ready for every question by a judge.

His work in public health

His great achievements, however, were on the line of public health. He had been appointed the first medical officer of health for Edinburgh in 1862, at a time when public health was not recognised as a distinct department of medicine. Chadwick and some other English physicians had already realised that the health of the community was suffering greatly from impure water, bad drains, overcrowding and sanitary sins generally, and Littlejohn took the opportunity of remedying glaring defects in the health conditions of Edinburgh and of educating public opinion on the importance of cleanliness and sanitation. The death-rate for some of the wards of Edinburgh was then over 37 per 1000, as compared with the 14 or 15 per 1000 of the present day. Severe epidemics of preventable disease were constantly breaking out, and overcrowding was very bad.

In 1865, he made a report on the sanitary condition of Edinburgh, which established his reputation as a scientific sanitarian, and led to a gradual but steady decrease in the death-rate of the city. He was thus a pioneer in a domain where Britain, in exploring routes towards greater health, showed the way to the Continent of Europe and to America. One of the noteworthy details that he introduced was by urging the Town Council of Edinburgh to obtain from Parliament an Act compelling the notification of every case of infectious disease. This Act was passed in 1879 in the face of much medical opposition, which held that notification interfered with the confidence between doctor and patient. Although Edinburgh was the first city to obtain such an Act, the whole country soon followed, and notification is now regarded as a matter of practical commonsense.

Notification

Littlejohn's activities were associated with the disappearance of small-pox and typhus from Edinburgh, and, along with Lord Provost Sir William Chambers, he cleared out some of the old rookeries in which disease had been incubated for 300 years, and made new streets through the worst parts of the town. He was also instrumental in the construction of the new City Hospital in 1903.

On his retiral from the chair in 1906, he was succeeded by his son, Harvey Littlejohn, who had been a lecturer in the extra-academical school since 1898. The latter died in 1927, and was succeeded in the chair of forensic medicine, as it was now called, by Sydney Alfred Smith. Another extra-academical lecturer was W. G. Aitchison Robertson (1899).

Chair of public health

When Sir Henry Littlejohn was appointed professor of medical jurisprudence in 1897, the subject of public health was removed from the duties of this chair. Charles Hunter Stewart (1854–1924)[1] had already been teaching the subject of public health as assistant to Sir Douglas Maclagan, and he was the first occupant of the chair of public health created in 1898. The John Usher Institute of Public Health, established in connection with the chair, was subsequently finished and, in 1902 handed over to the university. Professor Hunter Stewart was succeeded in 1925 by Percy Samuel Lelean.

[1] *Edinburgh Medical Journal*, Vol. XXXI., 1924, p. 454.

Chemistry

A. Crum Brown

In the subject of chemistry Alexander Crum Brown (1838–1922)[1] followed Lyon Playfair as professor in 1869. He was a step-brother of Dr. John Brown, celebrated as the author of "Horæ Subsecivæ." The thesis which he presented for the degree of M.D. in 1861, on "The Theory of Chemical Combination," had an important influence upon chemical speculation. He had a wide interest in all branches of natural science, but produced comparatively little original research work in his long tenure of the chair for thirty-nine years.

Immediately after his appointment, he had carried out with Fraser an extensive series of observations on chemical constitution in relation to the physical action of various salts of the ammonium bases derived from strychnine and other drugs, and in 1874 he conducted an ingenious investigation "On the sense of rotation in connection with the anatomy and physiology of the Semicircular Canals of the Internal Ear." During his tenure of office, the subject of chemistry became a department in the faculty of science, and he was succeeded in 1908 by Sir James Walker, who in turn was followed in 1928 by James Pickering Kendall. In 1919, a new professorship of chemistry in relation to medicine was instituted, the first incumbent being George Barger.

In the extra-academical school there was a succession of lecturers, most of whom acted as analytical chemists. Of these the best known were Ivison Macadam (1878), and Thomas William Drinkwater (1880).

Natural history

The subject of natural history continued, till nearly the end of the 19th century, to be a department in the faculty of medicine, although later, with the changed aspect of the subject, it was transferred to that of science. Sir Wyville T. C. Thomson succeeded Professor Allman in this chair in 1870, and in 1882 was succeeded by James Cossar Ewart, who had been a demonstrator of anatomy after graduation in 1874, had been conservator of the Anatomical Museum at University College, London, and from 1878, had been professor of natural history in the University of Aberdeen. In the same year (1878) as Koch published his great memoir upon the organisms responsible for surgical infection, Ewart was awarded a gold medal for his M.D. thesis upon "Bacteria."

He was the first in Great Britain to start a Marine Zoological Station, which was established at Aberdeen. His subsequent work in connection with the Fishery Board for Scotland upon the food of fishes and his researches upon telegony and allied subjects are well known. He was succeeded, in 1927, by James Hartley Ashworth.

In the extra-academical school, H. A. Nicholson lectured from 1870, and afterwards became professor of natural history at St. Andrews and at Aberdeen; Andrew Wilson, who was well known as a popular scientific lecturer, conducted courses on the subject from 1876; and J. Arthur (later Sir Arthur) Thomson lectured from 1890, and afterwards succeeded Professor Nicholson in the chair at Aberdeen.

[1] *Edinburgh Medical Journal*, Vol. XXIX., 1922, p. 310.

DANIEL ARGYLL ROBERTSON (1837-1909)

SIR THOMAS SMITH CLOUSTON (1840-1915)

Special departments

In the last quarter of the 19th century, medicine and surgery had developed so much that departments in which a specialised skill or knowledge were requisite began to be instituted. The principal special departments were those for diseases of the eye, diseases peculiar to women, diseases of the ear and throat, and diseases of the skin. Various branches of scientific or practical medicine also arose in which special instruction was desirable, although they did not demand a lengthy course of tuition. The requirements of these were met by the establishment of a number of lectureships on special subjects, both in the extra-academical school and in the university.

Insanity

One of the earliest and most important of these subjects was that of insanity. Lectures had been given at Edinburgh on mental diseases from an early date, as described in Chapter XVIII. Dr. Skae had been a lecturer in the extra-academical school from 1859, and Professor Laycock had taken much interest in this subject. Dr. Skae was succeeded as a lecturer in 1875 by John (afterwards Sir John) Batty Tuke (1835–1913).[1] He was a distinguished alienist, and one of the first to abolish physical restraint in his treatment of the mentally affected. In his later years, he was the initiator and organiser of the laboratory of the Royal College of Physicians.

T. S. Clouston

In 1879, the university made the new departure of appointing a lecturer in mental diseases in the person of Thomas (later Sir Thomas) Smith Clouston (1840–1915).[2] Instruction up to this date had been given in each subject by a course of one hundred lectures from a professor, and this appointment of the superintendent of the Royal Lunatic Asylum to give a short course in insanity was the first of a considerable number of lectureships instituted by the university, of which some developed subsequently into professorships. Dr. Clouston continued to teach psychiatry for thirty years, and in this time he did much to develop the asylum of which he was the head, and to introduce new methods into the treatment of the insane.

His "Clinical Lectures on Mental Diseases" formed for many years the recognised text-book on insanity. He was succeeded, in 1910, as lecturer on psychiatry by George Matthew Robertson, who subsequently, on a chair in the university being endowed by the Managers of the Royal Asylum, became, in 1919, the first professor of this subject.

Diseases of the eye

D. Argyll Robertson

Diseases of the eye formed the next subject upon which the university instituted a lectureship in 1883, by appointing Douglas Argyll Robertson (1837–1909) to be lecturer on this subject. He had given courses since 1863, in the extra-academical school, where there had previously been a long succession of lecturers upon this subject. The Royal Infirmary had also recognised its importance by instituting a special department for diseases of the eye in 1855. Dr. Argyll

[1] *Edinburgh Medical Journal*, Vol. XI., 1913, p. 431.
[2] Op. cit., Vol. XIV., 1915, p. 385.

Robertson was already celebrated for his introduction of the alkaloids of Calabar bean as an ophthalmic agent. By his discovery about 1870 of the peculiar reaction of the pupil in certain spinal diseases, the Argyll Robertson pupil has become as classic a name in medicine as Bright's disease or Pott's curvature of the spine. He was for many years an ophthalmologist of world-wide reputation.

He was succeeded in the lectureship in 1896, by George (later Sir George) Andreas Berry, who was at a later date representative of the University of Edinburgh in Parliament. In 1896, George Mackay, and one year later William George Sym, began to lecture on ophthalmology in the extra-academical school.

In 1894, the university introduced the practice of constituting the senior assistant to the professor in each department a lecturer in some branch of that subject, by appointing David Hepburn lecturer on anatomy.

Diseases of the ear and throat

In 1877, J. J. Kirk Duncanson had commenced to lecture on diseases of the ear in the extra-academical school, and was followed in 1882 by Peter M'Bride. The latter was appointed a university lecturer upon diseases of the nose and throat in 1897. The Royal Infirmary had already, in 1883, constituted a special department for diseases of the ear, nose and throat, and had appointed Peter M'Bride surgeon to this department.

Diseases of the skin

William Allan Jamieson had begun to lecture in the extra-academical school on diseases of the skin in 1878, and in 1899 he was a university lecturer on this subject. The Royal Infirmary instituted a department for diseases of the skin in April, 1884, and appointed Dr. Jamieson as the first to hold this charge. His text-book on "Diseases of the Skin" was an early authoritative manual on this subject.

Medical electricity

Medical electricity had been attracting great interest towards the end of the century on the Continent. Apostoli at Paris had used the electric current against uterine diseases and tumours, d'Arsonval introduced the high frequency current for general application, and in 1896, Röntgen had directed attention to the value of the X-rays in diagnosis. At Edinburgh, Robert Milne Murray had interested himself greatly in the applications of electricity in the early nineties, instituting a private electrical laboratory at Rutland Square.

In November, 1896, the Managers of the Royal Infirmary decided to establish an electrical department in this institution, and appointed Milne Murray honorary medical electrician with Dawson Fyers Duckworth Turner (1857–1929)[1] as assistant. When Milne Murray was appointed to the gynæcological staff of the institution in 1901, Dr. Dawson Turner succeeded him as medical electrician with William Hope Fowler as assistant. Dr. Dawson Turner had been one of the first to recognise the importance to medicine of the discovery of the Röntgen rays, and his private installation was the first of the kind in Edinburgh—a primitive affair set up in 1896, at his house in George Square, which he demonstrated to friends

[1] *Edinburgh Medical Journal*, Vol. XXXVI., 1929, p. 127.

and colleagues. In 1898, when radium was discovered, he at once secured a specimen and for some years this was the only supply in Edinburgh for medical purposes, which he placed at the disposal of the Royal Infirmary for the treatment of patients. He published numerous papers on radiology and allied subjects, and his "Manual of Practical Medical Electricity" and "Radium, its Physics and Therapeutics" were among the earliest text-books on these subjects. Like the majority of early workers on these lines, he suffered greatly in later life from the effects of X-ray dermatitis.

Tropical diseases

In tropical diseases, A. W. P. Pinkerton had commenced to lecture in the extra-academical school in 1858, and had been followed by R. W. Felkin in 1887. In 1898, the university instituted a lectureship in this subject, and appointed Andrew Davidson as the first to fill the position.

Other lectureships

Other lectureships in medicine, instituted later by the university, were those on applied anatomy (1903), infective diseases (1904), history of medicine (1907), morbid anatomy (1913), surgical pathology (1914), venereal diseases (1919), bacteriology (1920), pathology (1920), physiology (1920), materia medica (1920), chemistry in relation to medicine (1920), public health (1921), sanitary administration (1925), radiology (1925), neuro-pathology (1925), psychiatry (1925), therapeutics (1928), medicine (1929), mental deficiency (1929), and orthopædics (1930).

The development of the Edinburgh medical school after the passing of the Medical Act is indicated by the numbers of medical students at successive decades. The numbers of medical students matriculated at Edinburgh University were as follows: 1859–60, 554; 1869–70, 560; 1879–80, 1459; 1889–90 (immediately before extension of course took effect), 2044; 1899–1900, 1369; 1909–10, 1440; 1919–20 (peak of post-war influx), 1968; 1929–30, 1318. These figures do not include students attending the extra-academical school of the Royal Colleges, who have numbered between 400 and 500 in normal years.

List of Professors and Lecturers in the Edinburgh Medical School appointed from 1870 to 1900.

SUBJECT	UNIVERSITY	EXTRA-ACADEMICAL SCHOOL OF MEDICINE AND SURGERY
MEDICINE	1876–1900 Thomas Grainger Stewart	1870 T. G. Stewart
		1873 C. Muirhead
		1878 D. J. Brakenridge
		A. Macdonald
		1879 John Wyllie
		1880 J. O. Affleck
		Byrom Bramwell
		1887 J. J. Graham Brown
		J. H. Croom
		1889 Alex. James
		1890 G. A. Gibson
		1891 R. W. Philip
		1894 Andrew Smart
		1898 R. A. Fleming

SUBJECT	UNIVERSITY		EXTRA-ACADEMICAL SCHOOL OF MEDICINE AND SURGERY	
ANATOMY	1867–1903	William Turner	1880	J. Symington
			1882	C. W. Cathcart
			1885	J. Macdonald Brown
			1895	J. Ryland Whitaker
			1896	James Musgrove
			1898	R. J. A. Berry
SURGERY	1882–1909	John Chiene	1872	John Chiene
			1873	John Duncan
			1879	A. G. Miller
			1883	C. W. MacGillivray
			1885	C. W. Cathcart
			1887	F. M. Caird
			1889	J. W. B. Hodsdon
				W. S. Lang
			1894	J. S. M'Laren
				Alexis Thomson
			1897	David Wallace
CLINICAL SURGERY	1877–1908	Thomas Annandale	1872	P. H. Watson
				Thomas Annandale
			1879	Joseph Bell
			1887	John Duncan
			1889	A. G. Miller
			1894	C. W. MacGillivray
				P. H. Maclaren
			1898	J. M. Cotterill
			1899	F. M. Caird
MIDWIFERY	1870–1905	Alex. Russell Simpson	1871	Charles Bell
			1872	Angus Macdonald
			1876	C. E. Underhill
			1878	J. H. Croom
			1879	Wm. Gordon
			1883	Peter Young
				D. Berry Hart
			1887	R. Milne Murray
			1890	A. A. Matheson
				N. T. Brewis
			1893	F. W. N. Haultain
			1894	J. Haig Ferguson
			1899	J. W. Ballantyne
CHEMISTRY	1869–1908	Alexander Crum Brown	1875	J. Falconer King
			1878	Ivison Macadam
			1880	T. W. Drinkwater
				J. Y. Buchanan
			1890	T. Rymer Paterson
				A. P. Aitkin
			1891	J. B. Readman
BOTANY	1879	Alexander Dickson		
	1888–1922	Isaac Bayley Balfour	1886	A. N. M'Alpine
			1896	R. Turnbull
MATERIA MEDICA	1877–1918	Thomas Richard Fraser	1871	Thos. R. Fraser
			1875	F. W. Moinet
			1880	Wm. Craig
			1886	G. A. Gibson
			1890	Ralph Stockman
			1897	A. L. Gillespie

