

# The Emergence of Medical Specialization in the Nineteenth Century

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**SUMMARY:** This essay reexamines the nineteenth-century origins of medical specialization. It suggests that by the 1880s, specialization had become perceived as a necessity of medical science as a result of the realization of two preconditions: First, a new collective desire to expand medical knowledge prompted clinical researchers to specialize; only specialization, it was believed, permitted the rigorous observation of many cases. Second, administrative rationality suggested that one could best manage large populations through proper classification, gathering together individuals belonging to the same class and separating those belonging to different categories. Both of these conditions emerged first and most powerfully in early nineteenth-century Paris. They were, in contrast, uniquely underdeveloped in the fragmented medical community of London during this period.

**KEYWORDS:** medical specialization, medical profession, medical education, clinical research, nineteenth-century Paris, nineteenth-century London

Specialization plays a preponderant role in contemporary medicine. It is thus rather surprising that the major synthetic treatment of the subject is nearly sixty years old.<sup>1</sup> There exist excellent national studies of major

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1. George Rosen, *The Specialization of Medicine with Particular Reference to Ophthalmology* (New York: Froben Press, 1944). In his Shryock Lectures of 1976, Rosen presented a study of American medicine in the newly developed idiom of professional markets, and of individual as well as collective interests and mobility: see George Rosen, *The Structure of*

aspects of specialization in Germany,<sup>2</sup> Britain,<sup>3</sup> and the United States,<sup>4</sup> but it is nonetheless significant that all were written about thirty years ago. In the years since these books were published a huge number of works relevant to the subject have appeared, but for the most part they treat individual specialties in specific countries, often during relatively narrow chronological time frames; nonetheless, cumulatively they have extended our knowledge of the specialization process in significant ways.<sup>5</sup> Several sociologists have presented sophisticated sociological “models” of specialization, which have highlighted previously underemphasized factors and forces.<sup>6</sup> The recent appearance of a book on

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*American Medical Practice, 1875–1941*, ed. Charles E. Rosenberg (Philadelphia: University of Pennsylvania Press, 1983). But although the lectures include many scattered insights about specialization in the American context in this mode (esp. pp. 81–94), they do not recast his earlier comprehensive analysis of specialization.

2. Hans-Heinz Eulner, *Die Entwicklung der medizinischen Spezialfächer an den Universitäten des deutschen Sprachgebietes* (Stuttgart: Ferdinand Enke, 1970).

3. Rosemary Stevens, *Medical Practice in Modern England: The Impact of Specialization and State Medicine* (New Haven: Yale University Press, 1966).

4. Rosemary Stevens, *American Medicine and the Public Interest* (New Haven: Yale University Press, 1971). (This was republished in 1998 under the same title in an updated edition by University of California Press.)

5. Citing all these works would require a bibliography rather than a footnote. Among the books not cited elsewhere in this paper which I have found particularly useful are Glenn Gritzer and Arnold Arluke, *The Making of Rehabilitation Medicine: A Political Economy of Medical Specialization, 1890–1980* (Berkeley: University of California Press, 1985); William F. Bynum, Christopher Lawrence, and Vivian Nutton, eds., *The Emergence of Modern Cardiology*, Supplement 5 to *Med. Hist.* (London: Wellcome Institute for the History of Medicine, 1985); Russell C. Maulitz and Diana E. Long, eds., *Grand Rounds: One Hundred Years of Internal Medicine* (Philadelphia: University of Pennsylvania Press, 1988); Ornella Moscucci, *The Science of Woman: Gynaecology and Gender in England, 1800–1929* (Cambridge: Cambridge University Press, 1990); Roger Cooter, *Surgery and Society in Peace and War: Orthopaedics and the Organization of Modern Medicine, 1880–1948* (London: Macmillan, 1993); Elizabeth Lunbeck, *The Psychiatric Persuasion: Knowledge, Gender, and Power in Modern America* (Princeton: Princeton University Press, 1994); W. Bruce Fye, *American Cardiology: The History of a Specialty and Its College* (Baltimore: Johns Hopkins University Press, 1996); Jack D. Pressman, *Last Resort: Psychosurgery and the Limits of Medicine* (Cambridge: Cambridge University Press, 1998); Regina Morantz-Sanchez, *Conduct Unbecoming a Woman: Medicine on Trial in Turn-of-the-Century Brooklyn* (New York: Oxford University Press, 1999); Roger Davidson, *Dangerous Liaisons: A Social History of Venereal Disease in Twentieth-Century Scotland*, vol. 57 of *Clio Medica* (Amsterdam: Rodopi, 2000).

