
HERBERT MORAN MEMORIAL LECTURE

MEDICAL PRACTICE AND MEDICAL EDUCATION 1500–2001: AN OVERVIEW

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Up to the middle of the nineteenth century medicine was practised by a variety of people: physicians, surgeons, apothecaries, bone setters and various irregular practitioners or quacks. Physicians were well educated and learned men who had studied the classics and the works of Galen. The surgeons attended lectures and demonstrations in anatomy. In reality, medical knowledge regarding disease and its management was minimal. The present paper is an overview of the education and training of those who practised in medicine before the subject began to develop into a science.

Key words: apothecaries, physicians, quacks, surgeons.

INTRODUCTION

Up to the beginning of the fifteenth century, a great variety of people were involved in some form of medical practice, and it has been said that English medicine reached its lowest ebb in the early sixteenth century. In 1511, Henry VIII appreciated this situation, stating:

Forasmuch as the science and cunning of Physick and Surgery ... is daily within this Realm exercised by a great multitude of ignorant persons of the greater part have no manner of insight in the same, nor any other kind of learning

Therefore in order to remedy this state of affairs, Henry decreed that for those wishing to practise medicine within the city of London or for seven miles around, they should be examined by the Bishop of London or the Dean of St Paul's, who would be assisted by four doctors of 'Physick' and expert surgeons. Outside of London, the examination was to be conducted by the bishop of the diocese.¹

PHYSICIANS

In 1522–1523 a new system was decreed under the influence of Thomas Linacre (Fig. 1) and the College of Physicians was established. Linacre and five other physicians constituted the college, and no one could practise in the city or its environs unless admitted by the president and fellows. At that time, the examiners placed all the weight on Latin and a knowledge of the classics but none on practical experience. However, graduates of Oxford and Cambridge had special privileges and were exempt from the required examinations.¹

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Medicine became institutionalized within the mediaeval university during the twelfth and thirteenth centuries together with theology and law and followed the usual graded academic curriculum of examinations, theses, fees and ceremonies to mark progress through the degrees.² The education of physicians at Oxford was extremely long, for to receive a degree of doctor of medicine a student would have to attend the university for 14 years, going through the following steps. The first was a bachelor of arts, and after four years of preparation he would have to 'defend', in Latin, questions in logic, grammar, rhetoric and moral philosophy. A masters degree in arts took another 3 years for which he was examined in natural philosophy, geometry, metaphysics, optics, physics and history. The medical part of his education (bachelor's degree, 3 years) was a study of the ancient authors and the examination was by 'defending' two questions, one chosen by himself and the other by the professor. The doctor's degree, a further 4 years, was an explanation of the whole book of Galen which was to be given in a series of lectures. Although the graduate was well learned, his education in the practice of medicine and patient care was, in fact, quite inadequate.¹

The lectures in physic, anatomy, botany and chemistry could only be described as perfunctory with no practical instruction in the subjects. Also, no hospital facilities were available in the university towns for exposure to patients. A student who had obtained a bachelor's degree could become a physician in the army or navy even though his real medical education had not progressed much beyond the aphorisms of Hippocrates. In the early eighteenth century, the Scottish universities developed the practice of awarding *degrees in absentia* and a candidate could obtain one after spending a certain amount of time in apprenticeship with an apothecary or surgeon, attending some university lectures, a dissecting academy and a London hospital, in any combination or order. With letters of recommendation from two physicians, perhaps a thesis of some sort and the appropriate fee, an MD would be awarded.¹

Edward Jenner was one who obtained such a degree. He commenced his medical career at the age of 12 by being apprenticed to Mr Ludlow, a surgeon at Sodbury. At the age of 21 he went to London to become a pupil of John Hunter, with whom he studied for 2 years. For 20 years Jenner was a surgeon-apothecary in Berkeley but then decided to practise as a physician and bought a



Fig. 1. Thomas Linacre (1460–1524). Founder of the College of Physicians.