SUBJECT	UNIVERSITY	EXTRA-ACADEMICAL SCHOOL OF MEDICINE AND SURGERY
PHYSIOLOGY	1874 William Rutherford 1899 Edward Sharpey Schafer	1870 Arthur Gamgee 1874 J. B. Pettigrew 1875 J. G. McKendrick 1877 Andrew Smart 1878 Alexander James 1881 James Hunter 1888 D. Noël Paton
MEDICAL JURISPRUDENCE	1897–1906 Henry Duncan Littlejohn	1880 H. A. Husband 1898 Harvey Littlejohn 1899 W. G. Aitchison Robertson
NATURAL HISTORY	1870 Wyville T. C. Thomson 1882–1927 James Cossar Ewart	1870 H. A. Nicholson 1876 Andrew Wilson 1890 J. Arthur Thomson 1893 Robert Turnbull
PATHOLOGY	1881–1912 William Smith Greenfield	1871 John Wyllie 1875 T. G. S. Coghill 1880 B. C. Waller J. B. Buist 1886 Alex. Bruce 1888 Wm. Russell 1893 R. F. C. Leith 1900 T. Shennan
PUBLIC HEALTH	1898–1925 Charles Hunter Stewart	1870 Andrew Smart
NATURAL PHILOSOPHY	1860–1901 Peter Guthrie Tait	1893 Dawson Turner
DISEASES OF THE EYE	1883 D. Argyll Robertson 1896 George A. Berry	1882 J. Robertson 1883 George A. Berry 1896 George Mackay 1897 W. G. Sym
TROPICAL DISEASES	1898 Andrew Davidson	1887 R. W. Felkin 1899 Andrew Davidson
VENEREAL DISEASES		1877 Francis Cadell
HISTOLOGY		1870 Arthur Gamgee 1878 John Wyllie
INSANITY	1879–1910 T. S. Clouston	1875 J. Batty Tuke 1892 T. S. Clouston 1897 John Macpherson
VACCINATION		1887 J. B. Buist 1898 Francis Cadell

SUBJECT	UNIVERSITY		EXTRA-ACADEMICAL SCHOOL OF MEDICINE AND SURGERY	
DISEASES OF CHILDREN			1871	R. Peel Ritchie
				John Linton
				Arthur Gamgee
			1880	James Andrew
				James Dunsmure
				James Carmichael
	1885	James Andrew	1886	C. E. Underhill
		James Carmichael		John Playfair
	1888	C. E. Underhill	1889	Joseph Bell
	1890	John Playfair	1891	T. Burn Murdoch
				J. W. Ballantyne
				John Thomson
	1900	T. M. Burn Murdoch and Staff of Sick Children's Hospital	1892	Melville Dunlop
			1899	Staff of Sick Children's Hospital
DISEASES OF THE EAR AND THROAT			1877	J. J. Kirk Duncanson
			1882	P. M'Bride
	1897	Peter M'Bride		
DISEASES OF THE SKIN	1899	W. Allan Jamieson	1878	W. Allan Jamieson
			1893	Stewart Stirling
REGIONAL ANATOMY	1894	David Hepburn		
PATHOLOGICAL BACTERIOLOGY	1894	Robert Muir		
	1898–1901	D. A. Welsh		

Chapter XXVI

Influence of Scottish Graduates Outside Scotland in the Nineteenth Century

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

Robert Willan (1757–1812)

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

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

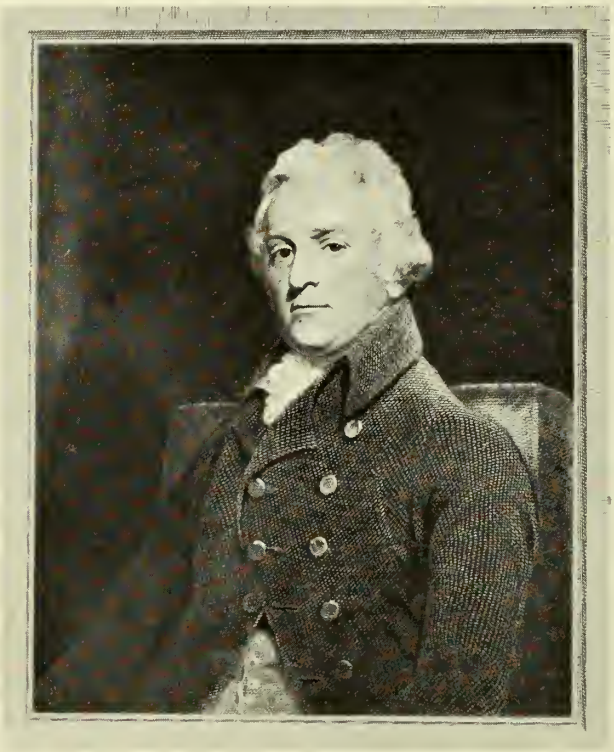
Scottish Medical Graduates' Activity in Other Schools

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

London medical schools

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

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



DAVID PITCAIRN (1749–1809)

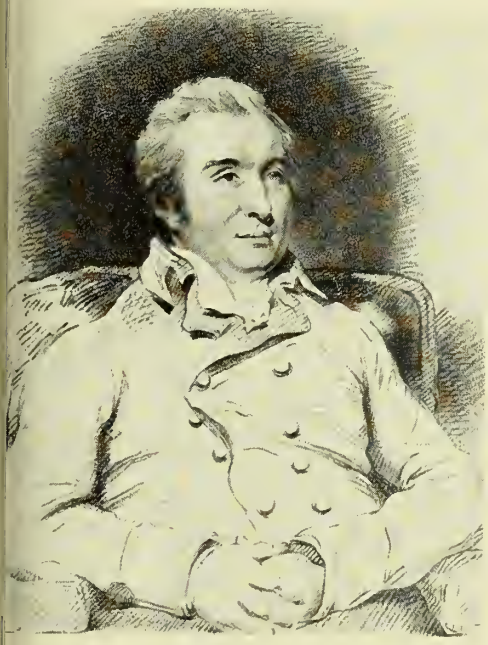
Hospital. Along with John Abernethy, he is generally regarded as one of the founders of the modern St. Bartholomew's Hospital Medical School.

St. George's Hospital

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

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

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



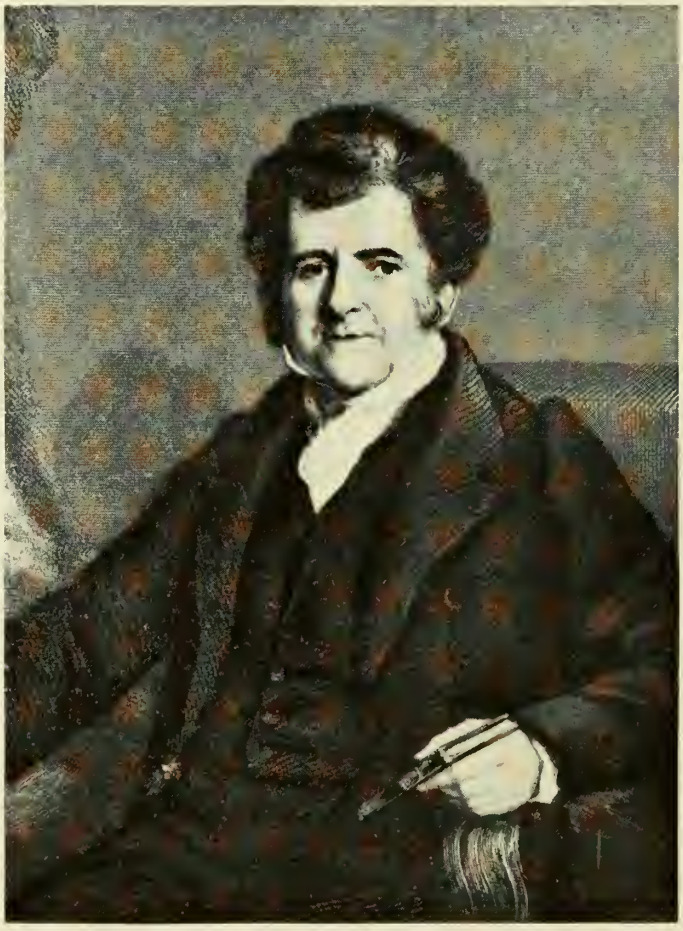
MATTHEW BAILLIE (1761–1823)

JAMES COPLAND (1791–1870)

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

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

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



RICHARD BRIGHT (1789–1858)

Guy's Hospital

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

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

THOMAS ADDISON (1793–1860)

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

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

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

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

University College

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

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

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

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

JOHN CONOLLY (1794–1867)

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

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

CHARLES MURCHISON (1830-1879)

Middlesex Hospital

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

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

London Hospital

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

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

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

Sir Andrew Clark (1826–1893)
(Original by G. F. Watts, R.A., in National Portrait Gallery)

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

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

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

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

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

Oxford medical school

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

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

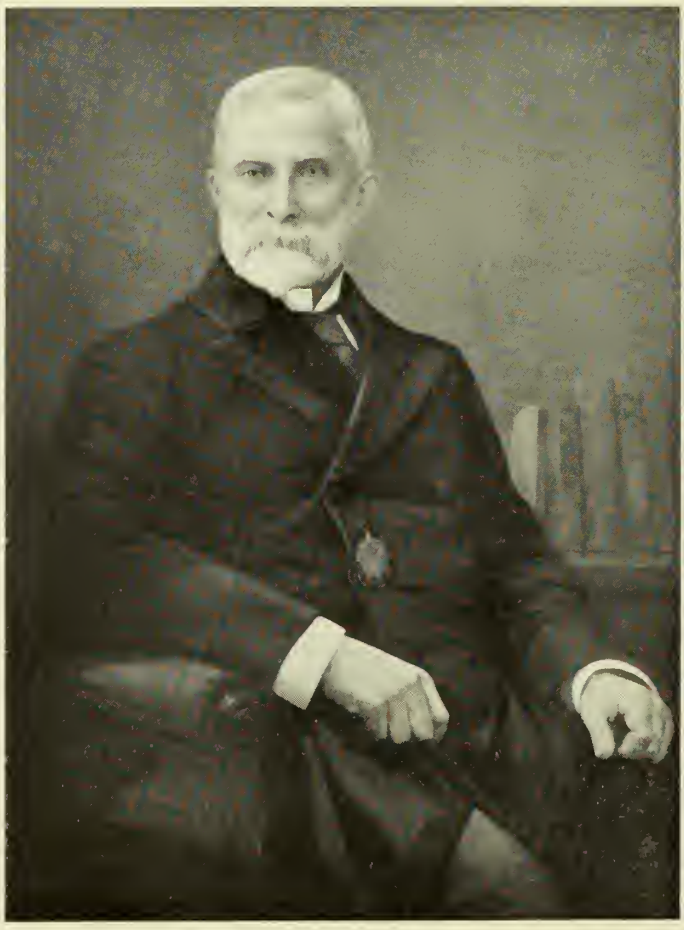
Sir David Ferrier (1843–1928)

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

[1] *British Medical Journal*, 1928, Vol. I., p. 525.

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

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



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

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

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

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

St. Bartholomew's Hospital

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

Obstetrics

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

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

[1] Dict. Nat. Biog.

[2] *British Medical Journal*, 1928, Vol. I., p. 161.

[3] *Edinburgh Medical Journal*, 1890, Vol. I., p. 392.

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

WILLIAM SMOULT PLAYFAIR (1835–1903)

Liverpool medical school

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

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

Manchester

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

Birmingham

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

Sheffield

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

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

Dublin medical school

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

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

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

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

ABRAHAM COLLES (1773-1843)

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

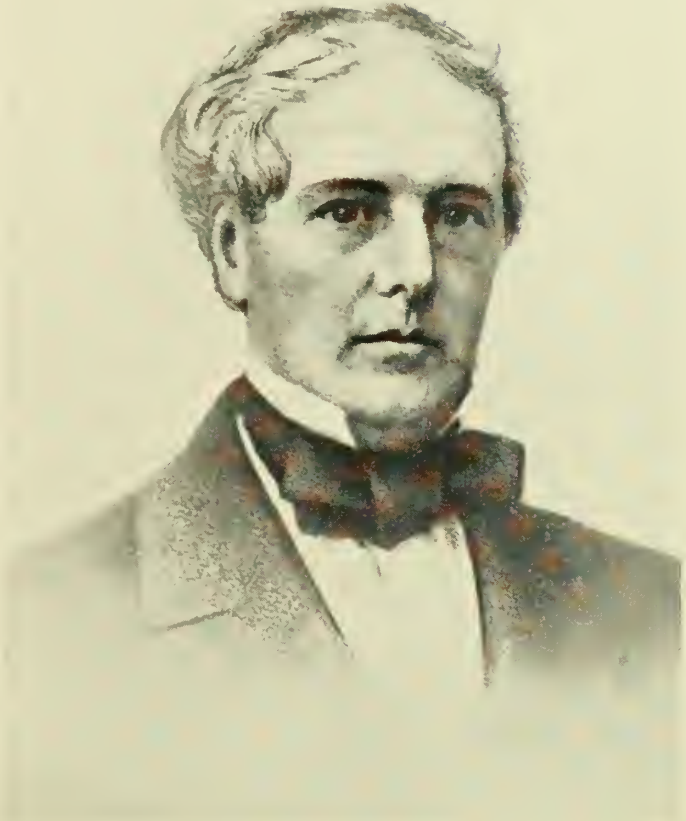
Abraham Colles (1773–1843), after some preliminary study in Dublin, went to Edinburgh, where he graduated M.D. in 1797 with a thesis on Venesection. Returning to Dublin, he became professor of anatomy, physiology and surgery to the College of Surgeons, and was twice president of the College. His description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

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

SIR PHILIP CRAMPTON (1777–1858)

James O'Beirne (1787–1862), after an apprenticeship in Dublin, studied at Edinburgh University, where he graduated M.D. in 1818. He was surgeon to several of the Dublin hospitals, and a prolific writer on surgical subjects such as "Tobacco in Tetanus," "Hydrocele of the Neck," "Retinitis," "Tumours in the Orbit," and "Strangulated Hernia." Thomas Edward Beatty (1800–1872) was born in Dublin and graduated M.D. at Edinburgh in 1820. He published a book of "Contributions to Medicine and Midwifery" in 1866. George Hugh Kidd (1824–1895) was of Scottish extraction, and graduated M.D. at Edinburgh in 1845. He was master of the Coombe Hospital from 1876 to 1883, and a well known obstetrician. For many years he acted as editor of the *Dublin Quarterly Journal of Medical Science*, and was mainly instrumental in the foundation of the Stewart Institution for Imbecile Children. Alfred Henry M'Clintock (1822–1881) graduated M.D. at Glasgow in 1844, and was master of the Rotunda Hospital from 1854 for the usual period of seven years. His "Clinical Memoirs on the Diseases of Women" (1863) and "Practical Observations on Midwifery" (1848) were standard works.

