



The Edinburgh Influence on Early American Medicine

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Abstract

Mr. President and Gentlemen, thank you very much for the honour of your invitation, for the courtesy of your presence and for what I am afraid will have to be the patience of your listening.

I think it is not inappropriate to gather together some of the connections of our Medical School with the formative years of American medicine, and to present it in these rooms, for it seems that many of the American students to be mentioned were members of this ancient and honourable Society.

Important as have been the impulses derived from other sources, kinship, community of language and intercourse have combined to render the influence coming from Scotland the dominant one in the development of American medicine. This is particularly true of the Colonial period and the first half-century of independence of the United States.

It has been quite amazing to me to discover so many connections between this School of Medicine and the United States. There does not appear to be one state that has not had some connection in this way, and, indeed, I have had to make a selection and have inevitably omitted many.

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THE EDINBURGH INFLUENCE ON EARLY AMERICAN MEDICINE

By WALTER MERCER, Kt., F.R.C.S.

Extracts from the Inaugural Address to the Royal Medical
Society on Friday, 13th October, 1961.

Mr. President and Gentlemen, thank you very much for the honour of your invitation, for the courtesy of your presence and for what I am afraid will have to be the patience of your listening.

I think it is not inappropriate to gather together some of the connections of our Medical School with the formative years of American medicine, and to present it in these rooms, for it seems that many of the American students to be mentioned were members of this ancient and honourable Society.

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America could boast of many educated and distinguished practitioners prior to the founding of the first Medical School in Philadelphia in 1765. The educated physicians were probably located on the Eastern seaboard in Pennsylvania, New York, Maryland and the Carolinas. The majority had gained their knowledge by apprenticeship, which often meant picking up fragmentary information on diseases during casual conversations with the doctor, and by medical reading. There were only sporadic attempts to impart instruction in groups—especially in anatomy.

NEW YORK

One of the most distinguished, as well as one of the earliest practitioners was Cadwalladen Colden (1688-1766). Colden, the son of a Presbyterian minister of Duns, Berwickshire, graduated M.D. in Edinburgh in 1705. He emigrated soon after, and practised in Philadelphia from 1708 to 1715. Finally he settled in New York. He had a wide scientific interest and published articles on botany and other subjects. He wrote an "Essay on Iliac Passion,"

an old term for what we call appendicitis, which was printed by Benjamin Franklin at Philadelphia in 1741.

Founded in 1754 by a Royal Grant from George II, Columbia College in New York began as King's College. After the revolutionary war it was reopened as Columbia College and in 1912 the title was changed to Columbia University in the City of New York.

I should now like to consider a group of men centred about the medical department of this King's College who organised this, the second medical school in the American Colonies. There was John Band, then the most influential man in New York. However, he did not have any connections with Scotland except that his son, Samuel, came to Edinburgh. He sat under Cullen, Monro and Fergusson, carried off the Hope Medal, and gained his M.D. in 1765. Like a number of men from the Colonies he was a member of the Royal Medical Society. Band wrote home at this time saying that he hoped to start a Medical School at New York. His dream came true and he was made Professor of Medicine (1767 - 1776) at King's College. He addressed the first men to receive their medical degrees on the "Duties of a Physician." This was published and became a medical classic and is known as the first American publication on medical ethics. His plea for a hospital was not in vain and in 1767 a medical department within King's College was instituted. The medical school was opened with six professors, of whom four had been in Edinburgh. In 1780 Band operated on George Washington and opened a large carbuncle of the thigh.

John Jones belonged to the same King's College group. He studied in London under William Hunter and Percival Pott, and later studied in Edinburgh. He did the first lithotomy in New York and attended Benjamin Franklin in his last illness. When it was founded in 1767 Jones became the Professor of Surgery and Obstetrics at the Medical Department of King's College.

It was Peter Middleton and John Band who carried out dissections at New York (1752)—the first in the country, it is said, to be done before a class. Middleton was born in Scotland, and, after graduating in Edinburgh, served in a surgical capacity at the Battle of Culloden (1746). Later he received an M.D. at St. Andrews and was a member of the Royal Medical Society in 1740. He practised in New York and helped to organise the Medical School at King's College, and, in the Medical Faculty, was Professor of Pathology and Physiology (1767 - 1776) and of Materia Medica (1770 - 1776). He was the earliest historian of American medicine.

It would appear that these three men, Band, Jones and Middleton, all with Edinburgh connections, held between them many medical chairs in the new Medical Department of King's College.