6. Sydney A. Halpern, *American Pediatrics: The Social Dynamics of Professionalism* (Berkeley: University of California Press, 1988). There is a huge literature on the sociology of professions, of which the work most relevant to specialization is, in my view, Andrew Abbott, *The System of Professions: An Essay on the Division of Expert Labor* (Chicago: University of Chicago Press, 1988).

specialization in the Netherlands,<sup>7</sup> as well as the republication of Rosemary Stevens's classic study of the American case, suggest a growing interest in national systems of specialization. In the wake of all this work, it is now possible to offer an empirically based survey and analysis of the development of specialization in historical, systemic, and comparative perspectives. In the present essay I attempt the more limited task of reexamining the nineteenth-century origins of medical specialization within this larger framework.

Specialization appears in many ways to be a self-evident necessity of medical science whose existence requires little explanation. This commonsense perception is impossible to dismiss out-of-hand. By the end of the nineteenth century, at the latest, medical science had, largely as a consequence of specialization, developed to the point where the impossibility of mastering all of it seemed obvious. Furthermore, during the past centuries the evolution of modern Western societies has moved so vigorously in the direction of increasing specialization of labor, knowledge, and expertise that it would be quite astonishing if medicine had failed to follow this path.

Nonetheless, the apparent inevitability—or, as the sociologists say, “overdetermination”—of medical specialization still leaves considerable room for many questions that are not in the least self-evident: Why did medical specialization first emerge when and where it did? Why and how did it come to appear as inevitable and self-evident—though not necessarily unproblematic? Why did it take certain directions and not others? Did it evolve in pretty much the same way everywhere?

In what follows I will attempt to account for the large-scale emergence of specialization in the nineteenth century. I will suggest, as George Rosen did, that the common-sense explanation for the emergence of medical specialties—that the rapid expansion of knowledge forced doctors to specialize—is incomplete, at least as an account of the early stages of the specialization process. I agree with Rosen and Erwin Ackerknecht that a fundamental transformation of intellectual perspective lay behind the rise of specialties. Nonetheless, I do not, as they did, attribute primary responsibility to the rise of organic localism and then new technologies. These factors, at most, provided an axis along which certain specialties were able to develop. Instead, I will suggest that specialization

7. Alice Juch, *De medisch specialisten in de Nederlandse gezondheidszorg, 1890–1941* (Rotterdam: Erasmus, 1997). One should add as well Wilfried Teicher, “Untersuchungen zur ärztlichen Spezialisierung im Spiegel des Reichmedizinalkalenders am Beispiel Preussens im ersten Drittel des 20. Jahrhunderts” (Ph.D. diss., Johannes Gutenberg-Universität Mainz, 1992).

came to be seen as a manifest necessity of modern medical science as a result of the realization of three fundamental pre-conditions.

First, I will argue that an essential prerequisite for these developments was the unification of medicine with surgery, both in professional practice and, more importantly, within medical training and research. Only in the context of a large and unified domain of medical knowledge did division into sub-fields make very much sense.

Second, I suggest that it was not the rapid expansion of knowledge so much as a new *collective desire to expand* medical knowledge that initially prompted doctors to specialize; only specialization, it was believed, allowed for the rigorous empirical observation of *many* cases that had become necessary in academic medicine. It was the acceptance of such values by newly established communities of clinical researchers that encouraged specialization to emerge.

