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Author(s): Margaret DeLacy

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Influenza Research and the Medical Profession in Eighteenth-Century Britain*

Margaret DeLacy

The depiction of influenza as a separate species of disease first became common during the eighteenth century. During that period, physicians developed competing theories about its etiology (causation) and transmission, including the theory that influenza was contagious. Theories of contagion were held by an increasing number of physicians during the course of the eighteenth century, although the issue remained a contested one, as symbolized by the publication of two separate reports on the epidemic of 1782 by the Royal College of Physicians and the Society for Promoting Medical Knowledge: reports that differed on the question of transmission.¹

It was because this issue was not settled by an overwhelming preponderance of the evidence that physician's views on this question had political implications that reflect the political and social fissures underlying medical practice in the eighteenth century. This article will examine the political, social, religious, and

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¹Sources for the history of influenza include John F. Townsend, "History of influenza epidemics," *Annals of Medical History*, n.s. 5 (1933): 533-47; F. G. Crookshank, ed., *Influenza, Essays by several authors* (London, 1922); August Hirsch, *Handbook of Geographical and Historical Pathology*, trans. Charles Creighton (London, 1885); Charles Creighton, "Influenzas and Epidemic Agues," in *A History of Epidemics in Britain* with additional material by D. E. C. Eversley, E. Ashworth Underwood, and Lynda Ovenall, 2 vols. (1894: 2nd ed.; London, 1965), 2: 306-433 (hereafter cited as Creighton, *History*); and Theophilus Thompson, *Annals of Influenza or Epidemic Catarrhal Fever in Great Britain from 1510 to 1837* (London, 1852) (hereafter cited as Thompson, *Annals*), which contains many eighteenth-century tracts on influenza. More recent treatments include A. S. Beare, ed., *Basic and Applied Influenza Research* (Boca Raton, Fl., 1982); W. I. B. Beveridge, *Influenza: The Last Great Plague: An unfinished story of discovery* (London, 1977), and K. David Patterson, *Pandemic Influenza 1700-1900: A Study in Historical Epidemiology* (Totowa, N.J., 1986). On the increasingly contagionist view of influenza see Margaret DeLacy, "The Conceptualization of Influenza in Eighteenth-Century Britain: specificity and contagion," forthcoming in the *Bulletin of the History of Medicine* 67 (1993): 74-118.

educational factors that influenced the initiative to investigate influenza as a separate disease, and will argue that these factors also influenced the readiness of some groups of physicians to entertain the hypothesis of contagion in the face of conflicting information. It will also suggest that the divergence of opinion on epidemic diseases reflected the social and educational differences between the graduates of English universities who were eligible for Fellowship in the College of Physicians, and the often equally distinguished "outsiders" who had obtained their medical degrees from other institutions, and who formed competing medical associations.

The first efforts to encourage systematic epidemiological investigation were developed in the late seventeenth century by a circle of physicians that included several fellows of the Royal Society.² In the period between the late seventeenth century and the early eighteenth century there was tension between the Royal Society and the more conservative College of Physicians, although some doctors were members of both institutions.³ Although it admitted a disproportionate number of men with high rank, the Royal Society was, at least in theory, open to any man regardless of occupation, education, or religion who could provide evidence of significant scientific work and obtain sponsors. On the other hand, only graduates of Oxford, Cambridge, or Trinity College, Dublin, could become fellows of the College of Physicians.

In the early years of the century, English intellectual and professional life was dominated by the Metropolis. Although, in law, the College only governed the practice of physicians in the London area, the standards set by the College often affected the terms of provincial practice as well. Physicians throughout the country regarded a fellowship as marking the attainment of the summit of the profession, both medically and socially.

After passage of the Test Acts, which required subscription to the doctrines of the Anglican Church, religious nonconformists could not graduate from the English Universities or from Trinity College, Dublin, and sought education in Scotland or overseas. A few physicians with continental degrees were permitted to "incorporate" their degrees at Oxford or Cambridge and thus eventually to

²Andrew Cunningham, "Thomas Sydenham: epidemics, experiment and the 'Good Old Cause,'" in Roger French and Andrew Wear, eds., *The Medical Revolution of the Seventeenth Century* (Cambridge, 1989), pp. 164-190, and Roy Porter, "The early Royal Society and the spread of medical knowledge" in *ibid.*, p. 280; Ulrich Tröhler, "Quantification in British Medicine and Surgery, 1750-1830" (Ph.D. diss., University of London, 1978), pp. 97-98.

³Harold J. Cook, *The Decline of the Old Medical Regime in Stuart London* (Ithaca N.Y., 1986), and "Physicians and the new philosophy: Henry Stubbe and the virtuosi-physicians," in French and Wear, *Medical Revolution*, pp. 246-71, and "The new philosophy and medicine in seventeenth-century England," in David C. Lindberg and Robert S. Westman, *Reappraisals of the Scientific Revolution* (Cambridge, 1990), pp. 397-436.

gain fellowship in the College, but this avenue was closed to the graduates of Scottish universities.⁴

"Outsider" physicians thus constituted a disparate group containing several smaller groupings that had in common only an M.D. degree and ineligibility for fellowship in the College of Physicians. One grouping comprised "fringe" practitioners: apothecaries or surgeons who had obtained an M.D. from one of the more venal universities by purchase without benefit of any organized medical training. Blended into this group was a significant number of Edinburgh or Glasgow-trained surgeons who had received the same training as physicians but sought to establish themselves through surgical practice, particularly military practice; hence they did not take an M.D. at the time they graduated. Having accumulated enough wealth and reputation, they often retired from surgical practice and later obtained or were awarded a doctorate relatively late in life. Thus, among the ranks of doctors who had purchased their degrees were men of great distinction. Another grouping contained men who obtained Scottish doctorates simply because they were Scots; many of these men were of respectable background, but most came from families that, by English standards, were comparatively poor. Because Glasgow and Edinburgh imposed no religious test on students, attendance at either university offers no clue to the religious background of a Scottish university student, although it is reasonable to presume that most of them were members of the Presbyterian Church of Scotland. (Subscription to the Church of Scotland was required of Professors). The Scottish Anglicans experienced some handicaps and many found themselves welcome in neither Edinburgh nor London.

In addition, there was a small but increasing number of Anglican English or Colonial students who attended a Scottish university simply because of the school's reputation. As the reputation of Edinburgh grew, for instance, it became increasingly attractive to students from the North of England, who found it easier of access and cheaper than Oxford or Cambridge. Many of these men were interested in settling into a provincial practice rather than scaling the social heights of Bath or London. Even men who obtained English university degrees sometimes spent a term at Edinburgh, as it was almost impossible to obtain a complete and adequate medical education at Oxford or Cambridge. Clinical experience was limited in the quiet university towns, so English students often supplemented their classical university training with terms in London, Edin-

⁴The standard history of the College is Sir George Clark, *A History of the Royal College of Physicians of London*, 2 vols. (Oxford, 1964 and 1966), 2: chs. 22, 23, 29. See also R. Hingston Fox, *John Fothergill and his Friends: Chapters in Eighteenth Century Life* (London, 1919), pp. 137-56; Ivan Waddington, "The struggle to reform the Royal College of Physicians, 1767-1771: a sociological analysis," *Medical History* 17 (1973): 107-26; L. G. Stevenson, "The siege of Warwick Lane together with a brief history of the Society of Collegiate Physicians, 1767-98," *Journal of Medical History* 7 (1952): 105-21; and William J. Maloney, *George and John Armstrong of Castleton: Two Eighteenth-century Medical Pioneers* (Edinburgh, 1954), pp. 13-48.

burgh, or the Continent. This, however, rarely seems to have significantly altered their conservative approach to medicine.

By far the most committed and radical grouping among the “outsiders” consisted of men compelled to seek a “foreign” degree because of religious persecution. Ideological commitment had already defined this group: had they been less devoted to their principles they would have subscribed to the Anglican Church and attended Oxford, Cambridge, or Trinity. A very large number of them were Irish; between 1726 and 1799, more Irish students than English or Scottish students obtained M.D. degrees from Edinburgh.⁵ Early in the century, nonconformist students had obtained degrees from universities on the Continent such as Leyden, Rheims, Padua, Halle, and Göttingen. After 1730, Glasgow and Edinburgh attracted steadily increasing numbers, partly as a result of a deliberate effort by these universities to make English dissenters feel welcome. Not surprisingly, many of the most radical members of this group were those who subscribed to the most “radical” religious views: particularly Quakers and “Arians.”

Not only did these “foreign” universities provide greater religious freedom: several also offered a much more comprehensive medical curriculum than the English universities could provide. The structure of the Scottish medical profession was much more flexible than that in England, and Edinburgh offered an integrated curriculum that included medicine, surgery, pharmacy, and midwifery for all students. Edinburgh medical students, therefore, whether they took M.D. degrees or not, had been trained as “general practitioners”; the physicians and the surgeons were accustomed to studying and working together and had all been prepared to offer a comprehensive form of medical care.⁶

English graduates who became fellows of the College of Physicians generally enjoyed the most lucrative London practices and the most prestigious institutional posts, particularly certain infirmary appointments. Beneath them, at least in the fellows’ eyes, were the licentiates: physicians with “foreign” (including Irish or Scottish) degrees who had complied with the law that required them to pass a College examination and obtain a license before opening a practice in London, but who did not enjoy any of the privileges of fellowship. Physicians who practiced in the country could take the same examination and qualify as “extra-licentiates.” On the bottom rung of the professional ladder in London were the large number of physicians who had not obtained licenses and thus were practicing illegally. They were joined by the much greater number of surgeons and apothecaries who practiced medicine without M.D. degrees.