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



Sir Dominic John Corrigan (1802–1880)

William Stokes (1804–1878)

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

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

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

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

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

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

Philadelphia medical school

The first American colonial who graduated M.D. at Edinburgh University was Thomas Jarvis, from the island of Antigua, in 1744.[2] For the next 20 years almost every session saw at least one American graduate, including such men as William Shippen, John Morgan and Benjamin Rush, all of Pennsylvania. These men played a great part in the early medical school of Philadelphia, Morgan holding the first medical professorship in North America, which was established on May, 3rd 1765. After 1764, students came in greater numbers, and in the next hundred years 650 students from the Americas graduated at Edinburgh. This does not include many who came for a year or two to take some classes, nor those who contented themselves with a licence from the Royal College of Surgeons. The total number of the Americans who studied at Edinburgh should probably be at least twice as great. Out of the 650, those colonies which became the United States furnished 180. As regards Canadians, 104 Canadian-born students had graduated M.D. at Edinburgh by 1867.

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

Montreal medical schools

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

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

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

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

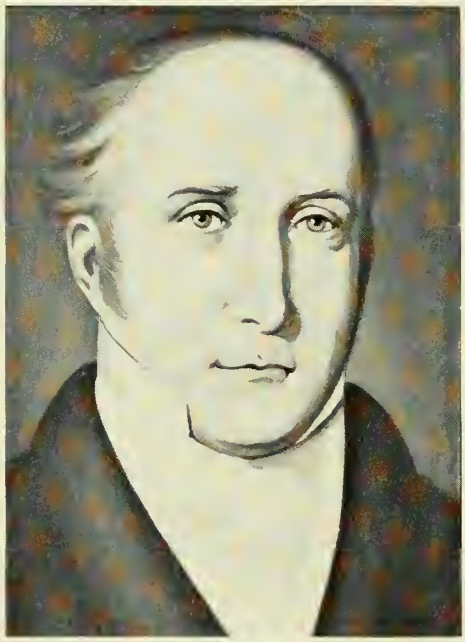
[3] Shepherd: "The First Medical School in Canada," *Canadian Medical Association Journal*, April, 1925.

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

JAMES McGILL (1744-1813)

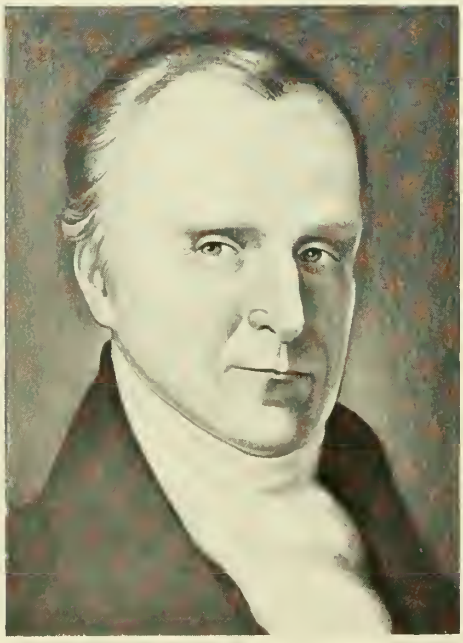
The officers of this Montreal Medical Institution were afterwards constituted the Medical Faculty of McGill, and in the year 1832 obtained a Royal charter. The professor of medicine, elected in this year, was Thomas Fargues, an Edinburgh graduate of 1811. From this small beginning the University of McGill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

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



JOHN STEPHENSON

ANDREW HOLMES (1789–1860)



WILLIAM ROBERTSON (1784–1844)

WILLIAM CALDWELL (1782–1833)

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

Quebec medical school

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

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

Queen's College, Kingston, established a medical faculty in 1855 after some two years of discussion. Six professors were appointed, of whom three had received their medical training in Scotland. Dr. John Robinson Dickson, professor of surgery, had taken a medical qualification in Glasgow; Dr. John Stewart, professor of anatomy and physiology, was a native of Perthshire and had taken the L.R.C.S. at Edinburgh, where he had studied under Dr. Knox; Dr. Fife Fowler, professor of materia medica, had been born at Elgin, Scotland, and after being apprenticed to Professor Pirrie of Marischal College, Aberdeen, graduated M.D. there in 1843.[2]

Kingston medical school

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

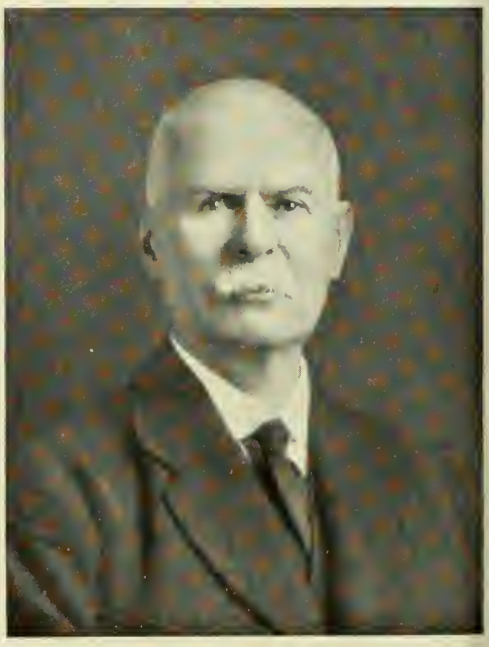
Halifax medical school

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

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

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

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



FREDERICK LE MAITRE GRASSET
(1851-1930)

Canadian medical societies

In the founding of early Canadian medical societies Edinburgh men seem to have played a special part. The Quebec Medical Society was inaugurated in 1826 with Dr. Joseph Morrin, an Edinburgh man, as president. The Medico-Chirurgical Society of Montreal, formed in 1846, had for its first president A. F. Holmes, M.D. of Edinburgh, and for one of its vice-presidents Francis Badgley, who had graduated at the same university. It is of special significance that when the Canadian Medical Association was formed in 1867, Dr. James A. Sewell, M.D. of Edinburgh, who was president of the Quebec Medical Society, presided at a meeting in Laval University, to which every practitioner in Canada had been summoned, and the first office-bearers of this association to be elected included as president Dr. Charles Tupper, M.D. of Edinburgh, and among the four vice-presidents two Edinburgh graduates in the persons of Dr. Hector Peltier, of Montreal, and Dr. R. S. Black, of Nova Scotia, with a Glasgow graduate, Dr. Le Baron Botsford, of New Brunswick.

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

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

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

Sydney medical school

SIR THOMAS ANDERSON STUART (1856-1920)

he 'seventies and 'eighties of last century the establishment of a medical school ad been discussed by several members of the governing body of the university. hese specially included Arthur (later Sir Arthur) Renwick (M.D. Edinburgh, 861) and Henry Normand (later Sir Normand) Maclaurin (M.D. Edinburgh, 1857), vho was afterwards chancellor of the university.

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

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

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

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

Foundation of the Naval Medical Service

Sir Gilbert Blane

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

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

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

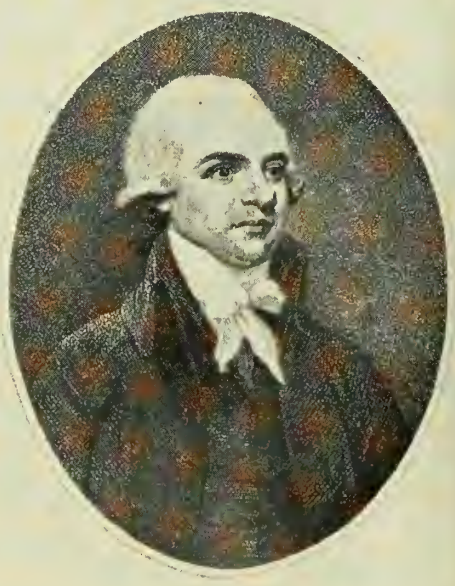
SIR GILBERT BLANE (1749–1834)
(From an unfinished portrait by Sir Martin Archer Shee, in the Royal College of Physicians, London)

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

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

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

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



THOMAS TROTTER (1760-1832)

Thomas Trotter

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

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

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

SIR WILLIAM BURNETT (1779–1861)

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

Sir William Burnett

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

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

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

SIR JOHN RICHARDSON (1787–1865)

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

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

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

Sir John Richardson

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

Arctic exploration

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

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

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

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

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

Army Medical Service

Many Scotsmen served in the Army Medical Service from its commencement towards the end of the 17th century up to the formation of the Royal Army Medical Corps in 1898.[1] In the early days of regimental surgeons, hospital mates and surgeons' mates, it is difficult to do more than guess at the origin of these from their names. By the beginning of the 19th century, however, when the Scottish universities were regularly turning out graduates in large numbers, there is a more definite indication of the schools to which they owed their early training.

Robert Jackson

Robert Jackson (1750–1827), who was born at Stonebyres, Lanarkshire, and took the M.D. degree of Leyden, was a notable reformer of the Army Medical Service, and author. He had been a regimental medical officer, head of the Army Hospital at Chatham, had seen service in the West Indies, and had been through the American War of Independence. Being promoted physician to the army on the Continent by the commander-in-chief without the approval of the Army Medical Board, he was in a state of constant friction with the latter. This was increased by Jackson's freedom in pointing out abuses in the Army Medical Service in such works as "Remarks on the Constitution of the Medical Department of the Army" (1803). The quarrel was brought to a head when Jackson thrashed the surgeon-general in the street with his cane, and being brought before a civil magistrate and charged with assault, was sentenced to six months' imprisonment in the King's Bench Prison. The Walcheren fiasco of 1809, when some 7000 men died of malaria and some 17,000 were permanently invalided by the same cause, fully justified the strictures of Jackson, and the Army Medical Board was abolished. Jackson was again employed as inspector of hospitals, and went to Spain and the Levant to study yellow fever and plague. He was a prolific writer and produced some 23 books and pamphlets. Of these, his work entitled "A Systematic View of the Formation, Discipline and Economy of Armies" (1804) became a military classic, and his "Sketch of the History and Cure of Febrile Diseases" (1817) was of great value in its time.

ROBERT JACKSON (1750–1827)

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

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

Sir James McGrigor

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

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

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

SIR GEORGE BALLINGALL (1780–1855)

Henry Marshall

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

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

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

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

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

First woman medical graduate

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

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

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

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

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

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

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

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

Thomas Alexander

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

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

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

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

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

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

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

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

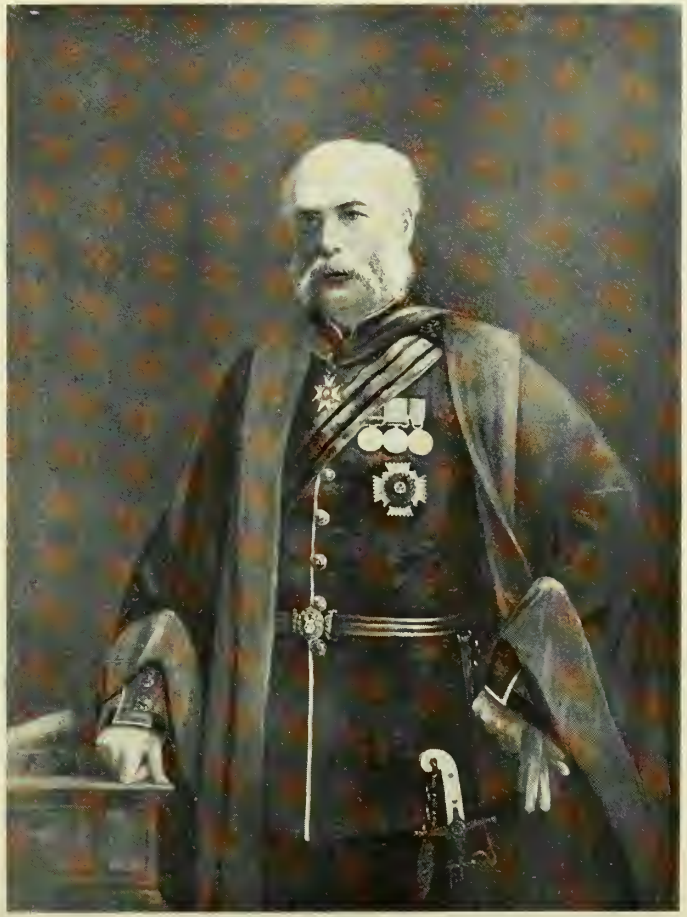
James Jameson (1837–1904) was born at Kilbirnie, Ayrshire, and graduated M.D. at Glasgow in 1857. He became director-general in 1896, and his term of office, which was associated with the early part of the South African War, was memorable for the foundation of the R.A.M.C.