Third, I maintain that for new ideals of scientific medicine to take hold and lead to medical specialties, certain institutional conditions were necessary. And these conditions were closely linked with emerging notions of administrative rationality in the nineteenth-century nation-state. One could, it was widely thought, best manage large populations through proper classification, gathering together individuals belonging to the same class and separating those belonging to different categories.

All of these conditions—the unification of medicine and surgery, a community of scholars built around the research imperative, and institutions organized around a particular notion of administrative rationality—emerged first and most powerfully in early nineteenth-century Paris. They were, in contrast, uniquely *underdeveloped* in the medical community of London during this period.

Underlying the rise of specialties were more fundamental changes in public attitudes. Numerous tendencies in society made specialization appear natural and advantageous. The increasing economic complexity of capitalist societies provided one notable example and generated the concept of the “division of labor.”<sup>8</sup> From the middle of the nineteenth century, the theory of evolution served as well to justify growing specialism and complexity as higher forms of structure. Few aspects of life in Western societies, in fact, did not justify specialization in one way or another. But it was, I suggest, advances in science that provided the most striking examples of the benefits of specialization. These were particularly pertinent in the medical domain, whose practitioners thought of themselves as belonging to the larger community of science.

8. Toby Gelfand, “The Origins of a Modern Concept of Medical Specialization: John Morgan’s Discourse of 1765,” *Bull. Hist. Med.*, 1976, 50: 511–35.

## The Rise of Specialization in Paris

Specialists existed long before specialization as we know it. They practiced in ancient Egypt where, it has been argued, each body part was viewed as a separate entity; according to this argument, such perceptions of the body were superseded by the spread of systemic humoralism.<sup>9</sup> Despite this diffusion of systemic thinking, specialization was, according to Galen, common among the Roman doctors of his era.<sup>10</sup> Nonetheless, this form of practice did not loom large in the history of Western medicine. During the eighteenth century, low-status practitioners specializing in particular manual procedures—including tooth extraction, cutting for the stone, couching cataracts, and childbirth—existed in most Western nations. In France, they were known as *experts*; in Germany, as *opérateurs*.<sup>11</sup> Many were itinerants with little education and were often lumped together by doctors with other “charlatans” and “quacks” who endangered public health and lowered the incomes of “regular” healers. Increasingly during the course of the eighteenth century, small numbers of “regulars,” particularly among the surgeons, began offering some of the services provided by *experts* and *opérateurs*; surgeon-dentists, surgeon-oculists, and, above all, man-midwives were among the most visible.<sup>12</sup> But such activity occurred on a very small scale.

9. Paul Ghalioungui, “Early Specialization in Ancient Egyptian Medicine and Its Possible Relation to an Archetypal Image of the Human Organism,” *Med. Hist.*, 1969, 13: 383–86. For other examples, see chap. 2 of Rosen, *Specialization of Medicine* (n. 1).

10. Galen, *On the Parts of Medicine* . . ., trans. Malcolm Lyons (Berlin: Akademie-Verlag, 1969), pp. 27–28. I am grateful to Vivian Nutton for calling this source to my attention.

11. Matthew Ramsey, “The Conception of Specialization in Eighteenth- and Nineteenth-Century French Surgery,” in *History of Ideas in Surgery: Proceedings of the 17th International Symposium on the Comparative History of Medicine*, ed. Yosio Kawakita et al. (Tokyo: Ishiyaku Euro-America, 1997), pp. 69–117; idem, *Professional and Popular Medicine in France, 1770–1830: The Social World of Medical Practice* (Cambridge: Cambridge University Press, 1988); Laurence Brockliss and Colin Jones, *The Medical World of Early Modern France* (Oxford: Clarendon Press and Oxford University Press, 1997); Mary Lindemann, *Health and Healing in Eighteenth-Century Germany* (Baltimore: Johns Hopkins University Press, 1996), pp. 145–64; Sabine Sander, *Handwerkschirurgen: Sozialgeschichte einer verdrängten Berufsgruppe* (Göttingen: Vandenhoeck & Ruprecht, 1989), pp. 55–66; William F. Bynum, “Treating the Wages of Sin: Venereal Disease and Specialism in Eighteenth-Century Britain,” in *Medical Fringe and Medical Orthodoxy, 1750–1850*, ed. W. F. Bynum and Roy Porter (London: Croom Helm, 1987), pp. 5–28.