St Andrews MD, being sponsored by Dr Hicks of Gloucester and Dr Parry of Bath. Thus he raised his status to physician without setting foot in Scotland.³

Some who wished to practise as physicians would travel abroad to obtain or enhance their qualifications by visiting such centres of learning as Padua, Bologna and Salerno. However, if they wished to practise in London, they were still subject to examination by the College of Physicians.

The physician in the seventeenth and eighteenth centuries may have been a learned man but the practice of physic was little more than a crude art. Diagnosis in those times was made by the history of the condition, including the patient's constitution and way of life, general observation including the tongue, inspection of the urine and stool and feeling the pulse. Apart from these aspects the patient was not touched.⁴ Many physicians at that time were prepared to write prescriptions for patients they may not have actually seen; their decisions on diagnosis and treatment being derived from the account of a messenger, or that of an apothecary. This was often done as a coffee-house consultation.

Therefore diagnostic ability could only be described as limited. The number of useful medications was small; apart from digitalis, the bark (willow or cinchona bark), mercurials, opium preparations and perhaps alcohol there was little that had much effect. The various boluses, draughts, pills, drops and nostrums combined with blistering and cupping did little more than occupy the patient's attention while nature effected a cure. The common practice of bleeding, which is abhorrent in the present day as it deprives the patient of one of his vital tissues, may have served a useful purpose in some patients by relieving congestive cardiac failure or preventing apoplexy by lowering the blood pressure.

Actual physical examination was not practised by physicians until about the middle of the nineteenth century. Laennec published his book on auscultation in 1819 which started the comparison of what could be heard in the living heart with what was

found at postmortem. Until this time, inspection, palpation and percussion had been ignored, and it was auscultation that drew attention to the possibility of combining these features of examination to make a physical diagnosis.⁴

Such was the situation in the case of Queen Caroline who in 1737, when suddenly taken ill, was treated by four of the most eminent physicians of the time. She was given Daffy's Elixir, mint-water, usquebaugh, snake-root, Sir Walter Raleigh's Cordial, blisters and the lancet for 4 days before it was realized that the cause of the mischief was a strangulated umbilical hernia. The surgeons were then called in and a painful operation was performed. However, their efforts were just as ineffectual and the Queen succumbed 12 days later. Lord Hervey in his memoirs was extremely critical of the ignorance and skill of those who were considered four of the best physicians and three of the best surgeons in England at that time. Graham Everitt in his book *Doctors and Doctors*, described the situation as a dismal revelation of blundering and incapacity and a terrible exposé of the state of medical science in England in 1737. Although the College of Physicians at that time was very critical of the quack Joshua Ward with his 'drop and pill', it would seem that Ward could probably have held his own with the best of those august gentlemen.⁵

With the appreciation of physical signs together with the study of pathology, medicine began to advance. A 'fever' became to have a more restricted meaning, pneumonia could be diagnosed, an empyaema could be diagnosed and then drained. The art was beginning to take steps towards being a science.

SURGEONS

From 1300, there was a guild of surgeons, and also a company of barbers. In 1462 Edward IV granted a royal charter to the barbers authorizing them to practise surgery, and in 1492 Henry VII granted a badge or cognizance to the Guild of Surgeons, but it did not confer the rights and privileges of a Royal Charter. In 1493 the barbers and surgeons entered into an agreement to follow the same rules and practices with regard to the governance of surgery. This agreement stated that no outsiders 'would be permitted to practise in the City and Suburbs until ... duly examined and approved to be of sufficient cunning and ability'.