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

Sir William Taylor

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

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



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

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

Sir William Leishman

Sir William Babtie
(1859–1920)

Sir William Grant Macpherson
(1858–1927)

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

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

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

Sir William Alexander Mackinnon (1830–1897)
(Original by L. Koy, in R.A.M.C. College, London)

James Jameson (1837–1904)
(Original by W. R. Symonds, in R.A.M.C. College, London)

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

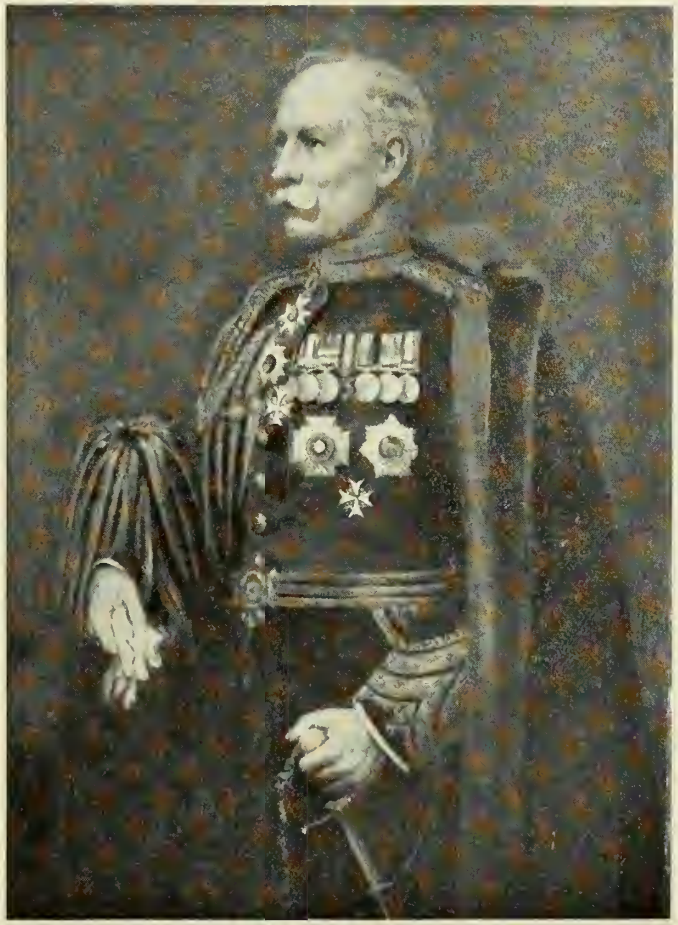
William (later Sir William) Babtie (1859–1920) was born at Dumbarton and graduated M.B. at Glasgow in 1880, joining the Army Medical Service in the following year. He served through the South African War, where he gained the Victoria Cross, and he was later deputy director-general, director of medical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

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

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

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

SIR WILLIAM BOOG LEISHMAN (1865–1926)



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

Indian Medical Service

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

Bengal Presidency.

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

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

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

Hypnotism

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

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

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

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

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

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

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

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

Sir George King

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

Cinchona

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

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

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

Madras Presidency.

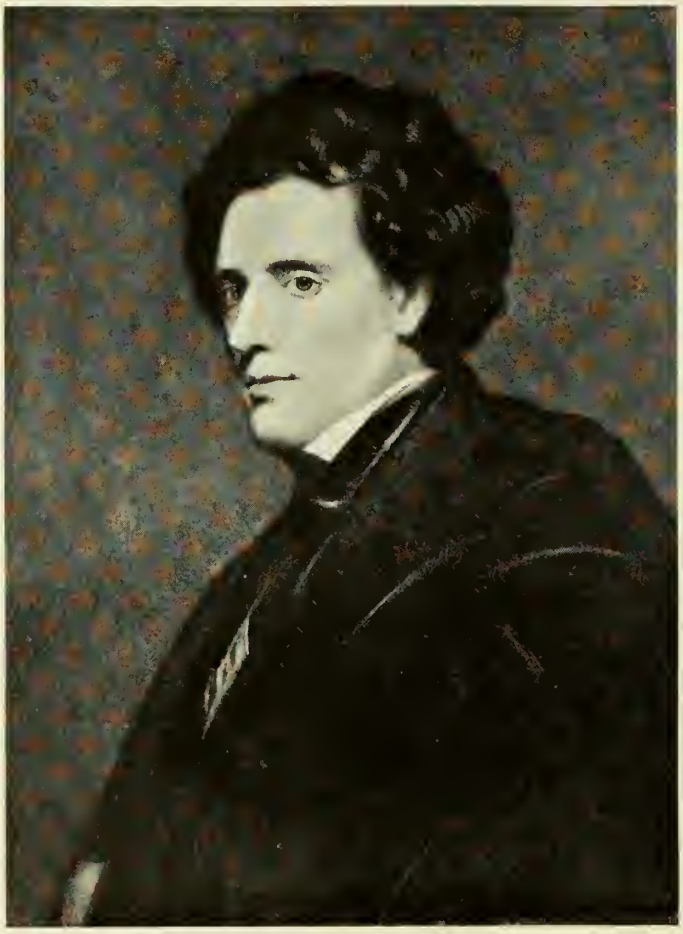
James Anderson (1738–1809), after studying at Edinburgh, entered the Madras Medical Service in 1762; he became the first president of the Medical Board with the title of physician-general in 1786; he was the author of several important letters dealing with the commerce of India, such as on cochineal,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

GEORGE BIDIE (1830–1913)

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

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

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



SIR JOHN MCNEILL (1795–1883)
(Original by Thomas Phillips, R.A., in possession of Dr. T. M. Guthrie)

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

George Bidie

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

SIR GEORGE C M. BIRDWOOD (1832–1917)

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

Bombay Presidency.

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

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

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

Foundation of Imperial Russian Medical Services

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

Early physicians in Russia

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

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

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

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

SIR JAMES WYLIE (1768-1854)

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

Sir James Wylie

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

[1] *Lancet*, 1897, Vol. II., p. 343.

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

Sir Alexander Crichton

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

Contributors to General Literature

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

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

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

SIR JAMES MACKINTOSH (1765–1832)
(Original by Sir Thomas Lawrence, P.R.A.)

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

Sir James Mackintosh

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

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

John Leyden

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

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

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

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

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

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

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

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

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

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

Samuel Smiles

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

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

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

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

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

Sir Arthur Conan Doyle

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

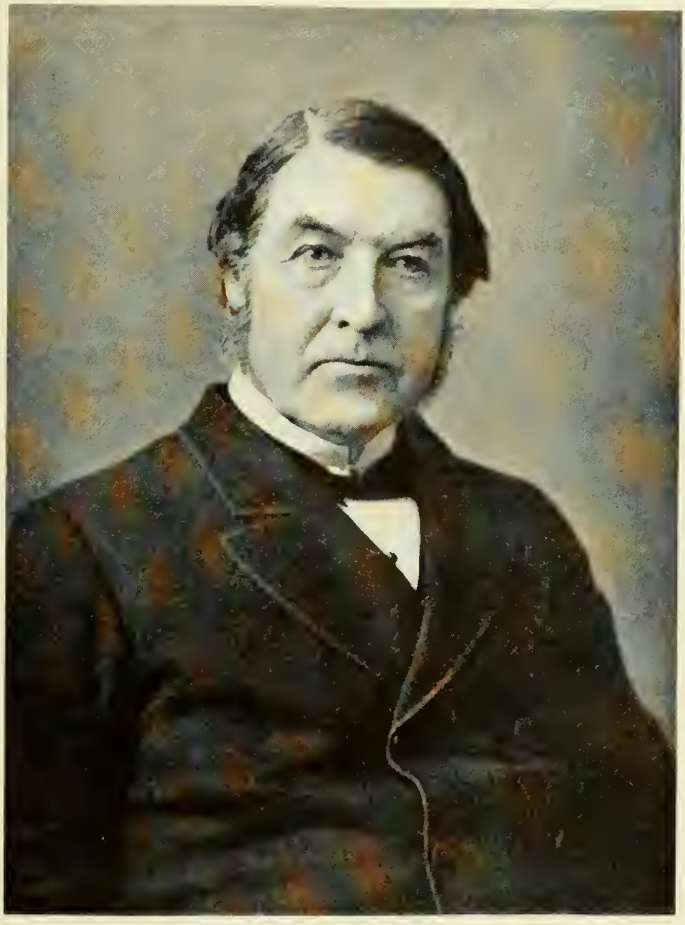
Another Edinburgh medical graduate who attained an early reputation as a writer of fiction was Andrew (later Sir Andrew) Balfour. He produced several romances which attained a great popularity, and of which the best known are "By Stroke of Sword" (1897), "To Arms" (1898), and "The Golden Kingdom" (1903),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

Scottish Medical Graduates in Politics

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

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

Sir Charles Tupper



SIR CHARLES TUPPER (1821–1915)

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

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

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

"Chinese Morrison"

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

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

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

Sir Charles Hastings

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

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

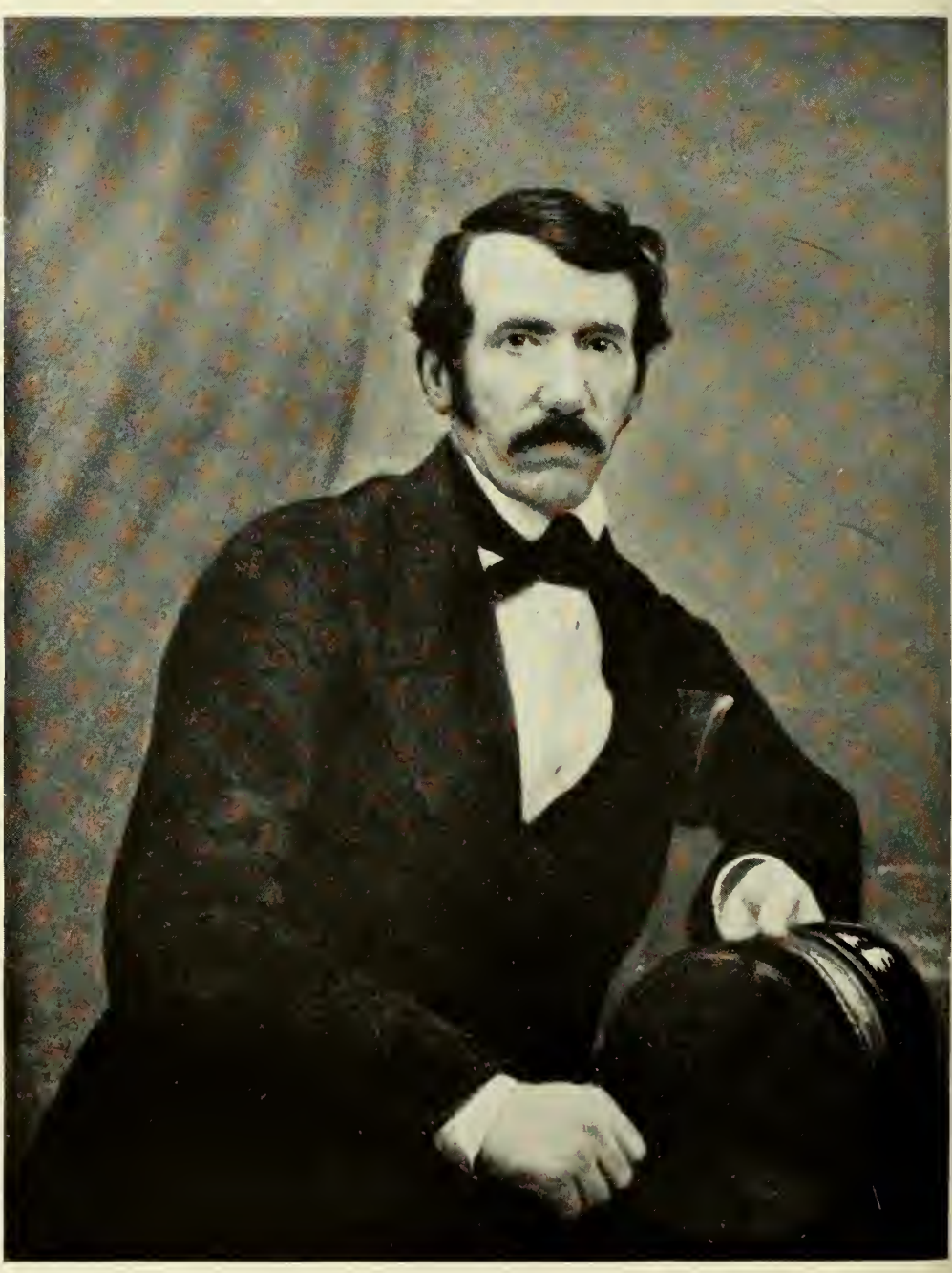
Robert Bannatyne Finlay (later Viscount Finlay) (1842–1929) was born at Edinburgh and graduated M.B. at the university there in 1864. Shortly after

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

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

Contributors to Tropical Medicine

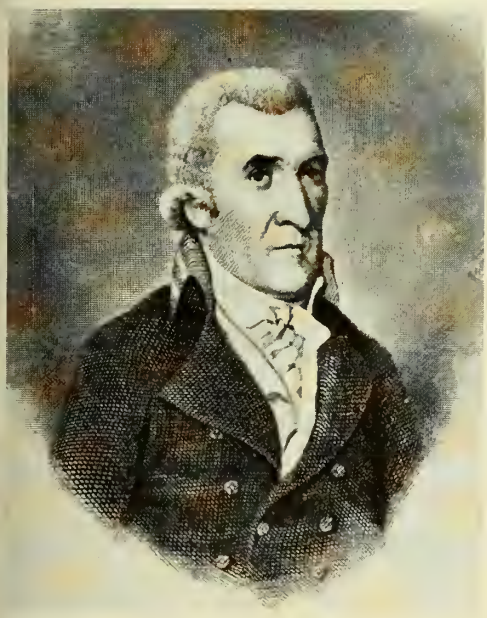
During the 19th century the part played in developing the knowledge and the treatment of tropical diseases by Scotsmen and men who had been trained at the Scottish medical schools, especially that of Edinburgh, was very great.



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

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

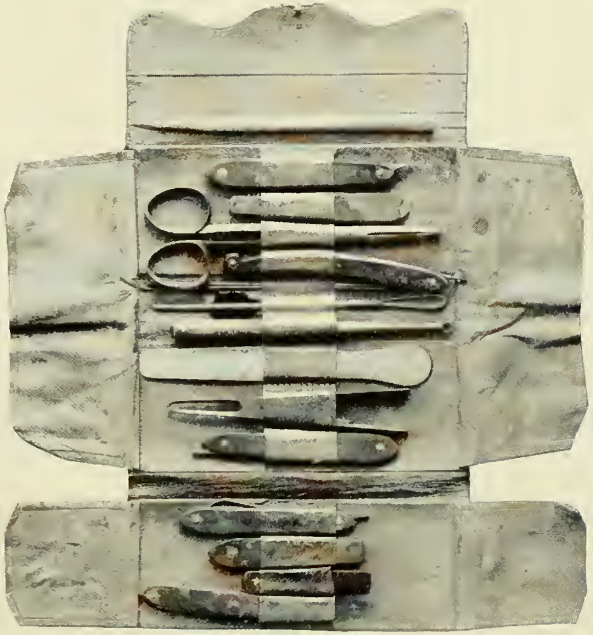
The West Indian colonies were of great importance in the 18th century, and were a fruitful field for the young practitioner. An important pioneer in the investigation of diseases which were then rife in this district of the world was James Grainger (1721–1766), of St. Kitts. He was born at Duns and graduated M.D. at Edinburgh in 1753. After acting as an army surgeon and trying practice in London for a time, he embarked for St. Kitts in 1759, and in 1764 produced "An Essay on the more common West Indian Diseases, and the remedies which that country itself produces. To which are added some hints on the management of the negroes." He had been a friend of Dr. Samuel Johnson in London, and devoted some time to poetry. His book is in advance of its day, and he wrote well and learnedly on the diseases of negroes and hygiene of negro slaves. He distinguishes two distinct types of dysentery, concerns himself with the question of "Sick Houses" or estate hospitals, and actually advocates the provision of isolation and venereal wards.