⁵David Hamilton, *The Healers: A History of Medicine in Scotland* (Edinburgh, 1981, 1987), table 4:5, p. 119.

⁶*Ibid.*, and see Waddington, “Struggle.”

London apothecaries could visit patients and recommend or provide medicines as long as they charged only for medicines and not for consultations. Surgeons treated external ailments and provided any treatment requiring physical intervention; following their separation from the barber-surgeons in 1745, the status of London surgeons began a rapid rise. In Scotland and the provinces, apothecaries and surgeons often worked as general practitioners, but in the course of the century an increasing number of physicians also practiced in the wealthier and more populous areas.

In the early years of the century, before separate medical societies were established, the Royal Society offered an alternative path of advancement to physicians who had been excluded from the College and sought a forum to debate medical issues. Although it was not strictly a professional organization, membership in the Society provided a social cachet, created the presumption that a fellow's associates respected his intelligence and ability, and offered the opportunity to cultivate well-placed friends and associates. Moreover, several representatives of the Hanoverian monarchy were genuinely interested in encouraging scientific pursuits and often chose fellows of the Society to serve as personal, household, or "occasional" physicians, conferring a status upon them that had to be acknowledged, however grudgingly, even by College physicians.

The College and the Society had evolved in response to very different rationales. The College was a London institution, the Society was national or international in its scope. The College saw its chief purpose as the regulation of medical practice, the Society existed to promote investigation. Until prodded into action by the threat of medical competition after the middle of the century, the College maintained neither a journal nor a network of correspondents. Fellowship in the College was almost a guarantee of a busy and lucrative practice: most fellows had little time and no need to engage in complicated or time-consuming research projects.⁷

Despite a considerable overlap in their membership, the Society and the College thus differed as institutions in the emphasis they gave to medical research. They also differed in their overall approach to disease. Indeed, these two factors were related, for many College fellows preferred traditional "Galenic" medicine, which did not encourage the grouping of cases of illness for investigation, because it regarded every case of illness as unique to the patient who contracted it.

According to the Galenic view, illness resulted from the derangement or imbalance of fluids in the body. The "normal" balance of such fluids was determined by the individual "constitution" of the patient; but, it was possible for patients to maintain an optimal balance by following a regimen that was best

⁷See note 4, and Susan Catherine Lawrence, "Science and medicine at the London hospitals: the development of teaching and research, 1750-1815" (Ph.D. diss., Toronto, 1985) esp. pp. 516-20.

sued to their constitutions. Medicine, therefore, should include regimetical advice and necessarily involved an intimate knowledge of each patient. Physicians alone were able to prescribe the internal remedies that could alter the disordered balance within the body that led to disease. Surgeons, on the other hand, were only supposed to offer external and “local” treatments; therefore, there was an inevitable tendency for surgeons to emphasize the local nature of the causes of disease and to claim that the physical remedies they offered, such as clysters (enemas), ointments, and bloodletting, sufficed. Apothecaries and quacks often sold “specifics” supposedly tailored to individual diseases: remedies that required no knowledge of their patients but only of their symptoms. Although the College did prove receptive to some new developments in disease theory, during the eighteenth century its physicians never abandoned their emphasis on the primacy of individualized treatment, which undergirded their claim to professional primacy.⁸

By the middle of the seventeenth century, however, a group of physicians and scientists associated with Thomas Sydenham and his friends in the Royal Society had shifted the emphasis within their medical theory from the patients themselves to the way in which external environmental factors might alter the humoral balance within groups of people. In close association with Boyle, Sydenham and his “neo-hippocratic” followers developed the view that “invisible emanations,” from within the earth might affect the “constitution” not just of individuals but of the entire atmosphere, causing widespread epidemics and providing an underlying seasonal complexion for every case of disease.⁹ Their work led the Royal Society to launch a series of meteorological and epidemiological studies to gain further information about the interaction between the weather and the behavior of epidemic diseases. Its emphasis on the experience of groups of people created a “research program” that was very different from that favored by College physicians who emphasized the need for profound learning and individual counselling.

These epidemiological investigations began under the aegis of the Secretary of the Society, Henry Oldenburg, who placed general questions in the *Philosophical Transactions* in 1666 that were designed to elicit information on the relationship between climate, miasmas and disease. They were continued

⁸See the work of Cook in note 3, esp. “the new philosophy,” and Philip K. Wilson, “The Art of Surgery in early 18th-Century London: Textual Analysis and Professional Concerns,” paper presented at the American Association for the History of Medicine, Cleveland, 1991. I thank Mr. Wilson for providing a copy of this paper.

⁹Cunningham, “Sydenham.” On Sydenham’s disease theory see also: R. R. Traill, “Sydenham’s impact on English medicine,” *Medical History* 11 (1965): 356–64; Kenneth Dewhurst, *Dr. Thomas Sydenham (1624–1689): His Life and Original Writings* (Berkeley, 1966); K. D. Keele, “The Sydenham-Boyle theory of morbid particles,” *Medical History* 18 (1974): 240–48; and Charles-Edward Amory Winslow, *The Conquest of Epidemic Disease: A Chapter in the History of Ideas* (Madison, 1943, 1980), pp. 161–75.

by the physician-philosopher, John Locke, who, in 1692, sent out questionnaires to his correspondents all over the world requesting information that could be used to correlate mortality, meteorological statistics, and disease; an early example of the use of a survey for epidemiological investigation.¹⁰

This effort continued into the next century. In 1723 James Jurin, a secretary of the society best known for his statistics on inoculation, again asked Society correspondents to keep daily records of the weather for epidemiological studies.¹¹ As a result of this encouragement, many works appeared in the "neo-hippocratic" tradition, which emphasized the influence of environmental factors on the incidence of disease. Several of these works, by physicians such as Thomas Short, Richard Mead, Clifton Wintringham, John Huxham, John Rutty, John Arbuthnot, and William Hillary, contained descriptions of epidemics that medical historians now believe were influenza, although the work of Huxham was the first professional work to use the word itself.¹² There was also an unsigned account in the Edinburgh journal *Medical Essays and Observations* that formed part of a similar enterprise in Scotland.¹³

Of the seven named authors, all had obtained "foreign" doctorates, although two, Richard Mead and John Arbuthnot, eventually became fellows of the College of Physicians. Mead was the son of a well-known Independent minister in London and obtained his M.D. at Padua. He eventually "incorporated" this degree at Oxford and thus became a fellow in 1716, twelve years after he became a fellow of the Royal Society. John Arbuthnot, a distinguished Scottish mathematician who had an M.D. from St. Andrews, became a fellow of the College only as a result of his appointment as physician to Queen Anne in 1710. Of the others, Clifton Wintringham was a Yorkshireman who had studied at Cambridge but apparently left without taking a degree. Dissenters were permitted to matriculate but not to graduate at Cambridge, but there is no evidence that Wintringham was a Dissenter. Thomas Short of Sheffield was a Scot with a Glasgow degree. John Huxham of Plymouth was a Presbyterian with a degree from Rheims. John Rutty of Dublin was a Quaker, as was William Hillary of Ripon and Bath; both men held Leyden degrees. Four of these seven writers (Mead, Huxham, Rutty, and Arbuthnot), were fellows of the Royal Society and at least four (Mead, Huxham, Rutty, and Hillary) were religious dissenters.¹⁴

¹⁰Roy Porter, "Early Royal Society," in French and Wear, *Medical Revolution*, pp. 280-81. James H. Cassedy, "Medicine and the rise of statistics," in Allen G. Debus, ed., *Medicine in Seventeenth Century England* (Berkeley and Los Angeles, 1974), pp. 304-05, and James C. Riley, *The Eighteenth-Century Campaign to Avoid Disease* (New York, 1987), pp. 12, 63.

¹¹R. M. S. McConaghey, "John Huxham," *Medical History* 13 (1969): 280-87, esp. 282.

¹²See Creighton, *History*, pp. 337-52, and Thompson, *Annals*, pp. 28-60. On the word "influenza" see F. G. Crookshank, "The name and names of influenza," in *Influenza*, p. 67.

¹³*Medical Essays and Observations, Published by a Society in Edinburgh* (3rd. ed.; vol. 2), in Thompson, *Annals*, pp. 39-43.

In addition, three works in the early eighteenth century were specifically devoted to what we now consider influenza. One of these was anonymous and a second, entitled *De Febre Britannica Anni 1712*, was by a London apothecary named John Turner. Turner obtained an M.D. and became a licentiate of the College of Physicians in 1708.¹⁵ I have not been able to discover anything further about his background, but to have become a licentiate at that date he must have obtained a European degree. The third study, a substantial manuscript account, was sent to the Royal Society by John Chandler, a London apothecary and F.R.S.¹⁶ Thus, if we include these two men, none of the nine known early authors held an English degree, seven held "foreign" M.D.'s, two eventually became fellows of the College by a roundabout route, and five were fellows of the Royal Society.

The early epidemiological investigations that were encouraged by the Royal Society were limited and inconclusive. Most of the physicians who engaged in this work produced long and idiosyncratic books that discussed all the weather and diseases that had occurred in a given location for a large number of years, and described the illnesses that appeared in vague terms that varied from author to author. The Royal Society did not publish Chandler's innovative study of influenza in the *Philosophical Transactions*. As a general scientific organization, the Royal Society offered only limited support for strictly medical investigations, and as science became more specialized, its enthusiasm dwindled.