12. Roger King, *The Making of the Dentiste, c. 1650–1760* (Aldershot: Ashgate, 1998); Toby Gelfand, *Professionalizing Modern Medicine: Paris Surgeons and Medical Science and Institutions in the Eighteenth Century* (Westport, Conn.: Greenwood Press, 1980); Adrian Wilson, *The Making of Man-Midwifery: Childbirth in England, 1660–1770* (London: UCL Press, 1995); Helen Corlett, “‘No Small Uncertainty’: Eye Treatments in Eighteenth-Century England and France,” *Med. Hist.*, 1998, 42: 217–234, esp. p. 221.

By the middle of the nineteenth century, specialists had become a recognized if still somewhat contested part of elite academic medicine; they were not just isolated individuals, but had been transformed into a recognizable social category. The process occurred first in Paris in the late 1830s and early 1840s, as historians have long recognized;<sup>13</sup> it moved a decade or so later to Vienna, and then to other cities in Europe and North America in the 1850s and 1860s. This process unfolded as well in Britain, but in a slower and uniquely troubled way that I will discuss in the last section of this essay.

We can trace the emergence of specialists as a recognizable social category to Paris of the later 1830s. In 1839, two different journals devoted to medical specialization came into existence. Appearing in June was *L'Esculape: Journal des spécialités médico-chirurgicales*. It was edited by a Dr. S. Furnari, who was described in medical directories as a specialist in diseases of the eyes. The journal was to appear three times a week, and it remained in publication for three years.<sup>14</sup> A second journal, the *Revue des spécialités et innovations médicales et chirurgicales*, appeared in November and was published (with some long gaps) until the 1860s. It was edited by Vincent Duval, a specialist in orthopedics, who described himself as Director of Orthopedic Treatments of the Parisian Hospital System. (Today his main claim to fame is the fact that the surgical procedure he invented and popularized in his book of 1839, *Traité pratique du pied-bot*, was immortalized by Gustave Flaubert in *Madame Bovary*.) He claimed to have been encouraged to create such a review of specialties by his famous teacher François Broussais, and in fact, well-known hospital physicians and surgeons were among his contributors.<sup>15</sup> Both journals were interested in the entire range of specialties—not surprisingly, since no single specialty had a sufficient number of practitioners to support its own journal. Though their broad coverage made them look similar to general medical journals, their editors viewed them as new kinds of publications.

By the 1840s, specialized private instruction was part of the experience of American doctors studying in Paris,<sup>16</sup> and of foreign visitors generally. The change that had occurred is illustrated by two books by German

13. Erwin Ackerknecht, *Medicine at the Paris Hospital, 1794–1848* (Baltimore: Johns Hopkins Press, 1967), pp. 163–80; Jan E. Goldstein, *Console and Classify: The French Psychiatric Profession in the Nineteenth Century* (New York: Cambridge University Press, 1987), pp. 55–63.

14. S. Furnari, “Introduction,” *L'Esculape, Journal des spécialités médico-chirurgicales*, 1839, 1: 1–2.

15. *Revue des spécialités et innovations médicales et chirurgicales*, 1839, 1: 1.

16. John Harley Warner, *Against the Spirit of System: The French Impulse in Nineteenth-Century American Medicine* (Princeton: Princeton University Press, 1998), pp. 293–94.

doctors written only five years apart. In 1836 Adolph Mühry gave his impressions of French and British medicine garnered during a voyage he had made the year before: brief mention is made of several Parisian specialty clinics—notably that of Philippe Ricord in syphilology—and, in greater detail, the weakness of ophthalmological clinics in comparison to those of Germany is discussed, but specialism simply does not exist as a category in his account.<sup>17</sup> In striking contrast, another visitor to the French capital, the German physician Carl August Wunderlich (later to become a pioneer in the use of medical thermometry), published in 1841 his study comparing Paris medicine to that of Vienna, in which he made his much-quoted observations about the unique popularity of specialties in Paris: “Now a specialty is a necessary condition for everybody who wants to become rich and famous rapidly. Each organ has its priest, and for some, special clinics exist.”<sup>18</sup>