WILLIAM WRIGHT (1735–1819)

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

DAVID LIVINGSTONE'S BIRTHPLACE AT BLANTYRE
LANARKSHIRE



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

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

David Livingstone

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

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

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

His medical work

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

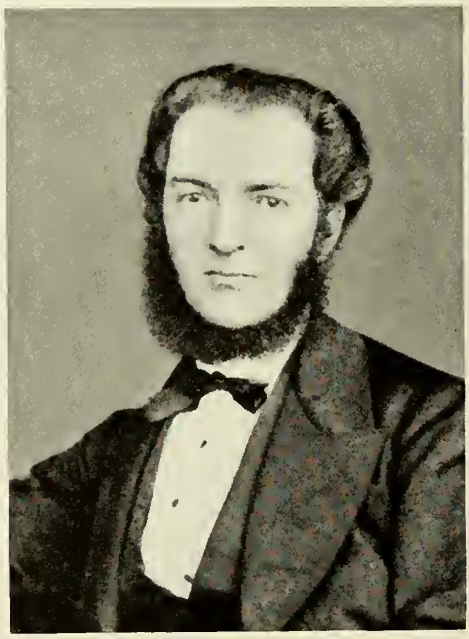
It is unnecessary here to refer to his work as an explorer, but the training he had early obtained for himself in botany and other branches of science enabled him to make observations which have proved of incalculable benefit to medicine as well as to commerce in Africa.

[1] Blaikie: "The Personal Life of David Livingstone," London, 1880, p. 11.
[2] Livingstone: "Missionary Travels and Researches in South Africa," London, 1857, pp. 194 and 509.
[3] Livingstone: Op. cit., p. 195.
[4] Livingstone: "Narrative of an Expedition to the Zambesi," London, 1865, p. 73.

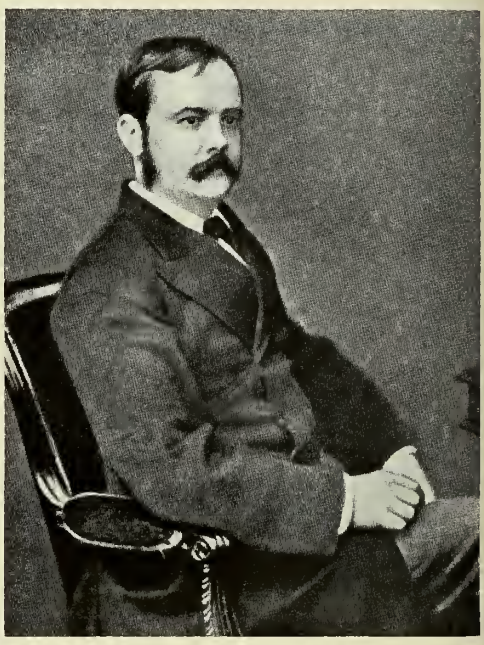
The case of surgical instruments used by him on his travels is preserved in the Hall of the Faculty of Physicians and Surgeons at Glasgow.

Sir John Kirk

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



THOMAS SPENCER COBBOLD
(1828–1886)



TIMOTHY RICHARD LEWIS
(1841–1886)

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

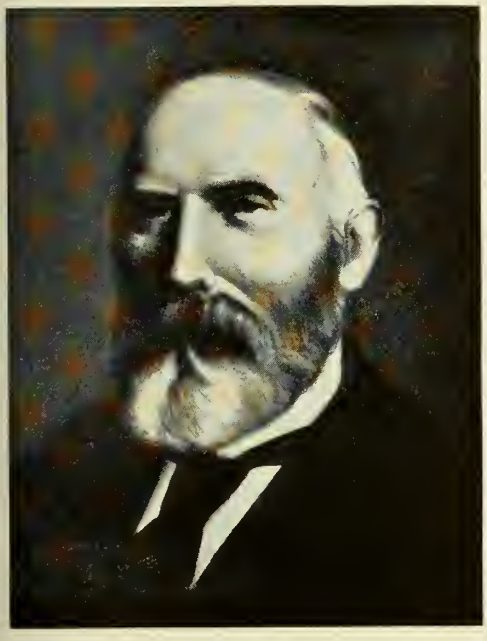
Parasitology

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

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

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

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



ANDREW DAVIDSON (1836–1918)

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

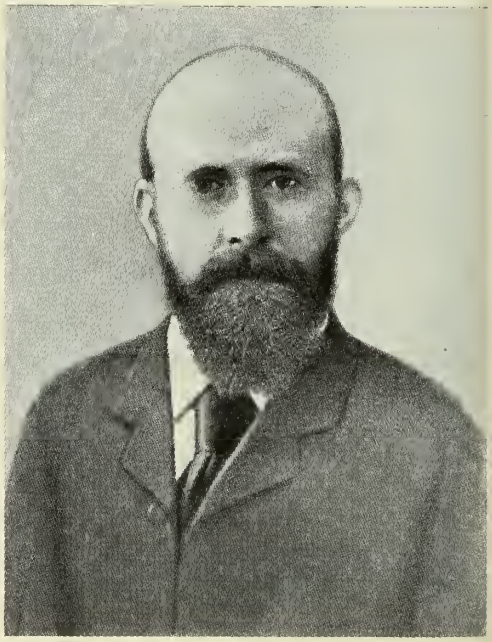
Andrew Davidson

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

Sir William Macgregor

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

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



Sir William Macgregor (1846–1919)

Sir Patrick Manson

Patrick (later Sir Patrick) Manson (1844–1922)[1] has been called the "father of tropical medicine," to which he devoted his life's work. Patrick Manson was born at Old Meldrum, Aberdeenshire, entered the University of Aberdeen in 1860, the year of its foundation, and supplemented the medical course there by spending the summer sessions at Edinburgh University, graduating M.B. at Aberdeen in 1865. He obtained a post as medical officer for Formosa to the Chinese Imperial Customs. Later he occupied a similar post at Amoy, and here, in the mission hospital, he had much practice, both medical and surgical. Here, too, he was greatly engaged in researches upon elephantiasis, the cause of different forms of ringworm, which he did much to elucidate, and malaria. Lewis, in 1870, had observed the *Filaria sanguinis hominis* in the blood, and Bancroft, in 1876, discovered the adult filaria in a lymphatic abscess. It remained for Manson, in 1877, to prove the connection between the embryos and the adult worm and the relation of both to the disease elephantiasis, which was extremely prevalent in Amoy. He next carried out the laborious task of showing that the embryo filariæ went through a process of development in the mosquito, *Culex fatigans*. This process of development in an intermediate host was a new principle in parasitology, and for its first recognition Manson deserves the credit. The application of the principle in malaria and other tropical diseases was later worked out by Sir Ronald Ross,

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

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

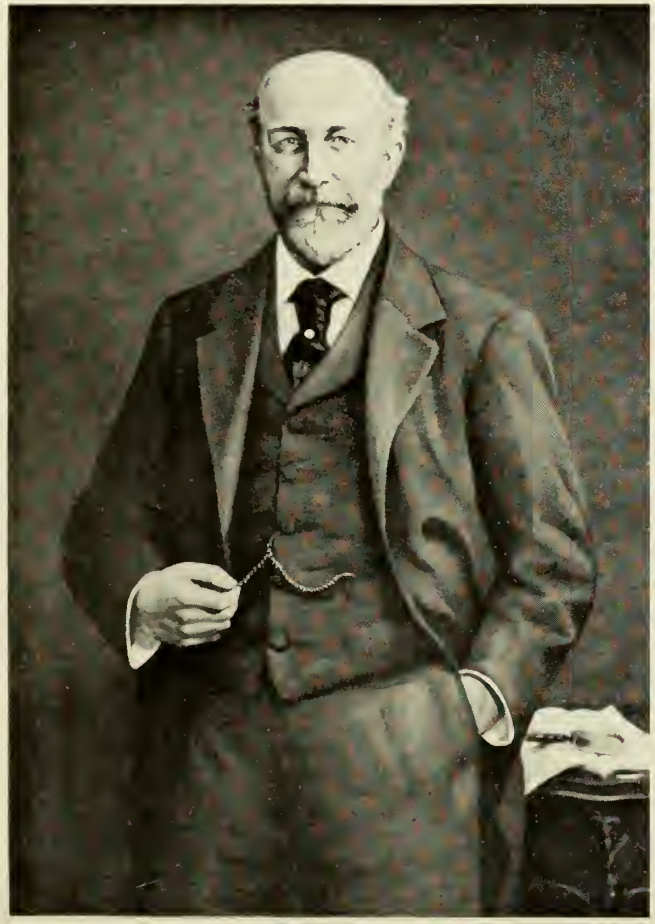
In 1883, Manson left Amoy and took up private practice at Hong Kong. Here he was elected dean of the proposed College of Medicine for the Chinese, and he was joined in practice by Dr. James (afterwards Sir James) Cantlie. After five years of hard professional work in Hong Kong, Manson decided to retire,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

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

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

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

[1] *Lancet*, 1926, Vol. I., p. 1121.



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

SIR PATRICK MANSON (1844–1922)

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

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

Sir Andrew Balfour

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

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

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

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

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

Sir Andrew Balfour (1873–1931)

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

CHAPTER XXVII

Medical Legislative Changes in the Nineteenth and Early Twentieth Centuries

For some years prior to 1858, considerable dissatisfaction had been felt with regard to the qualifications and instruction of members of the medical profession, not only in Scotland, but in other parts of Great Britain. In consequence there had been much writing and lecturing in regard to suggested improvements in medical education. Diplomas to practise before 1858

Up to the year 1858, eight bodies in Scotland had had power to grant medical degrees or qualifications, viz., the Universities of Edinburgh, Glasgow, Marischal College (Aberdeen), King's College (Aberdeen) and St. Andrews, as well as the Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow. In order to obtain a degree or licence to practise, the intending practitioner had to engage in a course of study lasting three years and to pass an examination held by one or other of these bodies. Unless, however, he intended to practise either in or near Edinburgh or Glasgow, it was quite unnecessary for him to obtain any degree or qualification whatever. Almost up to the middle of the 19th century, the M.D. degree of Scottish universities, other than Edinburgh, was not held in much favour. This was due to the practice, mentioned in previous chapters, of conferring this degree at some universities after an examination which was merely perfunctory, or even without any examination.

For practice in other parts of the country it was customary for a young man to indenture himself as apprentice to some person already in medical practice, and in this way to learn the practical side of medicine and surgery. Those who desired to occupy a position of good standing in the profession and with the public invariably took a degree or obtained a licence, although there was no compulsion on them to do so, except for practice within the jurisdiction of one or other of the three Scottish Medical Corporations.

The system of apprenticeship was dying out in the large towns between 1830 and 1850, and, by the latter year, had completely ceased in Edinburgh, although it persisted in country districts for some years longer.

This state of affairs had the unfortunate effect of failing to establish a definite line between those who were worthy to enjoy the confidence of the public and those who were quite incompetent, or who, in some instances, preyed upon the community to its detriment. Further, there was no form of control to regulate professional conduct.

The Medical Act (1858)

In 1858, two important Acts of Parliament were passed. One was "An Act to Regulate the Qualifications of Practitioners in Medicine and Surgery," better known as "The Medical Act," which took effect from October 1st, 1858. This Act set up a General Council of Medical Education and Registration for the United Kingdom, which was to be elected partly by the licensing bodies and partly by the Crown. One of the most important duties of this General Medical Council was to prepare a "Register" of medical practitioners, and to arrange for this to be correctly kept. Admission to the Register was in future to be obtained on presentation to the registrar of a diploma of one or other of the recognised examining bodies, or a diploma granted by two or more of these bodies in combination. Powers were also given to the General Medical Council, after due enquiry, to remove from the Register the name of any practitioner found guilty of any crime or offence or adjudged by the General Medical Council to have been guilty of infamous conduct in any professional respect.

At the same time, every person registered under the Act was entitled to practise in any part of Her Majesty's dominions and to recover in any court of law reasonable charges for professional aid, advice and visits. The General Medical Council was also charged with the duty of publishing a book containing a list of medicines and compounds and the manner of preparing them, to be called the "British Pharmacopœia." An amending Medical Act, containing further provisions, was passed in 1886.

As a result of these regulations, in 1859, important arrangements were made by the Royal College of Physicians in Edinburgh with the Royal College of Surgeons of Edinburgh and with the Faculty of Physicians and Surgeons of Glasgow. Both the latter bodies had the right to license in surgery, and in combination with each of these bodies the College of Physicians granted a Double Qualification, conferring upon the holder the right to practise, after registration, all branches of the profession in every part of Her Majesty's dominions. At a later date, in 1884, the three bodies united to grant a Triple Qualification instead of the two Double Qualifications as previously.

The Universities (Scotland) Act (1858)

In the year 1858, another Act of Parliament, of great importance for Scotland, was passed. This was "An Act to make provision for the better government and discipline of the Universities of Scotland, and improving and regulating the course of study therein; and for the union of the two Universities and Colleges of Aberdeen." This Act applied to the Universities of St. Andrews, Glasgow, Aberdeen and Edinburgh. At Aberdeen, King's College and Marischal College were to be united from a date to be specified by the Commissioners appointed under the Act as one university, under the style and title of the University of Aberdeen. The actual union took place in the year 1860.

The Senatus Academicus for each of the universities was to consist of the principal and professors in each university, and was especially to regulate the teaching and discipline of the university. A General Council was set up in each

university. A University Court was also established in each university for the purpose of reviewing the actions of the Senatus Academicus, effecting improvements in the university, requiring due attention on the part of the professors to teaching and other duties imposed upon them, with power of suspending professors or depriving them of office, and for the purpose of controlling and reviewing administration of the property and revenues of each university.