There were, however, two other men with Edinburgh connections in New York at this early period. Samuel Lothian Mitchell (1764 - 1831) obtained his M.D. degree in Edinburgh in 1786 and became a life member of the Royal Medical Society. He did not keep strictly to the path of medicine but became Professor of Natural History, Chemistry and Botany at Columbia College. He founded the first American medical journal, the *Medical Repository*. John S. Bellings said of Mitchell that he had very properly been called a "choc of knowledge".

One of the best known medical practitioners in New York at the end of the 18th and beginning of the 19th Century was David Hossack. After taking his medical degree in the University of Pennsylvania he came to Edinburgh for two years and was a member of the Royal Medical Society. He practised

as partner of Samuel Band and was the first person in America to tie the femoral artery for aneurysm. He was also Professor of Botany at Columbia College and he founded the Elgin Botanical Gardens in 1801—now the site of the Rockefeller Center.

Nathan Smith, Professor of Physics in the Medical College at Yale was the son of a farmer in Massachusetts. He saw an operation and wanted to know more about the craft of surgery. In 1790 he graduated at Harvard and asked for approval to found a medical college at Dartmouth. Help was postponed, so, perhaps to perfect himself, he went to Edinburgh. From there he sent to America £30 worth of medical books and on his return established the Medical College of Dartmouth, being appointed Professor of Anatomy, Surgery and Chemistry. His lectures excited the greatest interest. President Wheelock, Smith's greatest helper, was so impressed that after returning from a lecture he led evening prayers in the Chapel by saying "Oh Lord, we thank thee for the oxygen gas, we thank thee for the hydrogen gas, and for all the gases. We thank thee for the cerebrum, we thank thee for the cerebellum and for the medulla oblongata." In some of his methods Smith was 50 years in advance of his time. His ingenuity was displayed in his manoeuvre in reducing congenital dislocations of the hip joint. He was the second person to perform ovariectomy and, perhaps, was entitled to the same honours as McDowell since the operation was the result of deliberate study and done in ignorance of McDowell's first operation 12 years previously.

CAROLINAS

The Carolinas owe much to Scottish settlers. Indeed there would seem to be a trace of Scottish accent even to-day in the speech of Charlestonians. In these early days much Gaelic was spoken. A Commonwealth Fund Fellow wrote: "One old man told me a tale of three young Highlanders who rowed up a river in the closing years of the eighteenth century and landed at the bluff not far from Crosscreek. They saw a negro approaching and resolved to have a mild joke at his expense and asked him in Gaelic the way to the plantation for which they were bound. The slave belonged to Scottish settlers and spoke little else but Gaelic himself. He answered them in the dialect. It was the newcomers' turn to be surprised. 'Yes indeed,' said the negro, 'I am also Gaelic, and when you have been here as many years as I have, you will be just as black too.' The three jesters immediately jumped into their waiting boat and made haste to leave such an unhealthy atmosphere."

Dr. William Walshe says of the physicians of his time (1750 - 1775) that there was not a more attractive and cultivated group of medical men. Of these, Chalmers, Moultrie and Gardner were trained in Edinburgh.

Lionel Chalmers was born in 1715 in Argyllshire and studied in Edinburgh; he practised in South Carolina for 40 years. His papers on opisthotonos and tetanus were published by a society of physicians in London in 1767. He was succeeded by Tucker Harris, a Charlestonian who graduated in Edinburgh M.D. in 1771. Later, Harris became one of the original members of the Medical Society of South Carolina constituted in 1789.

The first native of Carolina to obtain an Edinburgh degree was John Moultrie in 1749. His son James was instrumental in organising the first Medical School in the Southern States which came into existence in 1824. This ever-persistent faculty carried on lectures and proceeded to open a hospital for the express purpose of bed-side teaching.

WEST INDIES

James Lind, known as the Father of Nautical Medicine, was born and educated in Edinburgh. After qualifying at 23 and obtaining his M.B. in Edinburgh in 1748 he entered the Navy and spent much of his time in the West Indies, carefully observing and recording everything he saw.

In 1753 he published his classic treatise on scurvy. This treatise contains the simple account of his classic experiment on scurvy which seems to have been the first deliberately planned controlled experiment ever undertaken on human beings. The results of his experiment are simply stated. Two patients with scurvy were given two oranges and a lemon or lime daily; at the end of six days they were fit for duty. At that time in the Navy as many men died from scurvy as from battle wounds. A consultant physician of today (F. M. R. Walshe) remarked that "Dr. James showed what scurvy is due to and advised its treatment with lemon juice as we do today." The Navy adopted Lind's recommendation after an interval of forty years. It was 150 years before physiology, having taken that time to come round to it, discovered the existence of Vitamin C.