One form that such visibility for specialists took in Paris was a growing trade in the private teaching of specialties. This emerged slowly. Among forty-four such courses listed in a medical directory published in 1830, one finds only ten specialty courses: seven of these were devoted to obstetrics, offering supplementary and in some cases hands-on training in a subject that was already part of the medical curriculum; of the three others, Pierre-Paul Broc taught a course in andrology, Octave Lesueur in legal medicine and toxicology, and P. S. Ségalas in diseases of the genitourinary organs.<sup>19</sup> Twenty years later, however, another medical directory reported no fewer than eighty-nine private courses being offered. Some of these were cram courses to prepare students for various exams, but thirty-nine were devoted to specialties: once again obstetrics led, with twelve courses, but there were also six devoted to diseases of the eyes, three courses each to venereal diseases, urology, and dermatology, and two courses each to mental diseases and diseases of the chest.<sup>20</sup>

Medical directories suggest a similar pattern of development in the way that Parisian doctors identified themselves. In the second edition of

17. Adolph Mühry, *Observations on the Comparative State of Medicine in France, England, and Germany: During a Journey into These Countries in the Year 1835*, trans. Edward G. Davis (Philadelphia: A. Waldie, 1838).

18. Carl Wunderlich, *Wien und Paris: Ein Beitrag zur Geschichte und Beurteilung den gegenwärtigen Heilkunde in Deutschland und Frankreich* (Stuttgart, 1841; new ed., Bern: H. Huber, 1974), p. 35. The translation of this quote is taken from Ackerknecht, *Medicine at the Paris Hospital* (n. 13), p. 163.

19. L. Hubert, *Almanach général des médecins pour la Ville de Paris* (Paris: Gabon, 1830), pp. 61–65. (A first edition of this work appeared in 1827.)

20. Henri Meding, *Paris médical: Vade-mecum des médecins étrangers dans Paris*, 2 vols. (Paris: Baillière, 1852), 2: 353–62.

one of the first of the Parisian medical directories, the *Almanach général des médecins pour la Ville de Paris* published in 1830, the vast majority (86 percent) of those listed were described as “*médecin*,” including a few whose institutional title was hospital surgeon.<sup>21</sup> The only large groups identified in other ways were practitioners of surgery, still one of the two constituent elements of early nineteenth-century medicine, and of birthing (*accoucheurs*) (sometimes alone, sometimes connected by a hyphen to *médecin* or *chirurgien*), frequently considered a third branch of medicine. One also finds isolated individuals using eighteenth-century categories like *oculiste* and *dentiste*. In striking contrast, a book of 1845 listed about fifteen hundred Parisian physicians, of whom 12 percent were, according to Erwin Ackerknecht’s calculations, described as specialists of one sort or another (this excludes surgeons).<sup>22</sup> In another directory published by Henri Meding six years later, about 8 percent of all Parisian physicians were described—probably by the author of the publication—as specialists of various sorts.<sup>23</sup> In yet another medical directory that appeared that same year, about 5 percent of those listed identified themselves with specialty designations.<sup>24</sup> More important than the percentages of specialists in each publication, which, as we see, are variable and probably somewhat arbitrary, is the fact that forty-three individuals were described as specialists in both of the latter two directories, suggesting some degree of stability in specialist identity. Equally significant was the wide range of specialties—going well beyond the traditional surgical specialties of the ancien régime—described in these works. Clearly, specialization was becoming a recognized if not necessarily fully accepted fact of medical life. It remained of course a limited phenomenon. Most specialties were practiced by only a handful of men, and there was little agreement among different sources as to what was a specialty and who were specialists.