The Commissioners appointed under this Act drew up ordinances for the management of the various universities, which took effect in and after the year 1860. In regard to medicine, one of the principal ordinances instituted degrees of Bachelor of Medicine and Master of Surgery to be conferred after successful examination at the end of four years of professional study, for which a definite course was laid down. The M.D. degree thereafter became a higher qualification.

The Universities (Scotland) Act (1889)

By the Universities (Scotland) Act, 1889, the university court in each of the universities was given still further powers, especially to found new professorships and to make new ordinances. A certain amount of uniformity in study among the four universities was produced by a regulation that any new ordinance for one university must be submitted to the university courts of the other three. The course in medicine was by this Act extended to five years, this provision taking effect about 1893. The degree thereafter conferred upon graduation in medicine became Bachelor of Medicine and Bachelor of Surgery, the degrees of M.D. and Ch.M. being now higher qualifications.

Legislation in regard to lunacy administration was introduced about the same time as that for the better control of general medical practice.

Until the idea of having special institutions for the reception of mad people began to take shape about the year 1780, lunatics in Scotland were kept in local workhouses, prisons, special cells of hospitals and private houses. The small amount of treatment they received often took strange forms, as indicated in earlier parts of this book. The seven royal asylums were founded prior to the introduction of any important legislation, although there had been minor Acts dealing with lunacy in 1815, 1829 and 1842.

The Lunacy (Scotland) Act (1857)

In 1855, Miss Dorothea Dix, an American lady, investigated the condition of the insane in Scotland and reported very adversely upon their treatment. A Royal Commission was appointed, in 1855, to investigate the matter, and its report resulted in the Lunacy (Scotland) Act, 1857, which established a Board of Commissioners in lunacy and district boards of lunacy. This Act repealed all prior lunacy Acts, laid down conditions for the certification and restraint of insane persons, and vested the district asylums, which were subsequently established, in the district boards of control. These district asylums superseded the previously existing unsatisfactory arrangements for the accommodation of lunatics in workhouses, hospitals and small private asylums.

The Act contained two important provisions, not found in the English Lunacy Acts, which have been largely conducive to the freedom from complaint that has attended the management of insane persons in Scotland. These provisions were the power to keep under observation for six months without certification persons in regard to whose sanity there might be some doubt, and power to board out harmless lunatics with private persons.

Amending Lunacy Acts

This Act has remained in force practically unchanged to the present day, although amending Acts were passed dealing with boarded out cases, and the power of asylums to admit voluntary patients (1862), with criminal and dangerous lunatics (1862 and 1871), with deputy commissioners (1864), and with the extension of the time within which certain certificates could be granted (1866). The Judicial Factors (Scotland) Act was passed in 1880, and the Mental Deficiency and Lunacy (Scotland) Act, dealing with persons of defective mentality as distinguished from insane persons, in 1913. The last Act was intended to lead to the establishment of special training centres and work colonies for persons unfitted to adapt themselves to the strain of ordinary social life.

Public health legislation

Legislation in regard to public health in Scotland began about the same time that medical qualifications were regulated by law. Advice on important matters, like the control of epidemics, had for long been given to the municipalities of Edinburgh and Glasgow by the medical corporations in these cities, and public vaccination was carried out at the Faculty Hall in Glasgow and at the dispensaries in Edinburgh from the beginning of the 19th century. The enormous prevalence of preventable disease as late as 1855 may be gathered from the fact that in Glasgow more than one death in every three was at that time due to infectious diseases, including phthisis, while, in 1925, the deaths due to these causes had fallen to about one in six.[1]

Among the earliest Acts affecting sanitation in Scotland were the Cholera Acts of 1832 and the Nuisance Removal (Scotland) Act of 1846. The Scottish Registration Act of 1854, had important medical bearings, as also had the Scottish Vaccination Act of 1864. An important movement towards greater sanitary cleanliness was initiated by the Cattle Sheds in Burghs (Scotland) Act of 1866, and by the Scottish Public Health Act of 1867, and about this time medical officers of health began to be appointed in the larger towns (Edinburgh in 1862 and Glasgow in 1863).

Notification of infectious disease

Notification to the public health authority of cases of infectious disease was first obtained for Edinburgh in 1879, and was gradually adopted in other burghs. Compulsory notification became operative for the whole of Scotland in 1899. In connection with this, a movement for the establishment of hospitals for infectious diseases gradually took place, and this did much to limit outbreaks of such diseases.

[1] Chalmers: *Glasgow Medical Journal*, February, 1928, p. 191; *see also* Russell: "Public Health Administration in Glasgow," Glasgow, 1905; *and* Russell: "The Evolution of the Function of Public Health Administration," 1895.

The Scottish Education Act of 1872, brought the juvenile part of the population for the first time under administrative control, and formed a necessary preliminary to the child welfare measures of the following century. The Dairies and Milk Shops Order of 1879 was of great importance in regard to the prevention of epidemics, particularly of enteric fever, which were now being traced to the milk supply, and much was done for the protection of health by the imperial Acts dealing with the sale of food and drugs in 1875, 1879 and 1899.

A public control over milk, sufficient to prevent disease and to ensure that milk should be clean and wholesome, was obtained by the Milk and Dairies (Scotland) Act, 1914, which, however, did not come into operation until September, 1925, and grading of milk, which was established by statute in 1922, rendered available a clean and tubercle-free supply for infants and children.[1]

A practice had gradually grown up among purveyors of food by which various preservatives were added to meat, cream, beverages, milk, butter, etc. As these were often deleterious in effects, preservatives were forbidden by regulations introduced by the Scottish Board of Health in 1925, since which no preservatives except sulphur dioxide and benzoic acid have been allowed in food.

Public Health (Scotland) Act (1897)

The systematic control of matters affecting the public health in Scotland began only with the Public Health (Scotland) Act of 1897, which formed the basis for many subsequent extensions by amending Acts. By this Act the Local Government Board for Scotland was set up.[2] The functions in regard to health discharged by this board were taken over in 1919 by the Scottish Board of Health, which was a combination of the Local Government Board for Scotland, the National Health Insurance Commission of Scotland and the Highlands and Islands (Medical Service) Board. It was in turn replaced by the Department of Health for Scotland under the Local Government (Scotland) Act of 1929. By this Act parish councils, education authorities, district committees and district boards of control were abolished, and their functions, together with the important health functions of small burghs, were transferred to county councils and to town councils of large burghs on May 16th, 1930.

Department of Health instituted

National Health Insurance Act (1911)

The National Health Insurance Act of 1911 had already produced important effects upon medical practice in Scotland as elsewhere, especially by providing a better general medical service for the working classes and more assured remuneration for the practitioners attending upon them.

Medical inspection of school children

Medical inspection and treatment of school children had been in operation before the war. The Royal Commission on Physical Training (Scotland) had recommended in their report at the beginning of the century that provision should be made for regular medical inspection of the children in all schools. Dr. William Leslie (later Sir Leslie) Mackenzie, medical officer of the Local Government Board, had interested himself specially in this matter, and his book[3]

[1] " Tenth Annual Report of the Scottish Board of Health for 1928," Edinburgh, 1929, p. 24.
[2] Brock : " Sanitary Laws of Scotland and Principles of Public Health," London and Edinburgh, 1905, p. 5.
[3] Mackenzie and Matthew : " The Medical Inspection of School Children," Edinburgh, 1904.

on the "Medical Inspection of School Children" was the first attempt to give form and substance to this recommendation, but these services were only properly co-ordinated since 1919 after the Education Act of 1918.

Central Midwives Board

The passing of the Midwives' (Scotland) Act, 1915, and the establishment of a Central Midwives Board for Scotland, resulted in better attendance for lying-in women. Following upon this, sustained efforts were made to safeguard the health and well-being of infants and young children, which resulted in a Maternity and Child Welfare Service, initiated during the war. This had considerable effect in the reduction of infantile mortality in Scotland, as well as in the increased health of children prior to attaining the age of attendance at schools. Such schemes were made possible by the gradually improving supply of district nurses, which followed upon the establishment of the Institute for Nurses, founded in 1889, as a permanent memorial of Queen Victoria's Jubilee.

District nurses

The Registration of Nurses (Scotland) Act, 1919, established a register of qualified nurses and a General Nursing Council in this country. By formulating rules for the training of nurses and holding State examinations in the large training centres, the Nursing Council improved and standardised the general qualifications of nurses.

Medical services in Highlands and Islands

An important change in the medical services of the Highlands and Islands took place after 1912. This region comprises half the land surface of Scotland, and includes about one-fifteenth of its population. Owing to distance and difficulties of transport, the conditions of medical service in some parts of the area during the 19th century had been little better than those depicted at the beginning of Chapter X., and it was impossible to render to the inhabitants of outlying islands and distant glens the medical provision guaranteed by the National Health Insurance Act of 1911. On the recommendation of the Dewar Committee, the Highlands and Islands (Medical Service) Grant Act, 1913, provided an imperial grant to improve medical service, including nursing. Its operation was delayed by the war, but subsequently district nurses were established in remote districts. In 1929, an Additional Grant Act was passed, and by this time the advent of the light motor car had made possible in many places a full and efficient nursing service, while specialist, surgical and other services were firmly established in the islands of Orkney (Kirkwall), Shetland (Lerwick), and Lewis (Stornoway), as well as in other places on the mainland.[1]

Local Government (Scotland) Act (1929)

The Local Government (Scotland) Act of 1929, handed over to town and county councils the various matters connected with the health of the public in Scotland, and important developments in connection with this are adumbrated by the schemes for a general medical service for the nation, and a better co-ordinated hospital service, proposed by the British Medical Association.

[1] "First Annual Report of the Department of Health for Scotland for 1929," Edinburgh, 1930, p. 113.

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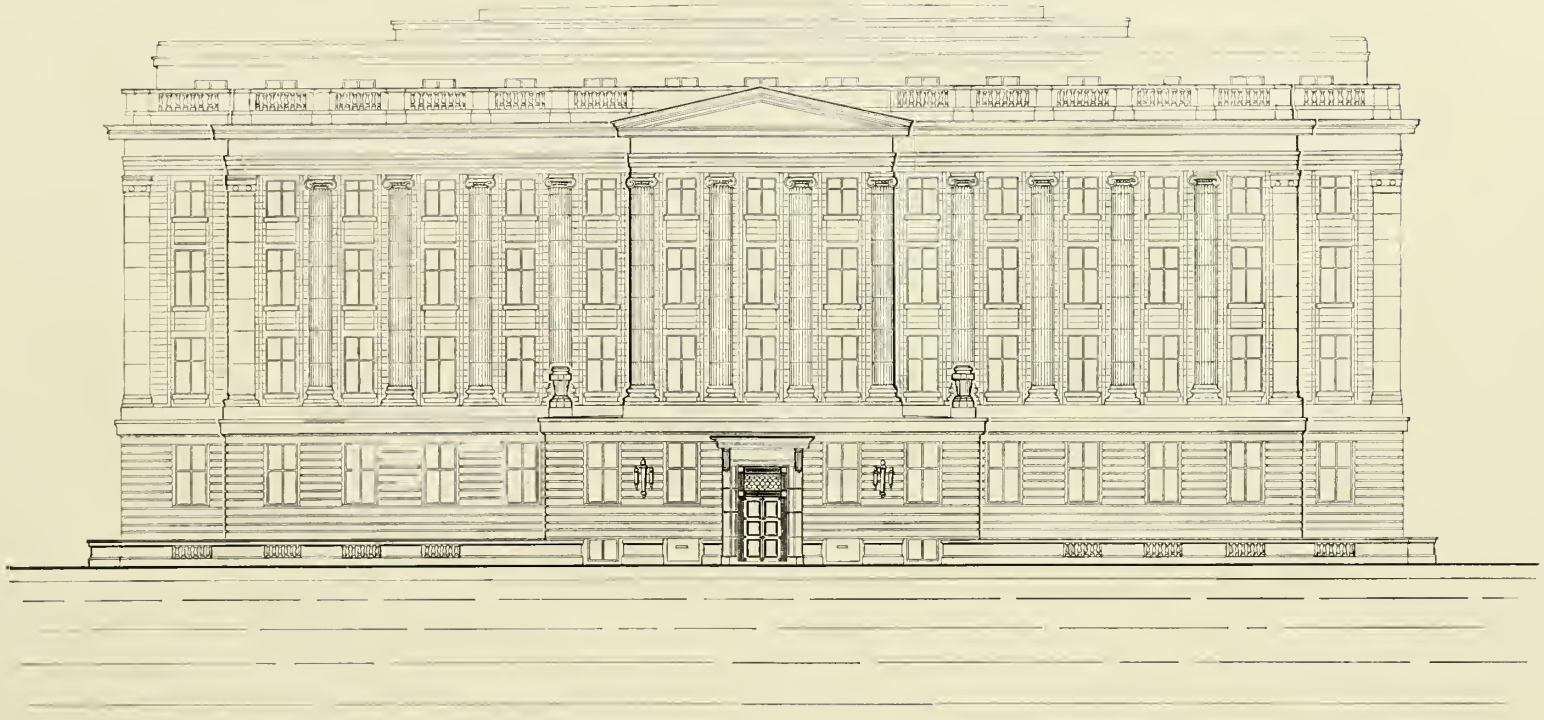

THE WELLCOME RESEARCH INSTITUTION

Corner of Gordon Street and Euston Road

Septimus Warwick, F.R.I.B.A., Architect

Built by Trollope & Colls. Ltd., for
The Wellcome Foundation Limited

The Wellcome Research Institution

Embracing the following affiliated Research Laboratories and Museums

BUREAU OF SCIENTIFIC RESEARCH

PHYSIOLOGICAL RESEARCH LABORATORIES

CHEMICAL RESEARCH LABORATORIES

HISTORICAL MEDICAL MUSEUM

MUSEUM OF MEDICAL SCIENCE

ENTOMOLOGICAL FIELD LABORATORIES

The Wellcome Foundation Ltd. is constructing a new research building at the corner of Gordon Street and Euston Road, on a site measuring 225 feet by 135 feet, previously occupied by their Bureau of Scientific Research. It is to provide accommodation for the Wellcome Research Laboratories and Museums, except the Physiological Research Laboratories, which are located at Langley Court, Beckenham, Kent, in grounds 108 acres in extent, and the Entomological Field Laboratories, which are situated in open country at Claremont, Esher, Surrey.

During many years the Foundation has maintained medical and chemical research laboratories and museums, but recent developments have made it necessary further to co-ordinate and extend their activities.