This is recorded in the parchment ordinance book which, in the present day, is in the possession of the Company of Barbers.⁶

In 1540 the surgeons joined the barbers, through the efforts of Thomas Vicary, becoming the company of barber-surgeons, and received their charter from Henry VIII (Fig. 2). As a result of this the surgeons confined themselves to surgery and the barbers to barbering. With the establishment of the company, lectures and demonstrations in anatomy were carried out at the barber-surgeons' hall. The readers were often physicians, as many of the surgeons were not learned in the anatomical works or were illiterate.⁶⁻⁸

Training of surgeons was by apprenticeship for a period of 7 years after which there would be an examination. Candidates for the grand diploma would have an oral examination of theoretical questions and also practical skills such as bandaging and the use of instruments. Tests for ships' surgeons' licenses were simpler than those for guild membership and were directed toward conditions that may be encountered at sea.² The book *The Diary of a Surgeon* (although said to be fictional) gives a good account of a student's life in London and describes the examination which entailed questions on physic, materia medica, anatomy and surgery.⁹ Thomas Robertson trained as a surgeon in Edinburgh before joining the navy in 1793 as surgeon's mate. He was



Fig. 2. Thomas Vicary receiving the Charter from Henry VIII. Engraving from the painting by Holbein.

subsequently promoted to surgeon, and his warrant at the time appears to have been granted as an act of emergency by the admiral commanding the squadron, without examination. Robertson presented for examination at the Surgeons' Hall in 1796, so that his promotion could be formally confirmed by the Sick and Hurt Board. He described his examination by the surgeon as teasing and inadequate to ascertain ability, and that by the physician as superficial.¹⁰

Zachary Cope in his writing on the history of the College of Surgeons of England¹¹ said that surgery in 1745, when the Company of Surgeons was formed, was still a crude art and, although based upon a sounder basis of anatomy than formerly, was little in advance of Hippocratic teaching. Amputation and lithotomy by perineal incision were frequently performed and as the patient was conscious, speed on the part of the operator was essential. Cheselden was reputed to have been able to perform the operation in 1–2 min. Surgery did advance in the nineteenth century and there were some skilled operators such as Robert Liston who performed major procedures under difficult conditions. However, it was the introduction of anaesthesia that allowed for major progress, with the result that nowadays every body cavity and organ can be explored and treated.

APOTHECARIES

Other practitioners of 'orthodox' medicine were the apothecaries and the midwives. The latter not only looked after the delivery of infants but were probably involved in the care of sick children as well.

The apothecaries were originally members of the company of grocers which imported herbs and spices. In 1525 the Apothecarial Grocers petitioned for a corporation of their own because they considered their art as separate. In 1616, the Royal Apothecary, Gideon De Laune (Fig. 3), with the Court Physician, Sir Theodore de Mayerne, petitioned King James I for a charter such as had been granted to the physicians. The opinion of the King was:

Grocers are but merchants, the business of an apothecary is a Mistry, wherefore I think it is fitting *that they be a Corporation of themselves*^{1,12}



Fig. 3. Gideon de Laune (1565–1659) painted in 1640 in the style of Cornelis van Ceulen.

This displeased the College of Physicians and the city fathers who placed every obstacle in the path of the company, thus delaying the granting of the charter until 1617. This charter controlled the practice of the apothecaries in the city of London and within 10 miles of it. No apothecary was able to keep a shop until he had served a 7 year apprenticeship and no apprentice was to be set free without examination. The apprentice would have been subjected to an oral examination requiring knowledge of Latin, botany, materia medica and the *Pharmacopoeia Londinensis*, as well as dispensing skills.

The apothecaries separated from the grocers in 1645. A rather acrimonious dispute developed between the College of Physicians and the apothecaries over the latter's right to practise as well as dispense. This continued until 1704 culminating in the Rose case which ended the age-long monopoly of the College. Thereafter, the apprentice having satisfied the examiners at the Apothecaries Hall and taken up the freedom of the City was free to practise and dispense his medicines without fear of prosecution. The apothecary became the forerunner of the general practitioner,^{3,12} and also the local chemist who would dispense advice on simple common everyday maladies.