¹⁴Biographical information has been compiled from standard sources such as the *Dictionary of National Biography*, Sir Leslie Stephen and Sir Sidney Lee, eds. (Oxford, 1917-), (hereafter cited as *D.N.B.*); William Munk, *The Roll of the Royal College of Physicians of London, Vol. II: 1701-1800* (London, 1861); R. W. Innes Smith, *English-Speaking Students of Medicine at the University of Leyden* (Edinburgh and London, 1932); and Edinburgh University, *List of the Graduates in Medicine in the University of Edinburgh from 1705 to 1866* (Edinburgh, 1867). Invaluable is P. J. and R. V. Wallis, *Eighteenth Century Medics* (Newcastle, 1988). On Mead see Winslow, *Conquest of Epidemic Disease*. On Arbuthnot see Robert C. Steensma, *Dr. John Arbuthnot* (Boston, 1979); Anita Guerrini, "The Tory Newtonians: Gregory, Pitcairne, and their circle," *Journal of British Studies* 25 (1986): 288-312; and Richard Olson, "Tory High Church opposition to science and scientism in the Eighteenth Century: the Works of John Arbuthnot, Jonathan Swift, and Samuel Johnson," in *The Uses of Science in the Age of Newton*, ed. John Burke (Berkeley and Los Angeles, 1983), pp. 171-204. On Hillary see C. C. Booth, "William Hillary, a pupil of Boerhaave," *Medical History* 7 (1963): 295-316. On Huxham see R. M. S. McConaghey, "John Huxham," and Saul Jarcho, "Introduction" to John Huxham, *An Essay on Fevers* (Canton, Mass., 1988), pp. vi-xxi. On Ruddy see William T. S. Sharpless, "Dr. John Ruddy of Dublin," *Annals of Medical History* 10 (1928): 249-57, and Lewis Mansfield Knapp, *Tobias Smollett, Doctor of Men and Manners* (New York, 1963). "Dissenter" is used more as a social than a theological term: of those brought up as dissenters or presbyterians, several later conformed to the Church of England; others, such as Huxham, were widely suspected of being unbelievers.

¹⁵Creighton, *History*, 2: 340; Munk, *Roll*, p. 24.

¹⁶B.L., Add. Mss. 4433/90 [Royal Society Papers], John Chandler, "Histories of the Epidemic Colds which happened in the Years 1729 & 1732/3...in London..." Old Jury, Oct. 18, 1734. On Chandler, see the *D.N.B.*

At the same time, however, physicians in the Scottish universities were becoming interested in epidemiology. In 1733, they launched the first British journal specifically devoted to medicine: the *Medical Essays and Observations*. It was dedicated to the Royal Society and its physician president, Sir Hans Sloane, who himself was an Irish presbyterian with a degree from the University of Orange. The introduction to the journal emphasized the respect its authors felt for the *Philosophical Transactions*, but pointed out that many physicians did not subscribe to the *Transactions*, because it covered mostly non-medical topics.¹⁷ One of the purposes of the new journal was to contribute to the understanding of epidemiology by combining meteorological information with reports on the incidence of disease. As part of this project, the next volume included an early mention of influenza in Edinburgh, described as “fevers of cold.”

The journal was published by the [Scottish] Society for the Improvement of Medical Knowledge, whose founder, Alexander Monro (primus), also acted as the journal’s editor. Monro had been the man chiefly responsible for the rise of the Edinburgh Medical School. In 1735 a group of Monro’s students including the Yorkshire Quaker, John Fothergill, William Cullen, George Cleghorn, and William Cuming formed the [students’] Edinburgh Medical Society. Cullen soon became a Professor at Glasgow and later at Edinburgh.¹⁸ Both Cleghorn and Cuming participated in later influenza surveys. Connections made in Edinburgh by classmates and medical society members were to form the nucleus of the network that studied influenza epidemics in the middle of the century.¹⁹ Two other men also became associated with this group. The first was the anatomist and obstetrician William Hunter, who had apprenticed to Cullen and later spent a term at the Edinburgh medical school. The second was John Pringle, who had earned an M.D. at Leyden in 1730 and became Professor of Moral Philosophy at Edinburgh in 1734. It was Pringle who would initiate the first survey on influenza in 1758.²⁰

¹⁷*Medical Essays and Observations, Published by a Society in Edinburgh*, 1 (4th ed; 1752), preface, 15.

¹⁸It became the Royal Medical Society of Edinburgh in 1778. See R. G. W. Anderson and A. D. C. Simpson, *The Early Years of the Edinburgh Medical School* (Edinburgh, 1976), and R. Hingston Fox, *Fothergill*, pp. 15 and 140–41.

¹⁹James Gray, *History of the Royal Medical Society 1737–1937*, ed. Douglas Guthrie (Edinburgh, 1952), pp. 3, “The Annual Presidents of the Royal Medical Society,” pp. 315–17; and *Index Librorum Socieitatis Medicæ Edensis 1766* (n.p., n.d.). I have not found a complete list of eighteenth-century R.M.S.E. members.

²⁰On Hunter see Samuel Foart Simmons and John Hunter, *William Hunter, 1718–1783: A Memoir*, ed. C. H. Brock, (Glasgow, 1983), p. 6. See also William Bynum and Roy Porter, eds., *William Hunter and the Eighteenth-Century Medical World* (Cambridge, 1982), chs. 1 and 2 contain additional citations; George C. Peachey, “William Hunter’s obstetrical career,” *Annals of Medical His-*

Several members of this group, including Pringle, Fothergill, and Hunter settled in London. Once there, however, these energetic and well-trained young men met determined professional opposition from the fellows of the College of Physicians. It was not until 1744 that John Fothergill, who had obtained his Edinburgh M.D. in 1736, obtained a license to practice, becoming the first Edinburgh graduate allowed to sit for the College examination. Fothergill, however, was English; the Scots were still shut out.²¹

In 1750–51 the College strengthened and clarified its standards of admission and removed all ambiguity concerning the continued exclusion of graduates of Scottish universities from fellowships. The excuse for this policy lay in the fact that it was possible to purchase Scottish degrees without a reasonable period of residency and training, but this was the case also with degrees from many foreign institutions whose graduates were sometimes permitted to “incorporate” at English universities. In the following year, however, the College for the first time allowed a Scottish graduate of Edinburgh to take the licensing examination. Thereafter, the number of licentiates began gradually to increase. In 1744 there had been fifty-four fellows and twenty-three licentiates. In 1765, the licentiates first outnumbered the fellows by sixty-three to forty-six; by 1782, there were seventy-three licentiates to forty-two fellows.²² Of the forty fellows in 1783, only two, (5%), did not hold English degrees.²³

Although many physicians did practice “illegally,” the rules of the College prohibited fellows from engaging in joint consultations with unlicensed physicians. In practice, some fellows refused to consult even with Scottish licentiates. An additional annoyance to the licentiates was the fact that they were compelled to pay heavy licensing fees to the fellows without being permitted to participate in any way in the governance or activities of the College.²⁴ In the decade before the American Revolution, “no taxation without representation” was a slogan with great personal resonance for the licentiates.

tory, n.s. 2 (1930): 476–79; idem, *A Memoir of John and William Hunter* (Plymouth, U.K., 1924); and John Kobler, *The Reluctant Surgeon: The Life of John Hunter* (London, 1960). On Pringle see Dorothea W. Singer, “Sir John Pringle and his circle,” Parts I and II, *Annals of Science* 6 (1949–50): 127–80, 229–61; Sydney Selwyn, “Sir John Pringle, hospital reformer, moral philosopher: and pioneer of antiseptics,” *Medical History* 10 (1966): 266–74; and Charles Gordon, “Sir John Pringle and the apothecaries,” *Pharmaceutical Historian* 19 (1989): 5–12 (I thank David L. Cowen for this article).

²¹Maloney, *George and John Armstrong*, p. 98 n13.

²²Clark, *History*, 2: 738.

²³Fox, *Fothergill*, p. 150.

²⁴[?Daniel Cox], *A Letter from a Physician in Town to his Friend in the Country, Concerning the Disputes at Present Subsisting between the Fellows and Licentiates of the College of Physicians in London* (London, 1753).

In 1767, hostilities between the licentiates and the fellows of the College of Physicians reached their peak. The licentiates organized their own "Society of Collegiate Physicians" and several of them invaded a College meeting in June. Among them was William Hunter, who threatened to run his sword through anyone who attempted to eject him.²⁵ In September, the licentiates rioted outside the College and broke down the doors with sledgehammers and crowbars. Together, Fothergill and Hunter took a leading role in the subsequent court cases. The licentiates were unsuccessful in these, the last of which ended in 1770.

In 1771 the College made an effort to placate the licentiates. Three were promoted to fellowship *speciali gratia* and the College revised its rules to permit licentiates to advance to fellowship on stringent conditions. These included an examination in Greek on Hippocrates, Galen, and Aretaeus of Cappadocia, a Greek physician who lived in the second century A.D. The ostensible purpose of the examination was to establish the fact that the candidate was a gentleman and possessed a thorough command of classical languages. The decision also reveals the College's continued emphasis on the necessity of a complete knowledge of classical medical theory. The covert purpose of the new rules may have been to discourage applications entirely. No licentiate was promoted for twelve years, by which time the rules were changed to permit examination in Latin. The rules of 1771 also barred any doctor who practiced obstetrics, without regard to whether he held an M.D. or the institution that had granted it. In practice, most physicians who practiced obstetrics obtained "foreign" degrees, so the two groups of outcasts overlapped.²⁶

Even outside London, where the College statutes did not govern medical practice, physicians with English degrees sometimes refused to consult with colleagues who held "foreign" degrees, making it difficult for them to establish themselves. For example, John Huxham had great difficulty in building a practice in Plymouth because he was a Dissenter with a degree from Rheims.²⁷ Similarly, John Fothergill's close friend, William Cumming, found it impossible to establish a practice in King's Lynn, because the senior local physician, William Browne, objected to his Edinburgh degree. Browne later became President of the College of Physicians.²⁸

²⁵Waddington, *Struggle*, p. 109.