The new building will furnish the additional accommodation required, and will be provided with the most modern scientific equipment.

Details of the above Research Institutions and Museums as they existed prior to the foundation of the Wellcome Research Institution are given on the following pages.

FOUNDED IN 1913

THE WELLCOME
BUREAU OF SCIENTIFIC RESEARCH
(THE WELLCOME FOUNDATION LTD.)

C. M. WENYON, C.M.G., C.B.E., M.B., B.S., B.Sc., F.R.S.
Director-in-Chief

Endsleigh Court, 33, Gordon Street
LONDON, W.C.1

ALL THE INSTITUTIONS HEREIN REFERRED TO ARE AFFILIATED TO THE BUREAU.

The Bureau, which was reconstructed and enlarged in 1926, is devoted to the study and investigation of medical problems more particularly in their relation to tropical medicine and hygiene. It consists of a series of research laboratories, library, art studio, photographic department, animal houses, preparation rooms and The Museum of Medical Science which is described below.

In the research laboratories, twelve in number, researches are conducted in various branches of medical science, including medical zoology, parasitology, bacteriology, pathology, chemo-therapy, tropical medicine and hygiene, and other subjects.

The library, which is open to members of the medical profession and others for purposes of reference, contains representative standard works, reprint files and current medical literature dealing more especially with the subjects of research mentioned above.

Routine teaching is not undertaken at the Bureau, but individual workers who wish to follow any particular line of investigation may be given accommodation and facilities for their studies.

Information is given gratis to medical men, health officers and others at home and abroad, with a view to assisting them in their work and investigations.

The results of the researches carried out at the Bureau and at the affiliated Laboratories mentioned below are published for the most part in various scientific periodicals and transactions. In addition, books dealing with special subjects are published from time to time by the Bureau.

222 Scientific Publications and Reports issued from the Bureau

ESTABLISHED IN 1920

THE ENTOMOLOGICAL FIELD LABORATORY OF THE BUREAU OF SCIENTIFIC RESEARCH

M. E. MACGREGOR, M.A., D.SC., *Entomologist*

The Entomological Field Laboratory was originally located at the Royal Horticultural Society's Gardens at Wisley, Surrey, where, through the courtesy of the Society's Committee and the Director of the Gardens, suitable laboratory accommodation was provided. It has now been transferred to more commodious premises at Claremont, Esher, Surrey.

This Laboratory carries on researches into the life-history and habits of such noxious insect pests as mosquitoes, etc., etc., a careful study of which in the field affords the surest means of discovering methods for their control and extermination.

FOUNDED IN 1914

THE MUSEUM OF MEDICAL SCIENCE INCLUDING TROPICAL MEDICINE AND HYGIENE

S. H. DAUKES, O.B.E., B.A., M.D., B.CH., D.P.H., D.T.M. & H.

Director

Endsleigh Court, 33, Gordon Street
LONDON, W.C.1

This Museum, which comprises twenty halls, presents an entirely new system of visual teaching.

The purpose and plan of the Museum is to give a general survey of human disease from every aspect. The causation, pathology, symptomatology, treatment and prevention of disease are demonstrated by means of pathological specimens, models, paintings, photographs, etc., in such a way that they convey a graphic picture of the more important features.

Associated with each disease a short summary is set forth of the important points; also there is a file containing abstracts with regard to all the more recent work.

A museum demonstration of the microscopic side of morbid anatomy presents certain difficulties; an effort has been made to overcome these by means of colour photo-micrography. In many of the halls these photographs

are shown in special illuminated cases. Thus attempt has been made to provide a continuous demonstration of disease which will fix itself on the attention and memory of those who visit the Museum.

The Museum of Medical Science is open to all Medical Men, Health Officers and Students, also to laymen interested in medicine, provided they are introduced by a registered Medical Practitioner.

Many Teachers of Medicine have found this Museum helpful to them in effectually illustrating the various branches of Medical Science to their Students, and they are cordially invited to continue such use of the Museum. Arrangements can be made in advance for teachers to give demonstrations to their classes.

PROGRESS AND ARRANGEMENT. At the present time, whilst many sections of the Museum are complete and well supplied with material, some sections, which have only recently been organised, are in an early stage of development. Much of its success depends upon the continued co-operation, help, advice and generous contribution of specimens and information by Medical Men and other Scientists interested in this field of work in various parts of the world. Indebtedness for such help is most gratefully acknowledged.

FOUNDED IN 1894

THE PHYSIOLOGICAL RESEARCH LABORATORIES

R. A. O'BRIEN, C.B.E., M.D., B.S., D.P.H., *Director*

Langley Court, BECKENHAM, KENT

The development of Therapeutics from a largely empirical code into an experimental science is one of the most striking and significant results of the world-wide scientific activity which has characterised the past half-century. The change has been brought about by the immense advances in the contributory sciences of Pathology, Bacteriology, Physiology and Pharmacology, which, indeed, may all be said to date their history as experimental sciences from within the same period.

A recognition of this development, and a desire to promote original research in these fields, led to the foundation of The Wellcome Physiological Research Laboratories, the activities of which cover a wide field of therapeutic investigation in Bacteriology, Physiology with Pharmacology, Serology and Veterinary Medicine. The Laboratories are at Beckenham, on an estate of one hundred acres, with seven main buildings containing approximately sixty laboratories.

The production of anti-sera and of bacterial preparations for specific inoculation, and the researches in bacteriology and the mechanism of immunity arising from the development of this Department of Therapeutics, have been an important part of the work of the Laboratories from the time of their foundation.

The Pharmacological Department carries on investigations into the mode of action and the nature of the active principles of drugs, both new and old, of vegetable and animal origin, and the production by synthesis of substances identical with, or related to, the naturally occurring active principles, both in structure and in physiological action. In addition to the drugs which have thus been investigated from all points of view in The Wellcome Physiological Research Laboratories, many others have there been physiologically examined, which owe their production or chemical investigation to The Wellcome Chemical Research Laboratories or the Experimental Department of the Wellcome Chemical Works.

Incidental to this pharmacological work has been research on the purely physiological problems which it suggests and involves. Methods have also been originated and developed for controlling and standardising by physiological experiment the activity of those potent drugs to which chemical methods of assay are not applicable.

The Veterinary Department is carrying out valuable investigations into the etiology, prophylaxis and treatment of diseases of domestic animals.

While devoted primarily to original research, the results of which appear from time to time through the ordinary channels of scientific publication, the Laboratories have performed much valuable work of a practical nature.

260 Scientific Publications and Reports issued from these Laboratories

FOUNDED IN 1896

THE CHEMICAL RESEARCH LABORATORIES

T. A. HENRY, D.SC. (Lond.), *Director*

6, King Street

LONDON, E.C.1

When these Laboratories were established over 30 years ago, little was known regarding the composition of many of the natural drugs in common use, the production of synthetic drugs was just beginning, and few chemists had the temerity to work at such biological problems as the isolation of hormones. The advance in therapeutics made since then has been mainly in these three directions, and the work done in these Laboratories has been of the varied character necessary to keep in touch with these lines of progress. Many natural drugs have been exhaustively investigated and their active principles isolated and characterised. In association with The Wellcome Physiological Research Laboratories, these have been examined pharmacologically, and, as a result, the use in medicine of many natural drugs has been placed on a sound scientific basis, and in some instances alkaloids and other active principles of plants have been made available to the physician in a pure condition for the first time.

The information gained in these investigations has suggested new lines of work for the production of synthetic drugs, and many new substances of this kind have been prepared and tested.

Recently, with the co-operation of The Wellcome Bureau of Scientific Research and The Wellcome Physiological Research Laboratories, much attention has been given to work on organo-metallic compounds for the treatment of specific protozoal diseases.

These varied investigations have involved the solution of many purely chemical problems, and have therefore led to valuable additions to our knowledge of pure chemistry, as well as to results of practical therapeutic value.

255 Scientific Publications and Reports issued from these Laboratories

FOUNDED IN 1913

THE HISTORICAL MEDICAL MUSEUM

HENRY S. WELLCOME, LL.D., F.S.A.
Director

L. W. G. MALCOLM, M.SC. (Cantab.), F.R.S.E.
Conservator

54, Wigmore Street, Cavendish Square
LONDON, W.1

This Museum contains extensive collections of rare instruments, appliances and other objects, also pictures, sculpture, manuscripts, early printed books etc., etc., illustrating the evolution and practice of medicine and allied sciences throughout the world from prehistoric times, and includes a section dealing with primitive medicine and surgery amongst the savage and semi-civilised peoples of to-day.

One of the central aims of the Museum is to connect the links in the chain of human experience and living things from the very beginning and to trace the genesis of the many branches of the healing art and their development. This undertaking is illustrated by instruments, appliances and other objects connected therewith.

MEMORIAL COLLECTIONS. It is an important feature in the plans of this Museum to conserve the relics and other objects, manuscripts, drawings, etc. associated with workers who have made history by their discoveries, inventions and improvements in the various departments of medicine and allied sciences. It is the special aim and purpose to hand down to posterity the names and records of those who in the course of time might be forgotten, thus rendering honour to whom honour is due. Such relics, etc., when placed in this Museum, will form a permanent memorial and tribute to the work and achievements of those who have distinguished themselves in various realms of science in past years.

Many of these collections have been presented to the Museum by the families, executors, friends and admirers of such workers. Gifts or loans of this description will always receive the greatest possible care and be permanently preserved. Special Sections are devoted to such MEMORIAL COLLECTIONS. Amongst these collections are the following :—

THE JENNER COLLECTION. An extensive collection of personal relics, manuscripts, paintings, sculpture, drawings, instruments, etc., of Dr. EDWARD JENNER, connected with his development of vaccine treatment of small-pox.

THE LISTER COLLECTION. An important collection of appliances, chemical reagents and apparatus, and various other materials used by LORD LISTER in the development of his methods of antiseptic surgery, as practised by him in the Lister Ward of the GLASGOW INFIRMARY and elsewhere. A section of the actual ORIGINAL LISTER WARD, transferred from the Glasgow Infirmary when it was dismantled, is now erected in The Wellcome Museum, together with the fittings and equipment (all being of the original material), including Lister's original portable laboratory containing the remainders of his reagents with which he carried out his original antiseptic experiments.

The importance of Museums as an integral part of teaching is now fully recognised, and by intelligent, scientific classification and systematic grouping of objects, it is the aim and purpose to make The Wellcome Historical Medical Museum of distinct educational value to research workers, students and others interested in the subjects with which it deals.

Numerous Publications on the History of Medicine and Allied Sciences have been issued from this Museum

"THE ASSOCIATION OF MUSEUMS WITH RESEARCH INSTITUTIONS IS AN IMPORTANT FEATURE OF MODERN SCIENTIFIC WORK."

HALL OF STATUARY—THE WELLCOME HISTORICAL MEDICAL MUSEUM
54, WIGMORE STREET, CAVENDISH SQUARE, W.1

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BARRIER CHARTS FOR HEALTH OFFICERS (Second Edition): A synopsis of Preventive Measures against Communicable Disease, in Four Tables. By S. H. Daukes, O.B.E., B.A., M.D., B.Ch., D.P.H., D.T.M. & H. Each Chart is printed on a separate four-fold card in red and black inks, the whole being enclosed in a strong case. The Charts deal with four groups of diseases—Alimentary, Respiratory, Inoculation, Contact—and each Chart gives tabulated information regarding: Habitat of Infective Agent, Incubation, Infective and Quarantine Periods, and the Barriers which can be set up against each disease, etc. Embracing, as they do, that branch of preventive work which deals with the control of communicable disease, these Barrier Charts have proved of special value for the teaching of Hygiene, not only as regards popular education, but also as a foundation upon which an advanced syllabus may be built. They provide a synopsis of routine measures to be taken, and are also of great value for reference in emergency. They embrace the more important communicable diseases of tropical as well as temperate climates. They are of special interest and particular value to Medical Officers of Health; Sanitary Inspectors; Professors; Lecturers; Demonstrators and Students of Medicine; Public Health Preventive Medicine; Hygiene and Sanitation; Hospitals and Medical Schools—Civil, Naval and Military; Public Health Departments; Schools of Army or Navy Sanitation; Medical Missionaries; Medical Officers of Shipping Companies; Port Sanitary Authorities; etc., etc. Price 3*s.* 6*d.* net; post free in United Kingdom, 3*s.* 8*d.* Published by Baillière, Tindall & Cox, London (Eng.), for The Wellcome Foundation Ltd.

EXTRACTS FROM PRESS REVIEWS:

"A volume of absorbing interest."—*Lancet.*

"Bound to make a wide appeal to all those engaged in the administration "of our Colonies and Dependencies, as well as to those concerned with sanitary "service."—*Tropical Diseases Bulletin.*

WAR AGAINST TROPICAL DISEASE (SECOND EDITION): Being Seven Sanitary Sermons addressed to all interested in Tropical Hygiene and Administration. By Sir ANDREW BALFOUR, K.C.M.G., C.B. In seven profusely-illustrated chapters this volume places the extensive experience of the Author at the disposal of all interested in hygienic methods for combating Tropical Diseases. The results recorded are the fruits of special study and observation extending over a number of years and a wide area, both in the New World and the Old.

Experience has been gathered by the Author as a result of civilian work and military service—the latter in the South African Campaign and in nearly all the fields of operations in the Great War.

The conditions prevailing in many countries have been studied and, during the late war, a unique opportunity was available, owing to the fact that practically all the tropical and sub-tropical war areas were visited, thus permitting useful comparisons to be instituted.

The book has been written along somewhat novel lines, so that it may appeal to a wider class of readers than that usually served by works on Preventive Medicine. For the same reason it has been lavishly illustrated, and care has been taken to include many illustrations which are both interesting and informative.

220 pages, with 180 illustrations in colour, half-tone and line, and 8 pages of index. Frontispiece and maps in colours. Crown Quarto. Cloth Binding. Price 12*s.* 6*d.* net; post free in United Kingdom, 13*s.* 3*d.* Published by Baillière, Tindall & Cox, London (Eng.), for The Wellcome Foundation Ltd.