QUACKS

Besides the physicians, surgeons and apothecaries, there were a great number of irregular practitioners or quacks who flourished at the time, and although some were harmless picturesque characters, others were undoubtedly dangerous. They presented

themselves in a variety of ways, the ‘horse mountebank’, the stage performer who was assisted by a clown, to those who had some status in society. Famous quacks of the latter group were Sir William Read, Joshua ‘Spot’ Ward and ‘chevalier’ John Taylor.^{13,14}

William Hogarth, who may be described as a graphic satirist, in his drawing *Consultation of Physicians, or Company of Undertakers* (Fig. 4), immortalizes three of the principal quacks at that time – Sally Mapp (Crazy Sal, the bone setter), ‘chevalier’ John Taylor (the oculist), and Joshua ‘Spot’ Ward. The three were placed in the most honourable part of the escutcheon over 12 members of the College of Physicians, which would imply that there was little to choose between them.

The demise of quack medicine was caused by a number of factors including the abolition of country wakes and fairs, and the unification of regular practitioners in the demand for reform of formal education, examination and licensing.^{3,5}

EXAMINATIONS

The role of any court of examiners is to ‘examine and approve’. Examinations held by the College of Physicians have been mentioned above. Probably the first licence to practise surgery awarded by the Guild of Surgeons, recorded in the Ordinance book, was to one Robert Anson in 1497. It records that Anson:

was openly examined in divers things concerning the practice, operative and directive in the said craft of surgery – and found able and discreet to occupy and use the practice of surgery, as well as about new wounds as cancers, fistulas, eviscerations and many other diseases.

Anson may also have had to identify instruments and demonstrate their uses as part of his assessment.⁶

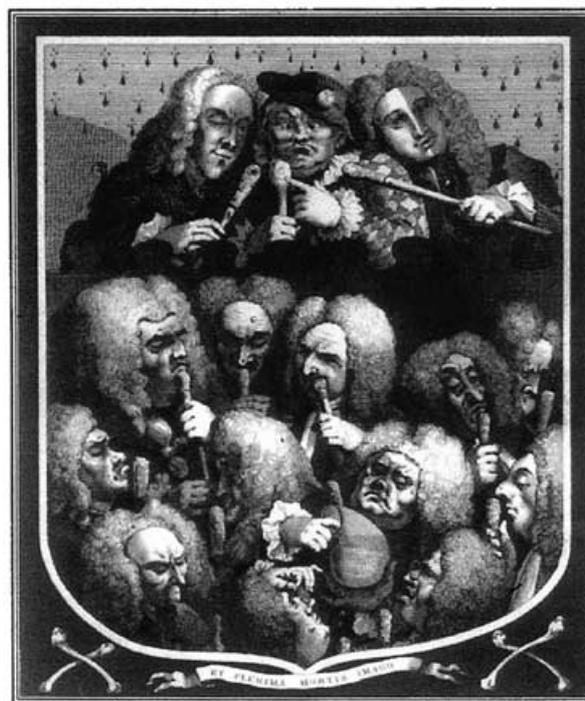
Up to the early part of the nineteenth century, the examinations by the physicians, surgeons and apothecaries were usually oral. In 1782 in Aberdeen, Dr William Chalmers who was mediciner at Kings College, announced in the Aberdeen Journal that he would set up an academy to teach medicine, midwifery and botany.¹⁵ In 1787, he set an examination paper for the degree of MD, which up to that time had been granted to candidates on the recommendation of two doctors of reputation. The questions were as follows:

1. What are the principal peculiarities in the structure of the foetus, and are there any impediments to seeing or hearing at birth. What are they?
2. In how far may Acrimony be considered as existing in the system, and what are its effects?
3. In what proportion of our present diseases may Debility be supposed to take place, and how may it be effectually obviated?
4. What are the advantages resulting from the Brunonian doctrine?

Apparently these were the subjects that were engaging the attention of the medical profession at that time. (In 1778, John Brown promulgated an idea which became known as the ‘Brunonian Theory’ and attributed disease to a state of too great or too little excitability of the tissues.)