²⁶Clark, *History*, 2: 564-67.

²⁷McConaghey, "John Huxham," p. 281.

²⁸Clark, *History*, 2: 547. See also David Harley, "Honour and property: the structure of professional disputes in eighteenth-century English medicine," in Andrew Cunningham and Roger French, eds., *The Medical Enlightenment of the Eighteenth Century* (Cambridge, 1990), pp. 138-64.

Most Oxford or Cambridge graduates expected to obtain a wealthy “society” practice in London or one of the most prosperous county towns, whereas the “outsiders” tended to be men of poorer backgrounds who often lacked the “connections” that helped smooth the path of young aspirants. In addition, many of them confronted prejudice not only against their place of education but also against their nationality and religion. Resentment of Scots immigrants was particularly strong in the years immediately following the abortive Jacobite rising of 1745.²⁹ The adamant refusal of the College to admit Scottish graduates as fellows merely added weight to a system already balanced against them: one that often did not seem to weigh their training or merits fairly.

In order to overcome these hurdles, the “outsiders” sought other means of advancement. They published books and papers on medical topics. A single well-regarded treatise on an important subject could make a physician’s reputation in the eighteenth century. They developed professional and intellectual societies outside the College of Physicians. They formed networks, founded new institutions, and offered each other support, encouragement, friendship, and assistance. Although some physicians gave up the struggle and took up other careers, over several decades, these strategies proved successful for many of the outsiders. By the end of the century, they had created their own “establishment,” and many of the early pioneers had become prosperous and well-entrenched patricians.

Of all the London immigrants, John Pringle rose most rapidly. He was comparatively wealthy and well-connected, and had the benefit of having served with distinction in the Army. Although a Scot, he had obtained his medical degree from Leyden. In 1745 he had become a Fellow of the Royal Society; he would become its President in 1772. Although he apparently practiced “illegally” for a considerable time, in 1758 he finally became a licentiate. Although he never obtained a working hospital post, in 1763 Pringle became physician to the queen. As a result, in the same year he was made a Fellow of the College of Physicians *speciali gratia*. Three years later, he became a baronet. As a fellow of the College, Pringle attempted unsuccessfully to liberalize the admission rules and to obtain the admission of Fothergill and Hunter.

In this effort to reform the College from within, Pringle was joined by several “liberal” fellows. The most important of these was William Heberden.³⁰ The son of an innkeeper, Heberden soon became an intimate friend of John

²⁹Maloney, *George and John Armstrong*, pp. 24–30.

³⁰On Heberden, see Ernest Heberden, *William Heberden, Physician of the Age of Reason* (London, 1989). See also Percy B. Davidson, “William Heberden, M.D., F.R.S.,” *Annals of Medical History* 4 (1922): 336–46, and LeRoy Crummer, “Prefatory Essay to an Introduction to the Study of Physic,” *Annals of Medical History* 10 (1928): 226–41. On Heberden’s efforts to reform pharmacy and introduce a journal to the College of Physicians, see Clark, *History*, 2: 548, 560–61, 565, 578–81, 589–90.

Fothergill's. Although he remained an Anglican, he was a dedicated supporter of the radical chemist Joseph Priestley, with whom he attended Unitarian services. Pringle also attended Unitarian services, after seeking advice on the subject from his close friend Benjamin Franklin.

Another "liberal" fellow was Heberden's student, George Baker. Baker wrote his seminal work on lead poisoning in close collaboration with the Scottish chemist and physician William Saunders, for whom Baker ultimately obtained a fellowship of the College. Baker's presidency of the College in 1786 marked a temporary end to the animosity between the fellows and the licentiates.³¹ Both Heberden and Baker were interested in epidemiological investigation and both made important contributions to the literature on influenza.

William Hunter and John Fothergill experienced greater difficulty in establishing themselves than had Pringle. Hunter initially practiced as a surgeon. He began as a private lecturer in anatomy; in his second year he had to postpone his course because he did not have enough money to defray the cost of advertising it.³² Gradually, he built a successful obstetrical practice, becoming a surgeon-midwife at the Middlesex Hospital in 1748. The following year, he helped establish the British Lying-in Hospital and became a surgeon-midwife there. In 1750 he obtained an M.D. from Glasgow and he finally became a licentiate in 1756.

Like Pringle, John Fothergill never held a significant hospital appointment. Although the publication of his classic account of ulcerated sore throat in 1748 helped establish his reputation, Fothergill spent years in an unremunerative practice among the suburban poor before becoming a wealthy man. His obituary stated that he had often worked all day long without receiving a single fee.³³

Pringle, Fothergill, and Hunter all engaged in important medical and scientific research. Pringle had become a fellow of the Royal Society in 1745; Fothergill followed in 1763, and Hunter in 1767. Both Pringle and Fothergill were interested in epidemiological research. Between 1750 and 1756 Fothergill published a monthly account of the weather and diseases of London. Pringle, who published his classic treatise entitled *Observations on the Diseases of the Army* in 1752, initiated a number of efforts to gather medical information by correspondence. Among these efforts was a study of the Scottish influenza epidemic in 1758, which he published in the journal of Fothergill's "Society of Physicians."³⁴

³¹On Baker see R. M. S. McConaghey, "Sir George Baker and the Devonshire colic," *Medical History* 11 (1967): 345-60, and St. Julien R. Childs, "Sir George Baker and the Dry Belly-Ache," *Bulletin of the History of Medicine* 44 (1970): 213-40.

³²Simmons and John Hunter, *William Hunter*, p. 6.

³³Fox, *Fothergill*. On his ill-paid practice see "Biographical Anecdotes of the late John Fothergill," *London Medical Journal* 4 (1784): 176-203.

³⁴Trohler, "Quantification," pp. 56, 275.

It was at mid-century that contagionism first began to compete successfully with other views of the nature of influenza. Contagionism, the theory that disease is generated by a physical entity that is transmitted from victim to victim, was a lay view of disease that went back to classical times, but it was not generally accepted by learned physicians, since it was incompatible with both humoral and environmental theories of disease. During the first half of the eighteenth century a handful of medical writers, including Richard Mead, had argued that certain diseases were contagious, but most of these works had not become part of the accepted medical canon.³⁵ Mead was the only one of these authors who was generally accepted, and the disease he had discussed, plague, was not present in England and was considered an exceptional case. The development of inoculation for smallpox in the 1720s, however, had given a considerable impetus to contagionist theories. The chief campaigners for inoculation were members of the Royal Society, led by its President, Hans Sloane.³⁶

Members of the Fothergill circle brought contagionism into the medical mainstream as a potential explanation for the behavior of a range of epidemic diseases. In 1748, Fothergill himself published a treatise on sore throat, which argued that streptococcal sore throat was contagious and was due to a "putrid virus" or "miasma sui generis" spread through the breath.³⁷ Pringle's experiments with putrefaction as a cause of disease laid the foundation of his reputation, but in the fourth edition of his *Observations on the Diseases of the Army* (1764), he noted that he had recently come across a Linnaean dissertation arguing in favor of a theory of animalcular contagion: that is, that some diseases were contagious because they were transmitted from person to person by microscopic animal parasites. He appended a long extract from the dissertation and urged that all hypotheses on the cause of disease be suspended until these arguments could be investigated more thoroughly.³⁸

³⁵For the history of contagionism, see Winslow, *Conquest of Epidemic Disease*, and Richard Harrison Shryock, "Germ theories in medicine prior to 1870," *Clio Medica* 7 (1972): 81-109.

³⁶Genevive Miller, *The Adoption of Inoculation for Smallpox in England and France* (Philadelphia, 1957). See also Lise Wilkinson, "The development of the virus concept as reflected in corpora of studies on individual pathogens, 5: Smallpox and the evolution of ideas on acute (viral) infections," *Medical History* 23 (1979): 1-28; DeLacy, "Influenza in eighteenth-century Britain," and idem., review of John Huxham's *Essay on Fevers*, *Bulletin of the History of Medicine* 64 (1990): 110-11.

³⁷John Fothergill, *An Account of the sore Throat Attended with Ulcers* (1748), republished as *An Account of Putrid Sore Throat* in vol. 1 of *The Works of John Fothergill, M.D.*, ed. John Coakley Lettsom (London, 1783). I thank the National Library of Medicine (N.L.M.) for supplying a microfilm copy of this work.

³⁸See Selwyn, "Pringle," p. 268, and Margaret DeLacy "A Linnaean Thesis on Contagium Vivum: the 'Exanthemata Viva' of John Nyander," paper given at the American Association for the History of Medicine, May 2, 1992.

Because contagionism enabled these physicians to see disease as a “thing” rather than as an “imbalance,” the adoption of contagionism led to a particular “construction” of distinct “diseases” out of a bewildering welter of symptoms and to a greater distancing of the disease from an individual symptom. It thus contributed to a sharper definition of many diseases including influenza. Indeed, it was during this period that many illnesses were reconstrued to become the distinct “diseases” familiar to us today. Such ailments as putrid malignant fever, bilious fever, slow nervous fever, inflammatory fever, and pestilential fever, gradually gave way to “diseases” such as typhus, measles, scarlet fever, erysipelas, and pneumonia.³⁹

When contagionism displaced atmospheric explanations, it became evident that not everyone in the same city who fell ill at the same time was suffering from the “same” disease and that diseases might follow trade routes rather than weather patterns. This gave an important impetus to collective epidemiology, because it encouraged doctors to pay closer attention to the exact dates when a particular disease appeared in a particular location and the pattern of its spread throughout a given area, rather than charting the vagaries of weather conditions. In addition, contagionism led to the hope that individual disease epidemics could be controlled through medical and social intervention, and thus contributed to the campaign for better hygiene, particularly within social institutions such as hospitals and prisons, and to greater medical activism in general.