PHILADELPHIA

About the middle of the 18th century, when American students were coming to Edinburgh in increasing numbers, without doubt the primary attractions were the eminence of its teachers and the practical training the school could offer. There were, however, other influences at work, above all the council and guidance of Benjamin Franklin, who availed himself of his friendship with Cullen and other professors to give letters of introduction which opened hospitable homes in Edinburgh.

Treated on terms of friendship and esteem by the most intellectual circles in Britain, Franklin used his opportunities to aid his countrymen in their efforts to better cultural affairs in America and the profession of medicine at least amply repaid him. He was responsible for Americans later notable in medicine coming to Edinburgh to study the subject—men such as Shippen, Morgan, Kuhn, Rush, and many others. He wrote much on medical matters, on diet, the heat of the blood, lead poisoning, and gout. In 1787 he was elected an Honorary Member of this Society for his service to medicine.

One who bore a letter of introduction from Franklin was William Shippen. After a period of study in London and Edinburgh, where he graduated M.B. in 1761 and was elected later an Honorary Member of the Royal Medical Society, he returned to Philadelphia and took up practice and teaching. The Pennsylvania Hospital had been founded in 1751 with Franklin as the first President, but medical education may be said to date from 1762 when William Shippen began anatomical demonstrations in his father's house. Shippen was learned, eloquent, equable and kind. He had a pleasing personality and a fine sick-room presence. He guided the medical department of the American Army during a considerable part of the revolutionary war. He was a co-founder of the first American medical school, a noted pioneer teacher, and a skilled surgeon and obstetrician.

Until the temporary abrogation of the charter in 1779 every member of this faculty of the first American medical school was a graduate in medicine of the University of Edinburgh.

Some time later Cullen received another letter from Franklin—"I thank you for your civilities you were so good as to show my friend, Mr. Shippen, last year. Give me leave to recommend one more friend for your advice and countenance. The bearer, Mr. John Morgan, is a young gentleman of Philadelphia whom I greatly esteem."

John Morgan was one of the most important men in American colonial medicine. He was born in 1735 and later came to Britain to work with William Hunter. He then spent two years in Edinburgh where he graduated M.D. in 1763, having become a member of the Royal Medical Society in 1762. He talked with his teachers of his plans to form a medical college. This he did on his return to Philadelphia in 1765. The Medical Department of the University of Pennsylvania, then known as the College of Philadelphia, thus became the first medical school in the American colonies. Morgan was the first Professor of Medicine and Shippen was Professor of Surgery and Anatomy. Morgan's inaugural address is a medical classic. In it he outlines a scheme for transferring medical sciences into the seminary and for the improvement of every branch of the healing art. Possibly he says, in a few years a plan may be adopted conformable to that which is followed in the so justly celebrated School of Physic in Edinburgh.

Shippen and Morgan were joined by Adam Kuhn in 1768 and Benjamin Rush in 1769—both graduates of Edinburgh University. Kuhn was a Professor of Botany and *Materia Medica* and was one of the founders. In 1808 he became President of the College of Physicians of Philadelphia. Little is known of his writings save a short letter on "Diseases succeeding transplantations of teeth"! He entered the sick room at a given time, stayed a given time, and never suffered a deviation from his habits.

Now we come to the last of the quartet—Benjamin Rush—the most conspicuous medical character of the century in American history. He came to Edinburgh armed with letters from Franklin to friends here. He graduated M.D. in 1768 and became a member of this Society in 1767. Rush was admitted as a "Burgess and Guild brother of the City in its most ample form". Unfortunately I do not know why this honour was conferred on a medical student of 22. His life in Scotland was noteworthy, quite apart from his medical associates, by his friendship with Wotherspoon whom he strongly and successfully urged not to refuse a second invitation to become President of Princetown.

Three subjects were close to his heart: the freeing of negroes; the abolition of the death penalty; and the restriction of the use of alcohol and tobacco. However, he wrote of the disease, thermic fever, describing it and its treatment in "An account of a disease occasioned by drinking cold water in warm weather." In regard to his statement "medicine is my wife and science is my mistress," Dr. Holmes has added the caustic comment—"I do not think that this breach of the seventh commandment can be shown to have been of any legitimate advantage to the owner of his affection."

He recognised but two kinds of remedies, stimulants and depressants, and held it to be the principal duty of the physician to decide as to which was the most advisable in a given case. He called calomel "the Samson" of *materia medica*, and his opponents contended that he was right since undoubtedly it had slain its thousands.