The examination system in the middle of the nineteenth century began to become more thorough and searching. An example is that set by the University of Durham in 1856.

It consisted of 2 days of papers, dissections on a subject, surgical operations on a subject, surgical clinical, medical clinical, and a viva voce on treatment. Cambridge also introduced a more



Consultation of Physicians, or Company of Undertakers

Fig. 4. College of Physicians or Company of Undertakers by Hogarth, depicting ‘chavalier’ John Taylor, Sally Mapp and Joshua ‘Spot’ Ward above the members of the College of Physicians.

systematized training and examination system; a paper set for the licence in medicine in 1854 contained questions regarding symptoms of brain disease, causes of haematuria, characteristics of diabetes, functions of the liver, cholera, yellow fever, phlegmasia dolens and cirrhosis of the liver. Thus the training of those who wished to follow a career in medicine was becoming more scientific with an emphasis on physical signs and diagnosis as opposed to the wordy and empirical training of 50 years earlier.⁴

The latter part of the nineteenth century and the earlier part of the twentieth century saw great advances in the sciences of physics, chemistry and biology, and all of these have had some spin-off into the field of medicine. As a result of this, diagnostic facilities have improved, drug therapy has become specific, anaesthesia has extended the scope of surgical treatment, conditions that were once fatal have become treatable. For some that were considered impossible, treatment is now feasible.

CONCLUSION

Medical practice and education have undergone great changes since the sixteenth century. Although physicians at that time were learned men who had a university education, their actual medical knowledge was minimal. Surgeons were trained by apprenticeship and had a basic knowledge of anatomy. Apothecaries were also trained by apprenticeship and learned to dispense medicines on the advice given by the physician but later they were allowed to practise and treat patients.

The colourful mountebanks, quacks and other irregulars flourished until the nineteenth century when pressure from regular practitioners led to licensing and better education. The process has continued and candidates are now assessed by a thorough examination of their knowledge and clinical skills. Thus the art became a science; and the science has continued to progress in many directions with advances in technology.

REFERENCES

1. King LS. *The Medical World of the Eighteenth Century*. Chicago: The University of Chicago Press, 1958.
2. Bynum WF, Porter R (eds). *Companion Encyclopedia of the History of Medicine*, vol. 2. London: Routledge, 1997.
3. Loudon I. *Medical Care and the General Practitioner*. Oxford: Clarendon Press, 1986.
4. Newman C. *The Evolution of Medical Education in the Nineteenth Century*. London: Oxford University Press, 1957.
5. Everitt G. *Doctors and Doctors*. London: Swan, Somenshein, Lowrey, 1888.
6. Lettin A. The Barbers, the Court of Examiners and the Royal Charter. *Ann. R. Coll. Surg. Engl.* 1998; **80** (Suppl.): 129–34.
7. Robinson JO. The barber surgeons of London. *Arch. Surg.* 1984; **119**: 1171–5.
8. Dobson J. Barber into surgeon. *Ann. R. Coll. Surg.* 1974; **54**: 84–91.
9. Knyveton J. *The Diary of a Surgeon in the Year 1751–1752* [edited and transcribed by Earnest Gray] London: Appleton-Century Company, 1938.
10. Watson WNB. Thomas Robertson, Naval Surgeon, 1793–1828. *Bull. Hist. Med.* 1972; **6**: 131–4.
11. Cope Z. *The Royal College of Surgeons of England*. London: Anthony Blond, 1959.
12. Copeman WSC. The Worshipful Society of Apothecaries of London – 1617–1967. *Br. Med. J.* 1967; **4**: 540–1.
13. Anonymous. Some Famous Quacks V Sir William Read. *Practitioner* 1907; **78**: 416–21.
14. Anonymous. Some Famous Quacks IV Joshua Ward. *Practitioner* 1907; **78**: 278.
15. Comrie JD. *History of Scottish Medicine* vol. II. Published for the Wellcome Historical Medical Museum. London: Balliere, Tindall and Cox, 1932.