Although respondents to Pringle’s 1758 survey on influenza discussed the question of contagion, they rejected it as an explanation. Indeed, the first writer positively to maintain that influenza was contagious was David Campbell, the physician of the Lancaster infirmary, who contributed to John Fothergill’s survey in 1775.⁴⁰ But, it was the work in the next decade of Fothergill’s younger friend, Dr. John Haygarth, on typhus and smallpox, that really established contagionism as a widely-held hypothesis.⁴¹ During the epidemic of 1782, one-third of the

³⁹See DeLacy, “Influenza in eighteenth-century Britain,” and idem., “Puerperal Fever in Eighteenth-Century Britain,” *Bulletin of the History of Medicine* 63 (1989): 521–56. For an eighteenth-century discussion see John Thomson, ed., *The Works of William Cullen, M.D.*, 2 vols. (Edinburgh and London, 1827), 1: 225–362, 479–560. See also W.F. Bynum and V. Nutton, eds., *Theories of Fever from Antiquity to the Enlightenment, Medical History*, supp. 1 (London, 1981), esp. Dale C. Smith, “Medical science, medical practice, and the emerging concept of typhus in mid-eighteenth-century Britain,” pp. 121–34. See also Lester King, “Boissier de Sauvages and 18th. century nosology,” *Bulletin of the History of Medicine* 40 (1960): 43–51; and idem, *The Medical World of the Eighteenth Century* (Chicago, 1958), pp. 193–99.

⁴⁰Campbell, letter to Fothergill in Thompson, *Annals*, p. 113. Campbell (?1749–1832), M.D. Leyden (1770) and Edinburgh (1777), wrote an important book on typhus. Campbell is described as “English” at Leyden but there is some evidence that he lived for a time in America. Lancaster City Library, Biographies File; R. W. Innes Smith, *English-Speaking Students*.

⁴¹See DeLacy, “Influenza in eighteenth-century Britain.” The best accounts of Haygarth are John Elliott, “A medical pioneer: John Haygarth of Chester,” *British Medical Journal* 4 (Feb. 1, 1913): 235–42, and George H. Weaver, “John Haygarth, clinician, investigator, apostle of sanitation, 1740–

sixty-one doctors who ventured comments on the disease favored a contagionist theory of transmission and only seven opposed it. The acceptance of contagionism was not uniform, however, and the readiness of physicians to adopt the theory was colored by their personal background, education, overall approach to medicine, and allegiances, as shown by the institutional history of the period.

In 1754 John Fothergill and William Hunter had formed a London society known as the "medical society in London" or "the society of physicians." In 1757 the society began publishing its own journal, *Medical Observations and Inquiries*. Fothergill paid most of the costs, and contributed about fifty of the approximately 200 papers that were published. It was this journal that published not only Pringle's 1758 survey but also the responses to Fothergill's circular letter on the influenza epidemic of 1775. Among the respondents to the latter were Pringle, Heberden, and Baker.⁴²

At the same time, the College attempted to establish a publishing program of its own. Perhaps it was goaded into action by the success of the *Medical Observations and Inquiries* and wished to show that the interlopers had no monopoly over medical learning. If so, however, the effort was a comparative failure. After reprinting the works of Harvey in 1764, distributed to the fellows on the finest paper and to the licentiates on lesser stock, the College launched a journal, the *Medical Transactions*, in 1767. The chief proponent of the journal and of medical research at the College generally was William Heberden, who also served as the medical referee for the *Philosophical Transactions*.⁴³ In the first volume of the *Medical Transactions*, Heberden appealed for information on the current influenza epidemic. However, hostilities between the licentiates and the fellows were then intense, as shown by two tumultuous College meetings in the summer of 1767. The licentiates resolved to boycott the journal entirely, and the fellows contributed few papers to it. Heberden apparently received no replies to his appeal and the journal itself starved. After the first volume appeared in 1768, it took four years to publish a second. There the matter rested for a further decade.⁴⁴

1827," *Bulletin of the Society of Medical History of Chicago* 4 (1930): 156-200. See also Francis M. Lobo, "John Haygarth, smallpox and religious Dissent in eighteenth-century England," in Cunningham and French, *Medical Enlightenment*, pp. 217-53, and John Haygarth, "An inquiry how to prevent the small-pox" (1784) in John Haygarth, *Medical Transactions*, vol. 1 (London, 1801). I thank the N.L.M. for providing a microfilm copy of this work.

⁴²John Fothergill, "A sketch of the epidemic disease which appeared in London towards the end of the year 1775," *Medical Observations and Inquiries* (1784) in Thompson, *Annals*, pp. 86-89.

⁴³Clark, *History*, 2: 578-79, Sir Christopher Booth, "The Development of Medical Journals in Britain," in *idem, Doctors in Science and Society: Essays of a Clinical Scientist* (1987), p. 204.

⁴⁴Clark, *History*, 2: 560-61, 572.

During the influenza pandemic of 1782, however, the College decided to try again, and launched a national appeal for information, which elicited seventeen replies. Six respondents made no commitment on contagion, five favored an atmospheric theory and six argued for contagion. The College's report was non-committal on the question. None of the respondents was a fellow at the time, although one, Dr. Martin Wall, F.R.S, an Oxford chemist, would become a fellow five years later.⁴⁵

In 1784, Edward Gray edited a report on the same pandemic for the Society for Promoting Medical Knowledge. Gray's work took a very different stand on the question of transmission.⁴⁶ Of the thirty-two British correspondents quoted by Gray, eleven were cited on the question of contagion. Of these eleven, eight favored it, one preferred it although he had some lingering doubts, and only two were opposed. Gray's own comments strongly supported the hypothesis. This, however, apparently marked a high point in the acceptance of contagionism. In surveys that would be carried out by the Medical Society of London and by Thomas Beddoes during the epidemic of 1803, the proportion of contagionists remained steady at about one-third of the 170 respondents, but the number of avowed miasmatisms or anti-contagionists rose to an equal level.

Fothergill had died in 1780, but the contributors to the 1782 surveys included several of his old friends and associates. By this time, relations between the licentiates and the fellows were apparently improving, and Fothergill's disciple, John Coakley Lettson, actually forwarded a long report from Dr. Robert Hamilton to the College.⁴⁷ By the time George Baker became president of the College in 1786, the licentiates had officially agreed to rescind their boycott of the *Medical Transactions*.

By the later decades of the century, a number of fellows had become interested in epidemiological research. It would be equally accurate to say that a number of men who were interested in epidemiological research ultimately became fellows. For example, aside from Baker and Heberden, who seems to have had a lifelong interest in influenza, they included Martin Wall and William Watson, F.R.S. Watson, who held an honorary M.D. from Halle, was an intimate friend of Fothergill and Benjamin Franklin and a dedicated Whig. Watson contributed

⁴⁵"An Account of the Epidemic Disease, called the Influenza, of the year 1782,...by a Committee of the Fellows of the Royal College of Physicians..." (*Medical Transactions* 3 [1785]), in Thompson, *Annals*, pp. 155-64. Royal College of Physicians, mss. 670, 1045/18 and 3012/1-23, omitting 3012/10. I have omitted 3012/19 from Spain, dated 1790. I thank the College for supplying copies of these letters.

⁴⁶Edward Gray, "An Account of the Epidemic Catarrh of the Year 1782; compiled at the request of a Society for promoting Medical Knowledge," (*Medical Communications* 1 [1784]), in Thompson, *Annals*, pp. 117-48.

⁴⁷Robert Hamilton, "Some remarks on the influenza that appeared in Sp[r]ing 1782, in a letter to Dr. Lettson" (1787), in Thompson, *Annals*, p. 173.

an article on influenza to the *Philosophical Transactions* in 1762 and became a fellow of the College in 1784.⁴⁸

Since fourteen fellows or future fellows contributed to the influenza literature during the course of the century, it seems odd that Martin Wall was the only one who is known to have responded to either of the two surveys sponsored by the College. There are several possible explanations for this. The authors of the College report of 1782 are not named, but the letters were read by a committee appointed by the College that included its officers as well as Heberden, Baker and two other physicians: John Monro and Richard Brocklesby, F.R.S.⁴⁹ It is possible that these men were chosen because they were known to be interested in the subject.

Like Heberden, Monro and Brocklesby represented the "liberal" end of the College spectrum. Monro, a "mad-doctor" who had studied at Edinburgh and Leyden but held an Oxford M.D., acted as protector and patron of George Armstrong's pioneering Dispensary for the Infant Poor, in association with a large contingent of Scottish physicians. Brocklesby, who had also studied in Edinburgh, was an Irishman with degrees from Leyden and Dublin. He became a fellow by incorporating at Cambridge and succeeded Pringle as Physician-General to the Army, where he tried to implement many of Pringle's reforms. Although he was Samuel Johnson's physician, he was a lifelong supporter of Edmund Burke, and a man whose "attachment to the cause of liberty" aroused Priestley's admiration.⁵⁰

The Registrar, Henry Revell Reynolds, who also had contributed to Fothergill's influenza survey in 1775, was responsible for receiving the letters. Reynolds had studied in Edinburgh and became a member of the Medical Society but obtained his M.D. from Cambridge. He was an extremely successful society physician, but his son became a dissenting minister.⁵¹ One, some, or all of these men probably wrote the College report, but their contributions are buried by the studied impersonality of the report itself.

⁴⁸In addition to the standard biographical sources, see Uta Janssens, *Mathieu Maty and the Journal Britanique* (Amsterdam, 1975), and Gerald P. Tyson, *Joseph Johnson: A Liberal Publisher* (Iowa City, 1979). I thank Dr. Elizabeth Eisenstein for these references.

