1

Introduction: Hospital medicine in eighteenth-century London

> Were I to guess at the most probable future improvements in physic, I should say, that they would arise from a more general, and more accurate examination of diseases after death. And were I to place a man of proper talents on the most direct road for becoming truly *great* in his profession, I would choose a good, practical Anatomist, and put him into a large hospital to attend the sick, and dissect the dead.[1]

So wrote William Hunter, surgeon turned physician, in an introductory lecture for his London anatomy class in the early 1780s.[2] Hunter made a nicely prescient guess about the direction of progress in medicine. Read with the benefit of hindsight, his comment evokes the juncture of three paths into the "direct road" to medical modernity. First, Hunter pointed to an empirical methodology for "improvements in physic" that detached the investigation of disease from patients' experiences of illness and from direct concern for treating it. A newly conceptualized medicine started at death, when the bedside-practitioner gave up and the scientist-practitioner took over – and these were the same person. Second, Hunter placed his man in a hospital where he had equal power "to attend the sick" and to "dissect the dead." Casting the hospital as an institution where practitioners deployed new methods to produce new knowledge transformed an expres-

1 William Hunter, *Two Introductory Lectures, delivered . . . to his last course of Anatomical Lectures at his Theatre in Windmill-Street* (London: J. Johnson, 1784), 73; emphasis original. Published a short time after his death, the extended title of his work promised that this text was "as . . . left corrected for the press by himself." Running to over one hundred pages, however, the text probably had quite a number of authorial embellishments – either that or his students sat through an extremely lengthy performance.

2 At this point in his career, William Hunter was a wealthy and well-known man. He had worked his way to financial success through his lucrative practice as a man-midwife to well-off London families, and to professional fame through his anatomical investigations and years as a lecturer. Samuel Foart Simmons and John Hunter, *William Hunter, 1718–1783: A Memoir*, ed. C. Helen Brock (Glasgow: University of Glasgow Press, 1983); Roy Porter, "William Hunter: A Surgeon and a Gentleman," and C. Helen Brock, "The Happiness of Riches," in *William Hunter and the Eighteenth Century Medical World*, ed. W.F. Bynum and Roy Porter (Cambridge: Cambridge University Press, 1985), 7–56.

sion of charitable care and social concern into a foundation for professional medical authority. Third, Hunter linked a man's acquisition of such knowledge to "becoming truly *great* in his profession." Besides the obvious implication that men, not women, were the ones with such talents, Hunter's assertion depended upon the existence of a "profession" in which "a good, practical Anatomist" *could* improve "physic."[3] Herein lay a conjunction of traditionally distinct areas of occupational expertise: the surgeon's skill in practical anatomy, necessary for operating and treating traumas and wounds (the realm of "external" disorders), with the physician's mastery over the subtle signs of fevers, nervous diseases, and digestive upsets (the region of "internal" disorders), treated with drugs and an appropriate regimen. His remark, too, implies a sense of "greatness" defined and valued by professional peers, one based upon a meritocracy of insider knowledge taking precedence over lay standards for social and intellectual success. Hunter – popular practitioner, successful lecturer, gentleman, and man of science – thrived under the penumbra of hospital medicine and articulated its potential power. Understanding the construction and meaning of that authority is the main purpose of this book.

In this chapter I lay out the outlines of my arguments, starting with an overview of the broad trends in eighteenth-century English culture that are crucial for my claims about continuity and change within London medicine. I then discuss two issues that have dominated scholarly understanding of eighteenth-century medicine for the past thirty years: first, the change in Western medical perceptions associated with "the birth of the clinic" and, second, the transformation of medical occupations into a single medical profession in early-modern to modern England. The rest of the chapter concentrates on the meaning of "hospital medicine."