EXTRACTS FROM PRESS REVIEWS:

" . . . . . In addressing different audiences, Dr. Balfour treats his subject from " many points of view, but always with an erudition and felicity of expression which " do the fullest justice to the intrinsic interest of his theme. Interwoven with the " subject-matter is a wealth of anecdote and apt quotation, and the result is a volume " of absorbing interest, which the reader is not likely to lay aside till he has perused " it to the last word. In a lecture on preventive inoculation against typhoid and " cholera, originally delivered at a meeting of the Research Defence Society, nothing " is lost through the presentation of the subject in non-technical language, and the " essential facts of immunity are indicated in a manner which is intelligible to those " who do not possess a strictly scientific training . . . . ."—*Lancet.*

" . . . . . A very good series of sermons they are; well calculated to impress " the lay public, for whom they are chiefly intended, with the vital importance of " hygiene in the Tropics.

" Dr. Balfour is well equipped for the rôle of an Apostle of Health. Not only " has he himself been a redoubtable warrior in the War against Tropical Disease, " but he has also made a place for himself in literature and brings the pen of an " experienced writer to support his doctrines.

"Though primarily addressed to the general public, the book is bound "to make a wide appeal to all those engaged in the administration of our "Colonies and Dependencies, as well as to those concerned with sanitary "services . . . . . "—*Tropical Diseases Bulletin.*

" . . . . . Dr. Balfour's volume is an important and interesting record of "researches undertaken in the course of the work of the Bureau, founded in 1913, "by Mr. Henry S. Wellcome.

" . . . . . It is plentifully illustrated by documentary photographs, and gives "ample evidence that the Bureau is doing noteworthy work in the advancement "of medical science and sanitary administration."—*Scotsman.*

HUMAN INTESTINAL PROTOZOA IN THE NEAR EAST: By C. M. Wenyon, C.M.G., C.B.E., M.B., B.S., B.Sc., F.R.S., and F. W. O'Connor, M.R.C.S., L.R.C.P., D.T.M. An enquiry into some problems affecting the spread and incidence of intestinal protozoal infections of British Troops and Natives in the Near East, with special reference to the "carrier" question, diagnosis and treatment of amœbic dysentery, and an account of three new intestinal protozoa.

The work carried out in Egypt, of which this paper forms the report was undertaken at the request of Surgeon-General Sir William Babtie, V.C., K.C.M.G., at that time P.D.M.S., M.E.F., in consultation with the Medical Advisory Committee. Its object was threefold, namely, an investigation into the carrier problem of amœbic dysentery amongst the troops with a view to the possible elimination of the carriers; secondly, an inquiry into the best method of administering emetine to carriers and actual dysenterics, with the object of establishing some uniform line of treatment which would give the maximum of good result; and, thirdly, an examination of the fly transmission of amœbic dysentery by means of cyst carriage, and a determination of the best means of destroying the resistant amœbic cysts after their escape from the body.

218 pages, including 8 pages of index; 4 pages of plates, with complete descriptions of each; and other illustrations. Crown Quarto. Cloth Binding. Price 10*s.* 6*d.* net; post free in United Kingdom, 11*s.* 3*d.* Published by John Bale, Sons & Danielsson, Ltd., 85, Great Titchfield Street, London, W. 1 (Eng.), for The Wellcome Foundation Ltd.

EXTRACTS FROM PRESS REVIEWS:

"The publication is a very valuable one, and presents many new aspects of "intestinal protozoal infection, particularly in relation to *Entamœba histolytica.*

"The book is divided into four parts, dealing respectively with:—

"1. The incidence of protozoal infections amongst British troops and natives in "Egypt, with special reference to the carrier problem of the amœbæ of dysentery.

"II. The characters and diagnosis of the various intestinal protozoa of man in Egypt, "with a description of three new forms.

"III. Treatment of *E. histolytica* and other protozoal infections of the human "intestine.

"IV. Experimental work with the human intestinal protozoa, their carriage by "house-flies and the resistance of their cysts to disinfectant and other agents.

"There is also an Appendix with histories of cases treated, and some most useful "plates illustrating the different types of intestinal protozoa. Altogether a most "useful book."—*Medical Journal of Australia.*

"This very helpful volume contains a revised issue of the authors' well-known "Report on the human intestinal protozoa in Egypt, published during 1917 in the "*Journal of the Royal Army Medical Corps*, to which has been added an Appendix "giving the history of the cases treated. After giving an account of the methods of "collecting material and of examining various groups of men for protozoal infections, "the authors describe the characters of the intestinal organisms, especially *Entamœba* "*histolytica*, *E. coli* and *E. nana*, the last-named being a new species which proved "to be one of the commonest protozoa in the human intestine in Egypt.

"One of the chief practical problems considered is that relating to carriers: "'cases may remain as healthy carriers for long periods without showing any signs "of dysentery,' but on microscopical examination of their fæces the characteristic "quadrinucleate cysts of *Entamœba histolytica* are found. Observations on "the part played by house-flies in carrying protozoal infection from fæces "to food demonstrate the importance of the measures directed against flies. "Examination of the droppings of 229 flies captured in a hospital compound "showed that eighteen of the flies had deposited cysts of protozoa or eggs of "parasitic worms."—*Edinburgh Medical Journal.*

MOSQUITO SURVEYS: A Handbook for Anti-Malarial and Anti-Mosquito Field Workers. By MALCOLM E. MACGREGOR, M.A., D.Sc., Entomologist, The Wellcome Field Laboratory, The Wellcome Bureau of Scientific Research. With Foreword by Sir RONALD ROSS, K.C.B., K.C.M.G., F.R.S. An essential addition to the library of all those whose work is wholly, or partly, concerned with the study and prevention of mosquito-borne disease in all parts of the world.

Sufficiently portable to be the constant companion of the field worker and so comprehensive as to be an encyclopædia of reference for laboratory workers. Deals exhaustively with Laboratory and Field Technique. Medical Officers of Health and all engaged in anti-malarial and anti-mosquito campaigns will find "Mosquito Surveys" indispensable in the hitherto difficult task of identification and classification of species.

282 pages, liberally illustrated, 62 maps, diagrams and photographs. Crown Octavo. Cloth Binding. Price 15*s.* net; post free in United Kingdom, 15*s.* 9*d.* Published by Baillière, Tindall & Cox, London (Eng.), for The Wellcome Foundation, Ltd.

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". . . . For all the detail of a mosquito survey, undertaken as one of the "essentials of a malaria survey, the worker in the field and the laboratory could "not wish a better book than this."—*Tropical Diseases Bulletin.*

"Too often medical sanitarians concerned in anti-mosquito work find themselves "sorely handicapped by the lack of a guide over the great gulf between the necessarily "elementary instruction they have received and the highly technical monographs "which assume wide previous knowledge on the part of their readers. Those "who have suffered thus will find in this volume the essential information "they require."—*Journal of the Royal Army Medical Corps.*

"Sir Ronald Ross tells us in his foreword that 'Mosquito Surveys' was written "for The Wellcome Bureau of Scientific Research, Endsleigh Gardens, by 'a very "accomplished expert in the subject of which he treats, and the book "itself is, perhaps, a fuller exposition of that subject than has yet appeared.' "We are in whole-hearted agreement with these statements, which call for no "further comment."—*Journal of Tropical Medicine and Hygiene.*

THE MEDICAL MUSEUM.—Modern Developments, Organisation and Technical Methods based on a New System of Visual Teaching. By S. H. DAUKES, O.B.E., B.A., M.D., B.Ch., D.P.H., D.T.M. & H. Describes a system which links up the various branches of medical work in one demonstration, and provides detailed practical information regarding the formation, arrangement and classification of such a museum. 184 pages. 45 photographs and diagrams, Appendices describing methods of preservation of specimens, bibliography and full index. Crown Quarto. Cloth Binding. Published by The Wellcome Foundation Ltd., London.

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"The author is precise, clear, and has obviously devoted much study, skill and "care to a subject on which this book stamps him as an expert. . . . Everyone "interested in museums, whether in regard to construction, development, control or "use, should read and study this book."—*Journal of Tropical Medicine and Hygiene.*

"'The Medical Museum' will prove an invaluable book of reference. Furthermore, "it will bring home to many readers the manifold advantages of the visual method of "instruction, whether their interests are those of the teacher, the medical under-"graduate or the student of a larger growth."—*Tropical Diseases Bulletin.*

PUBLICATIONS OF THE WELLCOME HISTORICAL MEDICAL MUSEUM LONDON

THE authors of these publications have rescued from the oblivion of the past much medical history which, otherwise, would have been unavailable, or accessible only with difficulty.

The contents of these volumes are fascinating to all interested directly or indirectly in medicine, and are of outstanding value to students and research workers in medical history.

The quality of production is in harmony with the excellence of the subject matter, and each book is abundantly illustrated.

DE ARTE PHISICALI ET DE CIRURGIA of Master John Arderne, Surgeon of Newark, dated 1412. Translated by Sir D'ARCY POWER, K.B.E., from a transcript made by ERIC MILLAR, M.A. 60 pages. 14 plates in colour and monochrome. Crown Quarto. Cloth Binding. Price 10*s.* 6*d.* net; post free in United Kingdom, 11*s.* 6*d.* Published by John Bale, Sons & Danielsson, 85, Great Titchfield Street, London, W. 1 (Eng.), for The Wellcome Foundation Ltd.

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"Mr. Henry S. Wellcome has increased the already heavy debt of gratitude "owed him by historical students by causing to be published a translation of the "old Newark practitioner's De Arte Phisicali et de Cirurgia. The editor and translator "is Sir D'Arcy Power, which is a concise way of saying that text, notes and intro- "duction leave nothing to be desired. The translation is of an illuminated MS. "from an early fifteenth century hand, preserved in the Royal Library, Stockholm. "The editor says that it 'omits much, adds something, and takes out entirely the "personal element and quaint touches which make the original manuscript such "excellent reading.' Sir D'Arcy Power is much too modest in the appraisement "of his literary wares; indeed, any one of the thirteen beautiful plates with which "the volume is embellished established a better claim to be called picturesque than "most historical monographs."—*British Medical Journal.*

"This translation has been carried out by Sir D'Arcy Power, K.B.E., F.R.C.S., "from a transcript made by Mr. Eric Millar, M.A., from a replica of the Stockholm "manuscript in The Wellcome Historical Medical Museum. Born in 1307, Arderne "practised in Newark from 1349 until 1370, when he came to London. He was "essentially an operating surgeon whose practice lay amongst the nobility, wealthy "landlords and higher clergy. He was evidently a sound practical surgeon and

" well abreast of knowledge of surgical craft in his days. The manuscript, which " is here given, is an epitome in Latin made some years after Arderne's death. " The present volume contains thirteen plates and a coloured frontispiece, and the " numerous and unique illustrations mirror well the quaint ingenuity of those " responsible for art in the fourteenth century. The book will afford fascinating " reading, and will assuredly stimulate interest in the study of medical and surgical " lore of bygone days."—*Medical Times.*

" This excellent rendering of the text into modern English makes this volume " a most convenient peep-hole into mediæval medicine."—*Times.*

MAGISTRI SALERNITANI NONDUM COGNITI: A Contribution to the History of the Medical School of Salerno, by Doctor PIETRO CAPPARONI, General Secretary of the " Instituto Storico Italiano dell' Arte Sanitaria," Counsellor of the " Società Italiana di Storia delle Scienze mediche e naturali." With a Foreword by Sir D'ARCY POWER, K.B.E. 68 pages. 28 plates in colour and monochrome. Crown Quarto. Cloth Binding. Price 15*s.* net; post free in United Kingdom, 15*s.* 6*d.* Published by John Bale, Sons & Danielsson, Ltd., 85, Great Titchfield Street, London, W. 1 (Eng.), for The Wellcome Foundation Ltd.

EXTRACTS FROM PRESS REVIEWS:

" This book constitutes a valuable contribution to the history and diplomatics " of the Medical School of Salerno. When on military duty in Salerno in 1916 " Dr. Capparoni had an opportunity of studying a very rare manuscript belonging to " the Library of St. Matthew's Cathedral, and from this was gleaned much information " not hitherto known relating to this medical school, which has been incorporated " in the present volume. Sir D'Arcy Power points out that a medical school was " founded at Salerno in the twelfth century. This school increased until the " fourteenth century, after which it gradually diminished in importance until it was " summarily suppressed by Napoleon in 1811. This book, which is the second " volume of Research Studies in Medical History issued by The Wellcome Historical " Medical Museum, is illustrated by a coloured frontispiece and twenty-seven unique " and exquisitely executed plates, and cannot fail to attract the attention of keen " students of medical history, all the more so if they are interested in medical " archæology."—*Medical Times.*

" Everything connected with Salerno is of interest to the medical profession, " and we congratulate Dr. Capparoni on having made some notable additions to the " already published and valuable researches of De Renzi and Piero Giacose, the fruit " of his study of a MS. belonging to the Library of the Cathedral of Salerno. Before " entering on a description of the MS. and his researches therein, Dr. Capparoni " gives a most interesting historical review of Salerno and its medical school, " which probably began somewhere about the eleventh century, though there had " been a hospital as early as the year 820. He gives his readers a number of " illustrations, reproduced from photographs of various leaves of the MS. and of " other documents in the Cathedral of St. Matthew. Dr. Capparoni has conferred " a real benefit upon all those interested in the history of medicine, and altogether " the book is a joy both to read and to look at."—*Lancet.*

THE ICONOGRAPHY OF ANDREAS VESALIUS (André Vésale), Anatomist and Physician. 1514–1564. Paintings—pictures—engravings—illustrations—sculpture—medals. With notes, critical, literary and bibliographical, by M. H. SPIELMANN, F.S.A. 244 pages. 68 plates in addition to text illustrations. Crown Quarto. Cloth Binding. Price 30s. net.; post free in United Kingdom, 31s. Published by John Bale, Sons & Danielsson, Ltd., 85, Great Titchfield Street, London, W.1 (Eng.), for The Wellcome Foundation Ltd.

The Iconography of Vesalius was for many years a mixed question of debate in artistic and medical circles, and everyone, except perhaps the owners of certain of the "portraits," will welcome the critical and authoritative contributions to the question which Mr. M. H. Spielmann has now made. Vesalius, by the publication of his "De humani corporis fabrica," in 1543, laid the foundation of genuine anatomy and freed medicine from the trammels of authority. The general opinion of men of science was voiced by Sir Arthur Keith when he wrote that "in the quality of his work Vesalius is akin to Shakespeare." In characteristic fashion he continues: "Now and again there is born into the world a man who, turning his back on the lore of his forefathers, seeks for his information direct from the book of nature. Vesalius was one of these; he read and translated for his fellows the text of the human body from the original imprint. He studied the dead body to learn how the living body moved and had its being. Vesalius breathed life into the dead human body; in this act he still stands supreme."

EXTRACTS FROM PRESS REVIEWS:

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