⁴⁹Clark, *History*, 2: 582. On Monro, see Maloney, *George and John Armstrong*, pp. 57-61, 105 n13.

⁵⁰F. W. Gibbs, *Joseph Priestley: Revolutions of the Eighteenth Century* (Garden City, N.J., 1967), pp. 96, and Selwyn, "Pringle," p. 269. See also Fox, *Fothergill*, p. 141; Chaplin, *Medicine in England during the Reign of George III* (London, 1919), pp. 88-89; John Wiltshire, *Samuel Johnson in the Medical World: The Doctor and the patient* (Cambridge, 1991), and Maloney, *George and John Armstrong*, p. 48. Brocklesby, a member of Fothergill's Society of Physicians and the Edinburgh Medical Society, participated in conflicts with Priestley and Armstrong.

⁵¹College of Physicians, "Account," in Thompson, *Annals*, p. 161, and Munk, *Roll*, pp. 253-57.

Another possible reason for the non-participation of the fellows in their own surveys might be simply that the majority of them were based in London and believed that their contributions would be less valuable than those of physicians further afield. This, however, had not prevented them from contributing to other investigations, such as that made by Fothergill in 1775, when five fellows or future fellows responded.

In any case, the fellows who did become involved in influenza research were not typical of the College membership. At a time when the fellowship was overwhelmingly made up of English University graduates, one-third, four of the twelve who wrote signed contributions on influenza after 1750, were graduates of universities outside England. If the two fellows from earlier in the century are added to this total, the proportion becomes six of fourteen, or 43%.

The same problem can be found when looking at the entire group of physicians who published contributions to the debate on influenza. Physicians with English degrees were less likely to participate in influenza studies than those with other degrees. Of approximately 282 influenza authors and correspondents during the period from 1750 to 1803, about half, 145, are referred to as "Dr." Eighteenth-century medical men were usually accurate in their use of titles when writing for professional colleagues, and it seems likely that nearly all of these physicians obtained M.D. degrees at some point in their careers. I have not been able to determine the degree held by twenty-five of them, however, either because they had common last names or because their university is not known. Thus, 120 can be assigned to a particular university. This includes two, and possibly three, men who apparently practiced only with an English M.B. In addition, one doctor, Robert Hooper, who wrote on the epidemic of 1803 obtained an Oxford M.B. in 1804, and an M.D. from St. Andrews in 1805. John Haygarth of Chester practiced on the strength of a Cambridge M.B. awarded in 1766, but he received a Harvard M.D. in 1795. Like Martin Wall and Henry Revell Reynolds, he had attended Edinburgh without taking a degree.⁵²

Of these 120 whose place of degree is known, fifty-three obtained an Edinburgh degree (44%), and eighty-four obtained a degree from a Scottish university including Edinburgh (70%). Ten men, not including the M.B.'s, obtained

⁵²See note 14 for sources of biographical information. I have assumed that anyone described as "doctor" held a degree (M.B. or M.D.). Ruty, who wrote before and after 1750, is included. Of 145 "doctors," I counted two "Dr. Scotts" and Dr. John Nelson Scott of the Isle of Man as three different men. Eleven of the "doctors" are identified but not the place of their degrees. Two men, "Chisholm" and "Lindsay," are named by Hirsch as influenza authors, but I have not been able to verify this. I have not included Edinburgh theses in the tabulations. I have also been unable to consult separate works by Robert Hooper, John Nott, and John Herdman on the epidemic of 1803. Robert Hooper worked as an apothecary before entering Pembroke College and obtaining a B.A. at age 30. Members of the College of Physicians prevented him from obtaining an Oxford M.D., according to the *D.N.B.*

an English doctorate (8%). (Adding three "terminal" M.B.'s would raise the percentage to 11%). Twenty-eight (23%) obtained foreign or Irish degrees, of which eighteen were from Leyden, but six of these men held two M.D. degrees. One of these, William Watson, received degrees from Halle and Wittenberg; the other five held one foreign and one Scottish degree.

We do not know exactly what proportion of all practicing physicians were graduates of English or Scottish universities during the eighteenth century. In a sample of the comprehensive database of British medics compiled by Wallis and Wallis, 25% of M.D.'s whose place of degree was known held English degrees. Twenty-nine percent held Edinburgh degrees and 21% percent held other Scottish degrees; altogether 50% held Scottish degrees.⁵³

On the basis of these estimates, it appears that Edinburgh graduates and Scottish graduates generally were disproportionately likely to participate in influenza research since Scottish graduates made up only one-half of the profession, but 70% of the influenza contributors whose degree and university are known. Edinburgh graduates constituted less than one-third of graduates and nearly half of influenza contributors. English graduates, on the other hand, were under-represented in such efforts, since they made up nearly one-quarter of all graduates, but about one-tenth of the influenza contributors. It seems likely that if all the contributors to influenza surveys could be definitely identified this disproportion would increase, as English graduates are easier to identify.

It might be argued that this differential was the result of accident: the epidemic of 1758 took place only in Scotland and thus only Scottish physicians contributed information. As there were only five responses in this case, however, that cannot explain the difference. It could be assumed that the background of correspondents was significantly influenced by the person or organization collecting the material; thus, surveys by men such as John Fothergill or organizations such as the Society of Physicians would presumably involve particular circles of physicians. However, that argument seems inadequate because the College of Physicians itself sponsored two requests for information that should have evoked some response from its own constituency, if one existed. In fact, however, fellows did not respond to the College surveys. Fothergill was more successful than the College in eliciting replies from fellows and physicians with English degrees.

Even including all the members of the College committee on the 1782 epidemic as probable authors of the unsigned College report would not sig-

⁵³Wallis and Wallis, *Eighteenth Century Medics*, p. xiv. The Wallises' sample consisted of 142 "doctors," including 40 whose place of graduation was unknown. The Wallises apparently counted only M.D. degrees, not M.B. degrees, and they counted physicians with more than one degree as half at each university. Recalculation to reconcile this discrepancy would not significantly alter the results.

nificantly change the outcome, since the three most important among them, Heberden, Baker, and Reynolds, are already included as contributors to other surveys and a fourth, Brocklesby, was educated abroad. Overall, then, it appears that outsiders became more involved in medical investigation than English graduates because the outsiders were more interested in pursuing such work and not merely because they were more likely to be asked to provide information.

It is possible that the medical "outsiders" were more interested in studying epidemic diseases because they saw them more often. Oxford and Cambridge graduates who settled in London tended to see the wealthiest patients: middle-aged men who were likely to suffer more from chronic than epidemic diseases and who could afford to avoid the most dangerous epidemics simply by flight. Their institutional practice focused on infirmaries, which usually refused admission to fever victims and children.

Graduates of Scottish universities, licentiates, and provincial practitioners saw a broader cross-section of society. Although some gained infirmary appointments, many founded and served dispensaries that treated large numbers of fever victims in their homes. Many of the Dissenters built practices among co-religionists; this also gave them a less wealthy clientele than that seen by the fellows. Since their patients were poorer, they probably had to see a greater number of patients to maintain their income. The "outsiders" were also more likely to specialize in the diseases of women and children; children were more likely to suffer from certain epidemic fevers. During this period many physicians built a family practice through obstetrics; obstetricians were specifically disbarred from fellowship in the College. Others built their careers by serving in the armed forces where control of epidemics was a major concern: Scots and Dissenters often lacked the capital and connections necessary to set up a practice immediately after graduating.

Although these circumstances may explain the greater interest that the "outsiders" felt in studying epidemics, it cannot fully account for the different approach they took to explaining them. Not only were English-educated physicians less likely to participate in epidemiological studies in the first place, they were also less likely to commit themselves to contagionism; indeed, they were reluctant to commit themselves to any theory of transmission. Overall, about 30% of all contributing physicians after 1750 believed that influenza was contagious, about 21% were clearly opposed to that view, and the rest either expressed no opinion on this issue, expressed ambivalence, or otherwise offered unclassifiable comments. The Scottish physicians reflected the general view; 31% of them thought influenza was contagious and 24% thought it was not. Edinburgh graduates varied from their Scottish peers by only one percent: 32% thought influenza was contagious, 23% that it was not.

None of the English M.D.s and only one M.B., John Haygarth, argued that influenza was contagious, and Haygarth's views changed considerably between

1775 and 1782 as he gained experience. On the other hand, only one English graduate, Charles Cameron, an M.B. from Oxford, argued that it was not contagious. Physicians with foreign degrees were slightly less likely to argue against contagionism (18%) but equally likely to favor it (32%, including Haygarth). The greatest support for contagionism came from the ranks of those whose place of degree is unknown, eleven of whom, (44%) favored the hypothesis, balancing the English sceptics almost exactly.

These educational influences were reflected and even magnified in social and political organizations. Twelve men who were or were to become fellows of the College of Physicians, including four Fellows *speciali gratia* (John Pringle, James Carmichael Smyth, Donald Monro, and William Watson), wrote on influenza after 1750. Of these twelve, none argued that the disease was contagious. Although the fellows and future fellows who did do such research tended to represent the more "liberal" end of the College spectrum, the cautious and non-committal tone of the College report in 1782 apparently reflected their general approach.

In contrast to the fellows of the College of Physicians, the fellows of the Royal Society were slightly more likely than the general population of physicians to be contagionists: nine of twenty-three fellows of the Society (39%) who wrote on influenza after 1750 believed it was probably contagious (this includes the Manchester apothecary Thomas Henry). Twelve of thirty-six known members of the Edinburgh Medical Society (33%) were contagionists.