In researching and writing this book, I have come to see and to articulate a new vision of hospital medicine, one that binds culture, the clinic, and the notion of "profession" inextricably together. I firmly believe that no explanation of how medical power is constructed, established, and perpetuated is satisfactory unless it works at ground level, where ordinary people – patients, neighborhood practitioners, newspaper readers, medical students – lived and made choices. This book is thus a synthesis of historical scholarship on eighteenth-century medicine, science, and culture; a contribution to historical knowledge of the hospitals, medical education, and

3 Throughout the book, I use "physic" to refer to the area of medicine that learned physicians practiced. "Surgery" refers specifically to the surgeons' realm of expertise and practice. I use "medicine" to refer to all medical activities, including both physic and surgery, and "medical practitioners" to encompass physicians, surgeons, and apothecaries. The only exceptions to this usage occur when I use "medical" instead of the archaic "physical" to modify certain forms of ward-walking and lectures in explicit contrast to "surgical."

medical community in London; and a long conversation about medical authority. I think that medical practitioners always depend upon many intertwining factors – social, intellectual, economic, literary, political, institutional – for their authority at the bedside and among themselves. No single position or characteristic, be it high social status or strong claims to scientific knowledge, grants a medical man the power to define a person's experience with illness and to be obeyed when trying to control it. Only when several attributes work in concert, with some of them more or less invisible to both the patient and her practitioner, does a medical man or woman achieve compliance. In the eighteenth century (and, I would argue, ever afterward), hospitals became crucial sites for various elements of medical authority to come together and become embodied in the hospital practitioner himself, in his language, behavior, public appearances, and private consultations.

Studying London's hospitals, practitioners, and pupils in the years between 1700 and 1820 reveals the relationships among institutions, medical training, and medical publications that created medical practitioners with different degrees of occupational and social power based more and more upon access to certain kinds of hospital knowledge. For this argument, looking at only one or two institutions would have been woefully inadequate. I have examined all seven of London's general hospitals – St. Thomas's, St. Bartholomew's, Guy's, the Westminster, St. George's, the Middlesex and the London – together for the first time. Using material from their governors' minute books, student notes, and pupil registers, I frequently stress the characteristics shared by these urban charities, while appreciating the puzzling and quixotic differences among them. These were not the discrete, independent institutions often pictured in the histories devoted to their individual developments. As people moved between the hospitals, moreover, traveling around London for governors' meetings, lectures, or ward-walking, "hospital medicine" gained a level of conceptual abstraction within the urban medical community. The sense that hospital medicine transcended any particular institution significantly increased the status granted to hospital teaching and hospital men's claims to good knowledge. Historians must compare and contrast the work done in multiple sites in an urban center in order to produce a workable analysis of institutional medicine within a larger social context. Thus I move among London's hospitals for my evidence and examples precisely because I need to convey both their commonalities and their revealing peculiarities. To submerge the seven hospitals under more convenient generalizations, admittedly an important task for the historian, would undermine my conceptual point: the hospitals solved similar problems with different means, each indicative of the *range* of responses within a common set of values about charity, the poor, and standards for medical practice. And it is this

range, not one particular reaction, that defined and supported hospital medicine.

Just as no one hospital was the site of hospital medicine, no single individual – or easily definable group of individuals – stands out as key to its intellectual construction and professional development. Certainly a handful of men associated with London hospitals in the eighteenth century, such as William Cheselden, Percivall Pott, John Hunter, and Matthew Baillie, acquired both contemporary and historical reputations as individuals who contributed new practices, observations, and theories to medical knowledge. Scholars have written biographies for these luminaries and, for a few, have subjected their work to analytic study; I have relied upon these texts with both gratitude and caution. To date it has been next to impossible to know how representative or unique such individuals were in contemporary terms. And it has been all too easy to make heroes (especially of John Hunter) by dismissing those around them as backward or short-sighted. To remedy my own unease with such characterizations, I collected information on all of the physicians and surgeons who served one of the general hospitals between 1700 and 1820 (see Appendix I.A for a list). This information provided a base for rough generalizations, particularly on how many hospital men lectured or published on medical topics. As a consequence of this approach, this book is full of obscure people. And rightly so, for they are the ones who really constructed the mundane rituals and expectations surrounding hospital medicine, the meat-and-potatoes routines of taking students onto the wards, treating charity and private patients, and discussing their ideas with their pupils and peers. The men who acquired a place in the historical lists of contributors to medical knowledge derived the ways that they used science to further medical questions, their appropriation of hospital patients for teaching and detached clinical observations, and the means to communicate their ideas to medical audiences from a much broader community of medical men. I name practitioners, sometimes many of them, deliberately to evoke the extent and complexity of the networks making up that diffuse community.