Despite these caveats, the rapid appearance and spread of specialists and specialties in such a brief period of time demands an explanation. More general demographic factors, notably the growing density of doctors and patients in cities, were certainly important conditions of possibility. Paris was the second-largest city of Europe—but by itself this explanation

21. Hubert, *Almanach général* (n. 19). My figures are based on a sample of the first 450 listings. The specialty identification usually followed the name and preceded other sorts of information.

22. C. Sachaile de la Barre, *Les médecins de Paris jugés par leurs oeuvres* (Paris: 1845), cited in Ackerknecht, *Medicine at the Paris Hospital* (n. 13), p. 163.

23. Meding, *Paris médical* (n. 20).

24. [Hubert], *Almanach général de médecine et pharmacie pour la France, l’Algérie et les colonies* (Paris: L’Union médicale, 1852).

is insufficient and does not account for the fact that London, by far the largest city in Europe, was not associated with medical specialties (though it certainly had its individual specialists).<sup>25</sup> That growing popular faith in specialized expertise provided a basis for new professional patterns is indisputable; but one still needs to explain how and why such faith suddenly manifested itself, and how it overcame a traditional belief in the superiority of broad general knowledge. Nor can one simply appeal to the material self-interest of doctors: there is no reason to assume that they were notably more self-interested in the nineteenth century than they had been in the eighteenth. What needs explaining, surely, is why specialization became quite suddenly a profitable and respectable professional option.

A plausible explanation is advanced by George Rosen as part of a complex analysis of the development of specialization that examines both intellectual and social factors. The discussion of intellectual factors constitutes the most original part of Rosen's argument and is usually emphasized by historians.<sup>26</sup> Specialization, he insists, was not a consequence of the accumulation of knowledge, but rather of a new conception of disease: it was specifically the influence of localist pathological thinking, based on pathological anatomy and subsequently on new technologies like the ophthalmoscope and laryngoscope, that created "foci of interest" in organ systems around which specialties could develop. Rosen's analysis is meant to explain the long-term development of specialties across the entire nineteenth century; Paris of the 1830s and 1840s is important chiefly as the place where organic localism originated. But Erwin Ackerknecht has applied Rosen's analysis directly to the development of specialties in Paris during the 1840s; in his view, the newly emergent pathological conception of disease that replaced humoral theory best explains the advance of specialism during this early period.<sup>27</sup> Ackerknecht is correct in attributing causation to the unique characteris-

25. On urban population growth during this period, see Paul M. Hohenberg and Lynn Hollen Lees, *The Making of Urban Europe: 1000–1950* (Cambridge: Harvard University Press, 1985), table 7.2; Paul Bairoch, Jean Patou, and Pierre Chèvre, *La population des villes européennes de 800–1850* (Geneva: Centre d'Histoire Économique Internationale et Droz, 1988), p. 283.

26. Rosen, *Specialization of Medicine* (n. 1), pp. 14–30. Rosen's "social factors" have generally been ignored by historians because they center on broad social processes like urbanization or immigration, which went out of fashion in the 1960s. By the 1970s, Rosen had become thoroughly fluent in the newer vocabulary of professional markets, interests, and mobility: Rosen, *Structure* (n. 1). But his later treatment is not pertinent, in my view, to explaining the changing status of specialties in Paris of the 1840s.

27. Ackerknecht, *Medicine at the Paris Hospital* (n. 13), pp. 163–64.

tics of the Paris school of medicine—and one of these characteristics, the emphasis on organic localism, undoubtedly played a role in the development of specialties. However, this role, I would suggest, was not necessarily determinant, since many of the emerging specialties were not in fact based on organic localism.