The northern circle of physicians associated with John Haygarth was especially active in epidemiological research, and these men were also likely to hold contagionist views. Many of the northern physicians maintained their own ties with the London medical world, but there was also a distinctive northern circle centering on the Manchester Literary and Philosophical Society. Eleven of the men who contributed reports on influenza were members or honorary members of the Literary and Philosophical Society: of them, seven believed that it was contagious (64%).

Among the members of this circle who became involved in influenza inquiries were John Clark in Newcastle; John Haygarth and William Falconer of Chester; Samuel Argent Bardsley, George Bew, and the apothecary Thomas Henry in Manchester; John Alderson of Hull; and William Currie, Matthew Dobson, Thomas Houlston, and Jonathan Binns in Liverpool. These men worked together closely on many medical reform projects and relied on each other for informal assistance in their investigations into influenza. For example, Haygarth included information on the appearance of influenza in Liverpool that was provided by Dobson, and Currie investigated a report of a shipboard epidemic for Thomas Henry. These men made Haygarth's work the center of their own campaigns

for hospital reform and inoculation. Although not all of them were entirely committed to contagionism, in general, they supported contagionist measures during the 1780s.⁵⁴ They also tended to be strongly Whig in politics and several were Quakers or Unitarians in religion; medical and political reform went hand in hand.

In the south also, groups that supported epidemiological research in general and contagionism in particular also tended to support liberal to radical political and religious viewpoints. The responses to Fothergill's first circular letter on influenza were published in the journal *Medical Observations and Inquiries* produced by "the society of Physicians," or "the Medical Society in London," whose presidents were John Fothergill and William Hunter.⁵⁵ Many members of this group were associated with Benjamin Franklin and the radical chemist Joseph Priestley; with Franklin they attended meetings of his favorite society, "the Club of Honest Whigs."⁵⁶ Several other members of Fothergill's medical society, including William Watson, also became involved in the attack of the licentiates on the College.

Following Fothergill's death in 1780, the "society of Physicians" dissolved. In 1773, however, Fothergill's protégé, the Quaker John Coakley Lettsom, had founded the London Medical Society (also known as the Medical Society of London). Several of its other members were also Quakers. The goal of the Society was to promote cooperation among physicians, surgeons, and apothecaries; thus, by implication, helping to erode the traditional hierarchy of medical authority. Although he did not write on influenza, Lettsom was a committed contagionist in his overall disease theory and the members of the Society supported his approach; of eight known members who contributed views on influenza, five were contagionists. The *Memoirs* of the Society published several separate comments on influenza, including an essay by Anthony Fothergill in 1792 on the epidemics of 1775 and 1782 and contagionist essays by Robert Hamilton in 1787 and William Falconer in 1788.⁵⁷

⁵⁴In addition to the biographical sources above, see Margaret DeLacy, "Puerperal fever in Eighteenth-Century Britain," *Bulletin of the History of Medicine* 63 (1989): 550 ns 14, 20, and 41, which contain many additional citations.

⁵⁵Humphry Rolleston, "Medical friendships, clubs and societies," *Annals of Medical History* n.s. 2 (1930): 249-66.

⁵⁶Verner W. Crane, "The Club of Honest Whigs: friends of science and liberty," *William and Mary Quarterly* 3rd. ser., 23 (1966): 210-33. See also Alfred Owen Aldridge, *Benjamin Franklin and Nature's God* (Durham, N.C., 1967), pp. 208-09, and Caroline Robbins, *The Eighteenth-Century Commonwealthman* (New York, 1968). Conflicting accounts have created confusion about the membership of these clubs. Crane argues that physicians named in other accounts, such as Watson, Templeman, Maty, and Parsons were not members of the Honest Whigs but merely accompanied Franklin as visitors.

⁵⁷William Falconer, "*Influenzae Descriptio*," *Memoirs of the Medical Society of London* 3 (1792): 25-29; Anthony Fothergill, "Account of the epidemic catarrh (termed influenza) as it appeared at

The next major survey on influenza was the contagionist volume on the epidemic of 1782, edited by Edward Whitaker Gray. Best known as a botanist, Gray had obtained an Aberdeen M.D. and served as keeper of the Natural Science department of the British Museum, as well as Librarian to the College of Physicians, but little is known of his medical interests.⁵⁸ The volume he produced formed one of the *Medical Communications* of the Society for Promoting Medical Knowledge. The Society was founded by the enterprising Samuel Foart Simmons, who had been a leader in Lettson's Medical Society of London and would become William Hunter's biographer. An honorary member of the Manchester Literary and Philosophical Society, Simmons studied at Edinburgh and Leyden, and became a physician to the Westminster Dispensary, which had been founded by Lettson.⁵⁹

The publisher of *Medical Communications* was the radical Unitarian, Joseph Johnson, who for a time had been the London agent of the Unitarian Warrington Academy near Manchester, where Priestley had been a tutor. In addition to Priestley's own work, both scientific and political, Johnson published work by such political reformers as Thomas Paine, Benjamin Franklin, John Horne Tooke, William Godwin, "Major" Cartwright, known as the "father of reform," and the feminist authors Mary Scott and Mary Wollstonecraft. Johnson ultimately went to jail for publishing a seditious work by Gilbert Wakefield, another Warrington tutor.⁶⁰ Johnson's medical publications include works by John Haygarth, his friend William Falconer, and several members of the Hunter family. He was one of three publishers of William Grant's contagionist treatise on the influenza epidemic of 1782.

Johnson and Simmons were frequent collaborators and were involved together in at least two other medical journals: the *London Medical Journal*, which Simmons edited until 1790, and *Medical Facts and Observations*. Editorials and book reviews in the *London Medical Journal* strongly supported contagionist theories of influenza. In 1788, it published Simmons's own treatise on the

Northampton,...in 1775; together with a comparative view of a similar disease,...in 1782," *Memoirs of the Medical Society of London* 3 (1792): 30-43. Robert Hamilton, "Some remarks on the influenza that appeared in Sp[r]ing 1782," reprinted in Thompson, *Annals*, pp. 164-90. On Lettson see J. Johnston Abraham, *Lettson: His Life, Times, Friends, and Descendants* (London, 1933), and Robert Kilpatrick, "'Living in the light' dispensaries, philanthropy and medical reform in late-eighteenth-century London," in Cunningham and French, *Medical Enlightenment*, pp. 254-80.

⁵⁸D.N.B., "Edward Whitaker Gray."

⁵⁹Tyson, *Joseph Johnson*, pp. 78-79.

⁶⁰Tyson, *Joseph Johnson*, *passim*. See also William Grant, *Observations on the Late Influenza....As it appeared at London in 1775 & 1782* (London, 1782). I thank the N.L.M. for supplying a copy of this work.

epidemic of that year, which commented that the contagious nature of influenza was now "pretty generally acknowledged."⁶¹

Finally, there were the two surveys of 1803. One was sponsored by [Lettsom's] London Medical Society and appeared in the *Memoirs* of the Society, then being printed by Johnson. The other was conducted by Thomas Beddoes for the *Medical and Physical Journal*. Beddoes had been a lecturer in Chemistry at Oxford, but was forced to resign after he wrote a radical political pamphlet that was published by Johnson. In 1808, Beddoes became involved in another campaign to overturn the control of the College of Physicians over the standards of admission to the profession.⁶² Charles Creighton believed that Beddoes himself was a contagionist and tried to weight his evidence in favor of the doctrine, but there is no suggestion of this in his compilation, and Beddoes himself did not offer any conclusions.

The publisher of the *Medical and Physical Journal* was Richard Phillips. A friend of the radical politician "Orator" Hunt, Phillips was well known for his republican sympathies. Unlike Johnson, who had managed to camouflage his involvement, Phillips was prosecuted for selling the works of Thomas Paine in 1793 and spent eighteen months in jail. He continued to publish from prison with Priestley's assistance.⁶³ On his release he established the *Monthly Magazine* under the editorship of the son of the head of the Warrington Academy, Dr. John Aikin. Aikin, who had himself been driven from medical practice because of his radical political views, had turned to his pen for a living and worked on several literary projects for Johnson.⁶⁴

As the involvement of Johnson and Phillips suggests, medical politics often became intertwined with broader political conflicts. Many of the leaders of these medical opposition groups also joined the political and religious groups opposing the policies of the English government. In particular, they supported the American Revolution and campaigned for the abolition of slavery and of the Test Acts. It is easy to see why discontent with the existing structure of authority and privilege in one sphere might lead to a more general alienation; indeed, these parallels were sometimes noted by contemporaries. With the exception of the Scottish Tory Jacobite John Arbuthnot in the beginning of the century, the leading influenza researchers whose political views can be determined were Whigs. Many of the most prominent were also Quaker or Unitarian in religion.

⁶¹Samuel Foart Simmons, "Of the epidemic catarrh of the year 1788," *London Medical Journal* 9 (1788): 335-54, 336.

⁶²Clark, *History*, pp. 631-32.

⁶³See the *D.N.B.* and Graham Jones, "Phillips, Sir Richard," in *Biographical Dictionary of Modern British Radicals, Vol. I: 1770-1830*, eds. Joseph O. Baylen and Norbert J. Gossman (Sussex, 1979).

⁶⁴On Aikin see Lucy Aikin, *Memoir of John Aikin, M.D., with a selection of his Miscellaneous Pieces* (Philadelphia, 1824). I thank Dickinson College for supplying a copy of this work.