In stressing the formation of accepted practices among hospital men, from the convention of taking pupils on ward rounds to the custom of publishing accounts of patients' cases in medical journals, I have confronted one of the more unexpected challenges of this project. To me, one of the most interesting problems in the history of science and medicine is to understand precisely how new knowledge and methods become boring, such fundamental aspects of daily life that they are not only unquestioned, but also scarcely worth mentioning or even thinking about.[4] To appreciate

4 The notion of the importance of accepted routine in science harks back to Thomas Kuhn's points about "normal" science in his *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1962). Recent work on the anthropology of scientific practice,

the potency of standard methods of inquiry and, more importantly, of *uncontroversial* knowledge, demands that these be investigated and explained closely just when they seem to have the least active roles in prompting new insights. The very insignificance of the routine, the undisputed, and the stable is vitally significant for the construction of authority. I argue, for example, that hospital medical men primarily took up "safe" science – that well established, heavily descriptive and undertheorized sort of science which avoided overt philosophical, religious, or social issues – precisely because it carried the appearance of consensus about the natural world into medical knowledge. The force of such beliefs and customs inheres less in the convictions or rituals themselves than in their implicit acceptance. It is this force that I have sought to track as it moved and shifted during the construction of hospital medicine in eighteenth-century London.

THE SETTING

Scholars have given the eighteenth century many labels to identify it as a period in the broad sweep of historical time. Every label has its champions and critics. This was, for instance, the Age of Enlightenment – but did England have an Enlightenment?[5] The Industrial Revolution, too, began in eighteenth-century England, but questions about where, when, and why continue to fuel discussion of this tendentious historical concept.[6] For the purposes of this book, I have eschewed these traps by following Roy Porter's sense of the "long" eighteenth century in England and Wales (and, to a certain extent, Scotland). This encompasses the decades between the Glorious Revolution of 1688 and the end of the wars with Napoleonic France in 1815. Although bounded by major political events, the long eighteenth century draws its thematic strengths from a wide variety of perspectives on economic, social, and intellectual history. I rely on this rich historiographical tradition because the medical world of eighteenth-century London was inextricably caught up in the gradual transformation of eco-

especially that by Bruno Latour (see his *Science in Action* and *Laboratory Life*), has developed and nuanced the ways that scientific knowledge becomes embedded – and unquestioned – in practice. I believe that historians of science and medicine have a great deal to gain from asking critical questions about the origin and continuity of "routine" knowledge and practice. We still do not understand the construction of the obvious, especially when "obvious" information and methods have continued into the present.

5 Roy Porter, "The Enlightenment in England," in *The Enlightenment in National Context*, ed. Roy Porter and Michael Teich (Cambridge: Cambridge University Press, 1981), 1–18; J. G. A. Pocock, "Clergy and Commerce: The Conservative Enlightenment in England," in *L'Età dei Lumi*, vol. 1 [Storia e Diritto, Studi 16] (Napoli: Jouene Editore, 1985), 525–62.

6 See, for example, J. Hoppitt, "Understanding the Industrial Revolution," *Historical Journal* 30 (1987): 211–24; A. E. Musson and Eric Robinson, *Science and Technology in the Industrial Revolution* (Manchester: Manchester University Press, 1969).

nomic conditions, social relationships, and ideas that made life in 1815 at once continuous with, and yet quite different from, life in 1688.[7]

Among the panoply of trends detailed in the literature on eighteenth-century England, three provide the overarching characterizations of English society and London culture most germane to my account of how hospital governors, medical practitioners, and pupils wrote and acted during the eighteenth century. First, English men and women participated in "the birth of a consumer society," part of the long story of the rise of capitalism and material prosperity.[8] The marketplace, where cash bought an increasing number of goods and services, from necessities to luxuries, crept into more and more aspects of metropolitan and provincial life. Banking, manufacturing, and trade expanded, sometimes within long-established structures and institutions, such as a few of the City of London's centuries-old guilds and companies, but more often in and around recent establishments, from major corporations, such as the Bank of England (1694), to small shops, like John Senex's London store for precision instruments (ca. 1706).[9] The catch-all operations of supply, demand, and market price which have become major explanatory forces for the dynamics of change during this century apply as well to the "medical marketplace."[10] People bought and sold medical goods, from drugs to books and

7 Roy Porter, *English Society in the Eighteenth Century*, 2nd. ed. (New York: Penguin Books, 1990); Roy Porter, "English Society in the Eighteenth Century Revisited," in *British Politics and Society from Walpole to Pitt 1742–1789*, ed. J. Black (New York: St. Martin's Press, 1990); Joanna Innes, "Jonathan Clark, Social History and England's 'Ancien Regime,' " *Past and Present* no. 115 (1987): 165–200; Jonathan Clark, "On Hitting the Buffers: The Historiography of England's Ancien Regime," *Past and Present* no. 117 (1987): 194–207.