To give just one example: *L'Esculape*, one of the journals devoted to specialization, had during its first year of publication a masthead listing the medical specialties (see Table 1). The list contains many categories that are organically based, but it also includes many that are not. Some were organized around specific populations: birthing women, children, the insane; others on therapeutic techniques: spa medicine, hernia surgery; and yet others on state needs: public health, forensic medicine, and pediatrics. And even apparently organically based specialties like ophthalmology or urology predate pathological anatomy and are based on specific surgical procedures, couching cataracts or surgery for the stone. It is simply not credible to suggest, as Rosen did, that so many specialties of these kinds emerged simply as secondary effects of specialization based on organic localism.<sup>28</sup>

I do not seek to deny that organic localism both stimulated the emergence and helped shape the form of many of the specialties that appeared. But I would like to argue that pathological anatomy was itself part of a more profound transformation that also led to the emergence

Table 1. Specialties on the banner of *L'Esculape*, 1839

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Accouchemens [ <i>sic</i> ]
Maladies des femmes et des enfans [ <i>sic</i> ]
Orthopédie
Maladies des voies urinaires
Chirurgie dentaire
Maladies des yeux
Médecine légale
Maladies du système nerveux
Chirurgie herniaire
Maladies des oreilles
Hygiène et chirurgie militaire
Hygiène publique et privée
Maladies vénériennes
Maladies de la peau
Eaux minérales

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28. Rosen, *Specialization of Medicine* (n. 1), p. 29.

of specialties. This change was the creation of an unprecedentedly large and integrated community of doctors centered on an organized system of institutions and, most important, devoted to advancing medical knowledge through rigorous empirical clinical research. The study of organic lesions was only one component—a central one, to be sure—of this new research imperative.

My argument runs as follows, in five parts.

1. For much of the nineteenth century the fundamental justification for specialization was not so much the improvement of skill that it engendered (though this might occasionally be invoked), as it was its necessary role in the advancement of knowledge and in medical teaching. The reasons usually cited were based on common sense. Specialization permitted mastery of the existing medical literature in a specific domain and, more important, allowed physicians to see the large number of cases of the same type that were now deemed necessary for rigorous clinical research and serious medical training. One of the earliest eighteenth-century polemicists on behalf of specialization, Jean-Emmanuel Gilibert, made this link explicit: specialization, he argued, was necessary for the progress of medicine.<sup>29</sup> General practice, he went on, did great damage because practitioners were unable to observe any class of phenomena in the depth required; they were thus “diverted by the fatal mania for the murderous theories that dishonor us.”<sup>30</sup> Mediocre physicians would, by specializing in a limited number of diseases, improve their practical skills.<sup>31</sup> But in the hands of more gifted individuals, specialization could produce real progress in medicine. Even more than practice, medical science was an immense domain that could not be mastered by any single individual: it depended on careful, methodical observations informed by a vast knowledge of the subject that permitted the physician to reflect, judge, make connections, and generalize.<sup>32</sup> One who specialized in certain maladies could master the entire literature in his field, and generalize the views of his predecessors in order to develop canons of practice. This would provide the basis for knowing instantly whether a patient could provide useful new observations. Classical treat-

29. Jean-Emmanuel Gilibert, *L'anarchie médicale, ou La médecine considérée comme nuisible à la société*, 2d ed., 3 vols. (1772; Paris: n.p., 1776), 3: 221. On Gilibert see Samuel Kotteck, “‘Citizens! Do You Want Children’s Doctors?’ An Early Vindication of ‘Paediatric’ Specialists,” *Med. Hist.*, 1991, 35: 103–16.

30. Gilibert, *L'anarchie médicale* (n. 29), 3: 222–23.

31. *Ibid.*, p. 225.

32. *Ibid.*, pp. 229, 222.

ments could be tested. For uncertain cases, similar illnesses might provide appropriate therapeutic analogies. "Through using this method, *all* illnesses which he [the physician] treats will furnish him with the means to enrich his art or to confirm his certainty."<sup>33</sup>

In the nineteenth century, both the aspiration to pursue clinical research and the tendency to identify this aspiration with specialization spread widely. The stated rationale of the two specialist journals of the 1830s was to bring the results of specialist research before the general medical public. I would thus suggest that the deeper connection between the flourishing of both specialism and organic localism was that both represented a concern with intellectual rigor in an empirical mode, a concern that characterized a new type of medical research community that had emerged in Paris.