The “liberal” political views of the London circle associated with Pringle, Heberden, Fothergill, and Lettson, and of the northern group connected to John Haygarth have been well established: it should suffice to note that these groups were very closely associated with each other, and with Priestley and Franklin.⁶⁵

Similar allegiances can also be found in the lives of more obscure physicians. For example, the family associations of Pringle’s correspondent Thomas Simson, first professor of medicine at the University of St. Andrews, would suggest that he combined liberal religion with medical reform. Simson’s uncle and teacher, John Simson, was professor of divinity at Glasgow; in 1726, he was accused of adopting the Arianism of the Cambridge divine Samuel Clarke, and in 1728, he was suspended for heterodox teaching.⁶⁶ According to the *D.N.B.*, “throughout the last century Simson’s name was a byword as a disseminator of unsound doctrine.”⁶⁷ Dr. Thomas Simson became an advocate for the vitalist views of the German medical reformer George Ernest Stahl; it seems likely that it was this that influenced him to write on the reform of the *materia medica* and to become an early supporter of a conservative therapy for influenza.⁶⁸ He noted that he successfully treated his patients with barley water instead of bleeding them.

Two other physicians, Robert Kinglake of Somerset and Robert Hamilton of Hertfordshire, who was the author of a long letter to the College that was later published separately by [Lettson’s] London Medical Society, also supported the reformist end of the political spectrum. Both men were contagionists. Kinglake had studied at Edinburgh but obtained a Glasgow degree, and was apparently a friend of Haygarth’s. Hamilton was an Irishman with an Edinburgh degree. Like Kinglake, he had been a member of the Edinburgh Medical Society. The *D.N.B.* describes him as “a warm supporter of civil and religious liberty.”

Another “liberal” contagionist was John Alderson of Hull, physician to the Hull infirmary. A graduate of Aberdeen, Alderson was the son of a dissenting minister in Lowestoft. His brother was also an M.D. and his son became an M.D. and F.R.S; both were educated in Unitarian schools. John’s niece, Amelia,

⁶⁵ See the biographical sources listed above and in note 93 of DeLacy, “Puerperal Fever,” p. 550. See also Sir Christopher Booth, “Three Doctors and the American Revolution,” in *idem*, *Doctors in Science and Society*, pp. 95–117.

⁶⁶ See the *D.N.B.* and Alexander Bower, *The History of the University of Edinburgh*, 2 vols. (London and Edinburgh, 1817), 2: 351.

⁶⁷ *D.N.B.*, “Simson, John.”

⁶⁸ Bower, *History*, p. 351. See also Thomas Simson, “A further account of the epidemic fever in Scotland, in a letter to Dr. Pringle,” *Medical Observations and Inquiries* 2 (1762): 203–06. For the religious and medical implications of Stahlian views, see Johanna Geyer-Kordesch, “Georg Ernst Stahl’s radical Pietist medicine and its influence on the German Enlightenment,” in Cunningham and French, *Medical Enlightenment*, pp. 67–87.

who married the painter John Opie, became a writer: she was a supporter of the radical politician John Horne Tooke and a friend of Mary Wollstonecraft and William Godwin.⁶⁹ Aside from a letter to Beddoes on the epidemic of 1803 that argued that influenza was probably contagious, John Alderson also wrote an important work entitled *An Essay on the Nature and Origin of the Contagion of Fevers*, a study of the transmission of typhus.⁷⁰

It is not difficult to understand why contagionism had a special appeal for those who were on the "left" of the medical spectrum. In the early eighteenth century, physicians had become interested in analyzing the external, as well as the internal causes of disease. This approach in itself was radical because it challenged the foundations of traditional practice. It directly contradicted the emphasis of classical authorities, particularly Galen, on humoralism. More importantly, it contravened other attitudes toward the practice of medicine. It favored the study of patients in groups rather than promoting an emphasis on individual care. It suggested that medical knowledge should be based on the collection and analysis of extended clinical experience, on "empirical" evidence and collective effort, rather than on profound learning and individual experience. It concentrated on acute rather than chronic ailments and on the diseases common to a less elite patient population. Such a population was less likely to demand classical learning from its physicians. For all these reasons, environmentalism challenged the position of those who had been educated in the traditional manner.⁷¹

Contagionism was an extreme version of this approach to disease theory, and it posed all these challenges in an extreme form. It was even more difficult to combine with traditional humoralism than more general atmospheric theories had been, since it placed even less emphasis on the "qualities" of the air, and it devalued the individualistic approach of traditional medicine to an even greater extent. Contagionism has always posed a direct threat to the social order by threatening social intercourse; the fear of contagion led people to flee cities and disrupted trade. Even worse, contagionism threatened the moral order, for it led people to fear and suspect each other, and suggested that random exposure, not intemperate behavior, led to disease. On the other hand, it also suggested that disease might be amenable to human control through organized social intervention; an optimistic prospect that proved very attractive for those committed to Enlightenment ideals.

Influenza itself did not pose a direct threat to social stability. By the late eighteenth century, doctors and patients alike knew that it was pervasive but

⁶⁹D.N.B., "Opie, Amelia." Godwin was a suitor of Alderson's. See Peter H. Marshall, *William Godwin* (New Haven, 1984), pp. 145, 174, 182, 187.

⁷⁰John Alderson, *An Essay on the Nature and Origin of the Contagion of Fevers* (Hull, 1788).

⁷¹Cunningham, "Thomas Sydenham," in French and Wear, *Medical Revolution*.

rarely fatal. No one ever considered attempting to control it by general quarantines, nor did people flee as it approached. Contagionist physicians limited themselves to recommending seclusion for those who were especially vulnerable: the aged, the already sick, and pregnant women. There are no bitter debates about its effects on trade nor over the removal of its victims. For most people it was a nuisance, not a disaster. If physicians were reluctant to accept a contagionist theory of influenza for economic or social reasons it was due to a hostility towards all contagionism, because it had disagreeable social implications in general, not because of any direct fear of the impact of influenza quarantines.

Intellectual considerations, however, probably weighed more heavily than social ones. One important factor that led "Establishment" physicians to resist contagionism was a general hostility towards any approach to medicine that smacked of oversimplification. English universities trained their medical students as scholars, and, like many scholars, they were inclined to resist reductionism and to emphasize complexity and variability, to think in terms of many causes interacting to cause illness, not of a single means of transmission. Indeed, they tended to associate monocausal explanations with quackery. Many physicians, however, refused to adopt a contagionist theory of influenza simply because the evidence was always ambiguous and unpersuasive; it remains problematic to this day. The characteristics of the disease itself always shaped medical views. Epidemiological investigation raised the issue of contagion as a central question to be addressed in the study of disease, but it did not always provide an unambiguous answer.

It is important not to misunderstand the nature of the challenge that the "outsiders" were mounting. Most of the reforming physicians who wrote on epidemiology in the late eighteenth century were not "libertarians"; they were "liberals" committed to the value of collective medical investigation. They supported the idea of organized social intervention, even State intervention, in medical affairs and public health. They did not deny the need for authority, they contested the credentials of those who were currently exercising it. In political life they were generally reformers, not anarchists; similarly they campaigned to join the College of Physicians, not to abolish medical regulation entirely.⁷²

Underlying the development of medical reform movements were fundamental economic and social changes that had affected both the spread of disease and the resources available for studying it. Better transportation may have accelerated the spread of epidemics at the same time that it expedited the spread of information about them. Better roads and the growth of the economy also made it possible for more young men to seek specialized medical training in distant cities. These changes enabled a doctor to serve a larger "catchment area"

⁷²Waddington, "Struggle."

and build a provincial practice, even though religious and professional discrimination made it difficult for many to settle in London or the more conservative corporate towns. For example, Robert Hamilton noted that his practice included nine villages covering a "large scope of country, many miles in circumference."⁷³ As young men saw doctors prosper, they increasingly viewed medical training as a good investment. The increasing number of physicians, not only led to a heightened sense of competition among them, but also threatened the position of the English-educated elite, which responded by reasserting its privileges.

Exclusion from the highest rung of their profession compelled well-trained physicians to find a niche by treating less affluent patients and at the same time encouraged them to organize for mutual support. Medical societies did not just "appear," they were created to overcome significant professional problems. Although they contributed to the overall development of medical practice, they also furthered particular agendas for medical and political reform. Shared "liberal" political and religious values helped knit these groups together at the same time that they validated a more "egalitarian" approach to medical care.

The need to cooperate to enhance their professional status, combined with the fact that many of them were scattered across the country, led doctors to develop means of communicating with each other. The experience that many of them had already gained as members of dissenting congregations with national networks may also have encouraged them to think in terms of regional and national associations.

At the same time, the experience of treating a less elite patient population led them to become interested in different diseases and in new approaches to disease theory. Anti-establishment religious and political convictions, intertwined with a university education that placed less emphasis on classical learning, made physicians more willing to jettison classical scientific and medical traditions as well; traditions that had favored an individualistic, "internalized" approach to the origin of illness. The expertise that they developed, the information that resulted from this approach to disease, and the possibility of successful intervention, all supported the claims of the "outsiders" to be as well qualified as the fellows to lead the profession.

The developing professional associations such as scientific societies, medical societies, medical journals, a medical press, and correspondence networks, enabled doctors to study these newly-delineated diseases in new ways. At first, they compared notes on symptoms and studied the effect of different regions; gradually, they improved their differential diagnosis of epidemic diseases and tracked them from place to place. If it had not been for their evolving network

⁷³Hamilton, "Remarks," in Thompson, *Annals*, p. 165.

of communication, they could not have approached disease in this way. The information that they gathered through these networks in turn reinforced the importance of the methods they developed. If epidemic diseases were contagious, then outbreaks of disease that took place in different places were in fact related to one another; they were epidemics of the “same” disease and could only be fully understood and controlled through epidemiological investigation over a wide area.

Shared needs and values contributed to the development of new forms of communication and these in turn supported new forms of investigation. Medical organizations, medical research, and ideas about the nature of disease evolved together, each depending on the others. Together, these affected not only the amount but also the nature of medical knowledge.