8 Neil McKendrick, John Brewer, and J. H. Plumb, *The Birth of a Consumer Society: The Commercialization of Eighteenth-Century England* (Bloomington: Indiana University Press, 1982); John Brewer and Roy Porter, eds., *Consumption and the World of Goods* (London: Routledge, 1993).

9 Larry Stewart, *The Rise of Public Science: Rhetoric, Technology and Natural Philosophy in Newtonian Britain, 1660–1750* (Cambridge: Cambridge University Press, 1992), 173.

10 Dorothy Porter and Roy Porter, *Patient's Progress: Doctors and Doctoring in Eighteenth-Century England* (Stanford: Stanford University Press, 1989), and Roy Porter, *Health for Sale: Quackery in England, 1660–1850* (Manchester: Manchester University Press, 1989), provide a clear articulation of the marketplace model for medical practice in the eighteenth century. This model has increasingly appeared throughout the literature in the history of medicine (see, for example, Nancy Siraisi, *Medieval and Renaissance Medicine* [Chicago: University of Chicago Press, 1990]), primarily to emphasize the unregulated conditions of most medical practice in the past. Danger now lurks in seeing the "marketplace" everywhere, for it becomes a potent metaphor for other kinds of exchanges and values in social and medical relationships. Status, for example, or access to wealthy patients, or effective control over the laboring poor become the figurative commodities in high demand and obtaining them the marks of successful manipulation of the social market. Motives reduce to the social analogues of economic interests, and market-driven competition between individuals and groups the springs of action. Overuse of this metaphor already suggests that it needs to be revised and contained.

medical services, from a local woman's nursing care, to an elite physician's advice or a practitioner's course of lectures, as cash commodities.

Second, more and more English men and women belonged to the middling classes, the individuals and families living between the obviously poor, who lacked the land, movable goods, education, steady income and relative independence needed for security and respectability, and the gentry and aristocracy, who had the birth, marriages, manners, objects, and (usually) land on which to rest gentility and political power. The expansion of the middling ranks and literal marketplaces had gone hand in hand for centuries since middling sorts were the ones organizing the money, trade, and manufacturing that fueled the cycles of economic growth and contraction. While closely connected to material prosperity, the expansion of the middle classes in this century had as much to do with changing social relationships and values as with money to purchase goods and services. Social and cultural historians emphasize that the choices the middling sorts made to be secure, to belong to the "haves" rather than the "have-nots," led them to construct and conform to the rituals of a newly polite, urban-oriented society. They merged customs of the monied bourgeoisie, for example, the practical training of their sons in business and their daughters in housewifery, with the manners, education, and conspicuous consumption of the gentry and aristocracy.[11]

The search for upward mobility and the gradual formation of middle-class cultures, however, were by no means a process of slavish imitation and adaptation of elite values and styles. That is a major reason why the notion of a single middle class in the eighteenth century is such a slippery and untenable concept. The dynamics of social relationships constantly worked through exchanges of beliefs and opinions about appropriate behavior between groups and individuals for whom political patronage, family ties, religious faith, and other significant loyalties tempered economic distinctions and modified crude economic interests.[12] The funds that supported London's charity hospitals, for instance, paid for the buildings,

11 For detailed discussions of these generalizations, see Porter, *English Society*, and Penny Corfield, "Class by Name and Number in Eighteenth-Century Britain," *History* 72 (1987): 38–61; Peter Earle, *The Making of the English Middle Class: Business, Society and Family Life in London, 1660–1730* (London: Methuen, 1989); Nicholas Rogers, *Whigs and Cities: Popular Politics in the Age of Walpole and Pitt* (Oxford: Clarendon Press, 1989); Paul Langford, *A Polite and Commercial People: England, 1727–1783* (Oxford: Clarendon Press, 1989), and *Public Life and the Propertied Englishman, 1689–1798* (Oxford: Clarendon Press, 1991).