I should mention another more recent Philadelphian, Silas Weir Mitchell. He was of Scottish origin. Weir Mitchell's own scientific relations with both London and Edinburgh were close. He was an F.R.S., a member of the Medical Society of London and the Clinical Society of London, and in 1895 he received the Edinburgh LL.D. He was wont to refer with much pride to the close connections which existed between Edinburgh and the early medical institutions of Philadelphia. Weir Mitchell was the leading American neurologist of his time. He had many writings to his name and investigated arrow poison. He wrote "Injuries to Nerves," one of the earliest accounts of nerve lesions.

VIRGINIA

One of the most distinguished naturalists and medical men in Virginia in the early part of the 18th century was John Mitchell. He studied botany under Charles Alston at Edinburgh in the early part of the 18th century and settled in Virginia in 1721. He described many plants and also suggested full bleeding and purgation as treatment for yellow fever.

James Craik, who became a well-known physician in Virginia, was born in Arbigland, Dumfries, and studied medicine in Edinburgh. He treated the mortally wounded General Braddock at the battle of Mononghabela in July 1754. Later he became a close friend of George Washington and attended him in his last illness.

Arthur Lee was among the fourth generation of a family which had been in Virginia since 1641. He was sent to school in Eton, England, and later studied medicine in Edinburgh. He was a friend of Samuel Johnson and said "Johnson's outward appearance is very droll and uncouth. The too assiduous cultivation of his mind seems to have caused a very great neglect of his body."

From Johnson he learned that at Cambridge or Oxford students were never permitted to attempt Physic until seven years study had enabled them to take a degree of Master of Arts. "If you have time and a large fortune go to either of those. If you would choose immediately to enter upon physic and to attain knowledge therein to carry you through life at a small expense and a short time, by all means go to Edinburgh, for this Scottish education is like a house, built to last a man's lifetime." Boswell described him as "an old friend of mine" when he studied physic in Edinburgh. In 1755 the committee on *Secret Correspondence of the Continental Congress* asked Lee to become a confidential correspondent in London. So, as secret agent there, he was the first diplomatic agent of the American nation.

Apparently the Virginian students of medicine were the only ones from the American colonies who had their own organisation in Edinburgh. The second article relating to the Virginia Club states that "This institution is supposed to be solely for the improvement of the members in anatomy." The third article is curious—"That every member of the club shall make it his endeavour if possible for the honour of his profession not to degrade it by hereafter mingling the trade of apothecary (or surgeon) with it."

Ephraim McDowell, the father of ovariectomy, was born in Virginia in 1771 and started medicine as an apprentice in Stanton, Virginia. Three years later he came to Edinburgh to complete his studies under John Bell.

McDowell, through Bell's eloquent teaching, was early impressed with the sad and hopeless fate of women afflicted with ovarian disease. One, Mrs. Crawford, was suffering from an ovarian cyst. No surgeon had ever dared hazard an abdominal operation and, indeed, all were opposed to it. McDowell knew that if he operated and she died, no doctor would disagree with a coroner's jury that found him guilty of murder. He describes the operation, which was carried out while she sang hymns. The tumour was so large that he first had to cut it open and remove 15 lbs. of dirty gelatinous fluid and then the sack weighing 7½ lbs. It was only by threats that he induced her to remain an invalid for 22 days but at the end of that time she insisted on riding back to her neglected family.

MASSACHUSETTS

James Tyler attended medical lectures in Edinburgh and supported himself by acting as surgeon on a trip to Greenland. After a number of financial difficulties he sailed for Salem, Massachusetts, and became a prolific writer on a variety of subjects.

MARYLAND

The State of Maryland, too, bears the imprint of the Edinburgh School. Gustav Brown, who studied in Edinburgh, went ashore from an English vessel. A storm carried the vessel out to sea, leaving Dr. Brown to an enforced habitation. He later became a well known and much liked practitioner.

The name Upton Scott (1772-1814) is a famous one in the history of medicine in Maryland. He studied in Edinburgh and was a member of the Royal Medical Society. After a career in the army, during which he attended General Wolfe, he helped to found the Medical Faculty of Maryland at Annapolis and became its first president.

CONCLUSION

I have tried to present a picture of some of the men educated in part in Edinburgh who went, afterwards, to America and in the early formative years did something for American medicine. It was on the foundations laid by these pioneers in medical education that America built her medical schools. The Edinburgh School owes a debt of gratitude to these pioneers who carried across the Atlantic the reputation of their own school and added to it by their own endeavours.

That visitors from the Edinburgh School are so welcome to-day in America is due in no small way to those who carved the name of Edinburgh over two centuries ago in the history of American Medicine. It is, indeed, a goodly heritage that they have left us.