12 For recent discussions of "class" and social hierarchy in our understanding of eighteenth-century culture, see Corfield, "Class by Name and Number"; Jonathan Clark, *English Society 1688–1832* (Cambridge: Cambridge University Press, 1985); Innes, "Jonathan Clark"; Clark, "On Hitting the Buffers"; as well as the classic by E. P. Thompson, "Eighteenth-Century English Society: Class Struggle without Class," *Social History* 3 (1978): 133–65.

goods, and services intended to provide shelter and treatment for the deserving sick poor throughout the eighteenth century. Why people made charitable contributions, and what economic, social, or spiritual benefits they thought might accrue from their generosity varied considerably, however. The *display* of doing good united hospital donors, but their motives and goals arose from a range of values and social relationships.

The same point applies to notions of knowledge. Over the past two decades, scholars have probed the changing distinctions between patrician and plebeian beliefs, between the "polite" and the "vulgar" in social expressions and behaviors, and between "elite" and "popular" cultures in early modern society.[13] Baldly stated, in the conscious – or unconscious – search for ways to define their increasing status, the middling sorts put as much effort into distinguishing themselves from the lower orders as they did in adopting watered-down versions of elite life-styles to show their identification with the upper orders. Obtaining a patina of elite culture, of course, could help. But where most middling sorts had no hopes of actually joining elite circles, they had daily experience with the lower ones, in their servants, their work people, their neighbors, and even their relatives. The pervasive concern in eighteenth-century life to identify and to shun superstitions, irreligion, vulgar phrases, coarse manners, and offensive amusements belonged to the middle classes, not to the established elite or to the happily common, whose very ranks meant they could do pretty much what they pleased.

Seeing the social connotations associated with the display of certain kinds of knowledge has become a critical theme in the history of science, medicine, and health care. Patrick Curry, in his work on astrology, and Mary Fissell, in her discussions of popular medicine, for example, have persuasively argued that when the middle and upper classes rejected certain beliefs and practices they did so in part because common folk held them, not because they were inherently less rational or scientific than those the upper folk believed and applied.[14] Nearly all formally educated medical practitioners belonged to the middling sorts, from provincial surgeon–apothecaries to hospital physicians, as did many of their paying patients and pupils.[15] As these people collectively defined "good" medical knowledge and determined suitable ways to learn it, display it, and apply it, they

13 Porter, *English Society*; Peter Burke, *Popular Culture in Early Modern Europe* (London: Temple Smith, 1978); Mary Fissell, *Patients, Power and the Poor in Eighteenth Century Bristol* (Cambridge: Cambridge University Press, 1991); Patrick Curry, *Prophecy and Power: Astrology in Early Modern England* (Princeton, NJ: Princeton University Press, 1989).

14 Curry, *Prophecy and Power*, 109–117; Fissell, *Patients, Power and the Poor* and "Readers, Texts and Contexts: Vernacular Medical Works in Early Modern England," in *The Popularization of Medicine, 1650–1850*, ed. Roy Porter (London: Routledge, 1992), 72–96.

15 Irvine Loudon, *Medical Care and the General Practitioner: 1750–1850* (Oxford: Clarendon Press, 1986), esp. 100–25.

continuously reflected and responded to the changing mores of the middling ranks. In this sense, then, whether or not London's hospital practitioners taught pupils "better" medical theories and treatments, I believe that they certainly taught them securely middle-class medicine.

The third broad trend apparent in eighteenth-century England draws directly upon the expansion of the marketplace and the rise of the middle classes. Several historians have contended that, while printing with movable type heavily influenced scholarship, education, ideas, and ideologies in the sixteenth and seventeenth centuries, only in the eighteenth century did a print "culture" start to emerge in parts of Europe, London among them. Following the deliberate lapse of the Licensing Act in 1695, which had legalized censorship and restricted the number of presses in Britain, the printing trades took off. Texts, pamphlets, periodicals, and – most emblematic of the new urban life in this period – novels and newspapers, rolled off the presses in increasing numbers. Sold, circulated, and read, in private or out loud, relatively inexpensive and accessible printed materials extended what middling sorts could know, and when, and how.[16] Historians of the Enlightenment have long stressed that eighteenth-century men and women did not come up with hordes of brand-new ideas about politics, or social life, or the natural world that made them create revolutions in government or industry. Instead, they had more sweeping access to and debates over "old" ones, transforming classical and medieval concepts, such as "natural law," "equality," or the Galenic humors, into new ones, with different implications and applications.[17] Print in the eighteenth century created newly expanding public audiences, moving more information into the marketplace for that nameless and increasingly undefinable "reader."

The expansion of print culture undermined the status of oral traditions, the medium of common folk. As more and more people started to elevate the authority of the printed word over mere hearsay, they began to trust

16 Alvin Kernan, *Samuel Johnson and the Impact of Print* (Princeton, NJ: Princeton University Press, 1987), esp. chapters 2, 3, and 5; Terry Belanger, "Publishers and Writers in Eighteenth-Century England," in *Books and Their Readers in Eighteenth-Century England*, ed. Isabel Rivers (New York: St. Martin's Press, 1982), 5–26; Jon P. Klancher, *The Making of English Reading Audiences, 1790–1832* (Madison: University of Wisconsin Press, 1987), 3–17, provides a useful introduction to the making of literary audiences at the end of the eighteenth century.

17 The transformation of both Greco-Roman metaphysics and political ideologies in the seventeenth and eighteenth centuries into "modern" (revolutionary) forms has received extensive analysis. See, for example, Gary Hatfield, "Metaphysics and the New Science," in *Reappraisals of the Scientific Revolution*, ed. David C. Lindberg and Robert S. Westman (Cambridge: Cambridge University Press, 1990), 93–166; P. M. Heimann, "Voluntarism and Immanence: Conceptions of Nature in Eighteenth-Century Thought," *Journal of the History of Ideas* 39 (1978): 271–83; Isaac Kramnick, *Republican and Bourgeois Radicalism: Political Ideology in Late-Eighteenth-Century England and America* (Ithaca, NY: Cornell University Press, 1990), 71–98, 163–99.

universalized information over mere local wisdom. Samuel Johnson put together his marvelous *Dictionary* at midcentury, for instance, to instruct the literate in "polite" versus "vulgar" words, pinning down meanings and standards of usage for – whom else? – middling readers.[18] Medical authors prepared texts in English for practitioners, pupils, and patients, who proceeded to buy them for the same reasons – because in the context of a print culture the secrets and skills passed from a single master to his apprentice appeared as a liability, an overly narrow and personal basis for practice. The growth of the medical press, like the growth of the press in general, subtly shifted what counted as "good" knowledge, who made it, and where it could be found.

As primarily urban phenomena, all three of these sweeping changes shaped London. One of the largest cities in Europe, London, by demographers' estimates, consistently held about 10 percent of the population of England and Wales during the eighteenth century, with roughly 500,000 inhabitants in 1700 and close to a million in 1801. An even larger proportion (one-sixth, according to one historian's modest guess) experienced the metropolis during their lives, and a great many more received goods and news from the capital.[19] In the early eighteenth century, most of London's residents lived outside the City of London proper, the medieval town with its own charter, government, and remnants of fortifications, and outside the City of Westminster, the location of Parliament. Greater London had already expanded to connect these two areas, and in the eighteenth century it moved outward into neighboring villages and fields in Middlesex, Surrey, and Essex. It stretched along the Thames and the major roads that linked the capital to its provincial hinterlands.[20]

The Cities of London and Westminster provide contrasting symbols for greater London's significance as the nation's center of wealth, power, and influence. The City of London stood for commerce, for the center of trade and finance, with its manufacturing, banking, and monied companies that managed the circulating wealth of goods and credit. To the east of the City spread the docks and warehouses and warrens of the East End, housing merchant marines, lightermen, porters, and sea captains. In contrast, the City of Westminster represented national politics, landed wealth, and their appendages. Home to the House of Lords and the House of Commons, to several Royal residences and secondary Households, Westminster and its surrounding West End squares and streets were the Town and the Crown. The aristocracy, the gentry, and the country families resident during the social season from fall to spring lived there with the attorneys, tradespeo-

18 Kernan, *Samuel Johnson and the Impact of Print*, 152–203.
19 George Rudé, *Hanoverian London, 1714–1808* (London: Secker & Warburg, 1971), ix.
20 Rudé, *Hanoverian London*, 1–19; E. A. Wrigley, "A Simple Model of London's Importance in Changing English Society and Economy," *Past and Present* no. 37 (1967): 44–70.