2. Unlike historians of German science, historians of French science rarely speak of a "great transition" that created professional science in that country. This is because the process in France occurred gradually, starting in the eighteenth century and accelerating after the Revolution, but in the absence of a single institutional innovation comparable to the rise of the German research university. Joseph Ben-David, in a classic work of historical sociology, explicitly denied that much in the way of institutional change took place in postrevolutionary Paris, claiming that the "great upsurge of French science following the Revolution was only indirectly related to the new institutions of higher education established between 1794 and 1800, because those institutions did not bring about new organized patterns of scientific work. They were rather the culmination of eighteenth-century models of scientific work."<sup>34</sup> This explains why French science, according to Ben-David and others, began after 1830 to decline from its position of international scientific leadership. No one bothers to discuss medicine in this context. This is partly, I suspect, because it lacked the epistemological status of the physical sciences usually considered to be at the center of this shift, and partly because medical research was "professionalized" in clinics and remained subsidized

33. *Ibid.*, p. 233 (emphasis added).

34. Joseph Ben-David, *The Scientist's Role in Society: A Comparative Study* (1971; Chicago: University of Chicago Press, 1984), p. 89. In a less sweeping way, Rudolf Stichweh also identifies research universities with the development of modern disciplinary communities, when he contends that disciplinary differentiation and specialization developed more quickly in Germany than in France: Rudolf Stichweh, *Études sur la genèse du système scientifique moderne*, trans. Fabienne Blaise (Lille: Presses Universitaires de Lille, 1991), p. 113. On the "great transformation" in Germany, see R. Steven Turner, "The Great Transition and the Social Patterns of German Science," *Minerva*, 1987, 25: 56–76.

to a considerable degree by private medical practice. It thus appears quite remote from the classic ideal of the “professional scientist” suddenly able to spend most of his time in a laboratory.

It would take us well beyond the scope of this essay to discuss these issues in detail. I will, however, make three points. First, it is certainly the case that developments in nineteenth-century science in France built on eighteenth-century attitudes and institutional patterns, not least in the general openness to specialized research. Second, medicine was not just part of the milieu of amateur science from which “real” disciplines like physics and chemistry had to liberate themselves; it too went through its own unique but comparable process of professionalization and discipline formation. Third, however one chooses to evaluate the overall institutional system devoted to science and technology in France, I would argue that Paris medicine brought into being a new institutional form that was in its way almost as revolutionary as the German research university, even if it proved to be less enduring.

Early in the nineteenth century, Paris became a center of knowledge production based on an unprecedentedly large network of interconnected institutions and individuals. The Faculty of Medicine, the Sorbonne, the Collège de France, the Muséum d’Histoire Naturelle, and the hospitals all shared students, professors, and junior staff. All became part of a common career structure for the elite that I have described elsewhere.<sup>35</sup> The size of this research community, which numbered many hundreds of individuals, was unprecedented: the Paris Faculty of Medicine, the largest medical school in the world, had more than two dozen full professors and many junior personnel; the Parisian hospital system employed several hundred doctors and surgeons (including the vast majority of faculty professors); and to these one must add all the ambi-

35. George Weisz, *The Medical Mandarins: The French Academy of Medicine in the Nineteenth and Early Twentieth Centuries* (New York: Oxford University Press, 1995). The classic study of Paris medicine during the first half of the nineteenth century is Ackerknecht, *Medicine at the Paris Hospital* (n. 13). A more theoretical analysis of its intellectual origins is Michel Foucault, *The Birth of the Clinic: An Archaeology of Medical Perception*, trans. A. M. Sheridan Smith (London: Tavistock, 1973). Also relevant to its origins is the final section of Gelfand, *Professionalizing Modern Medicine* (n. 12). Other significant works include John E. Lesch, *Science and Medicine in France: The Emergence of Experimental Physiology, 1790–1855* (Cambridge: Harvard University Press, 1984); Jean-François Braunstein, *Broussais et le matérialisme: Médecine et philosophie au XIXe siècle* (Paris: Méridiens Klincksieck, 1986); Russell C. Maulitz, *Morbid Appearances: The Anatomy of Pathology in the Early Nineteenth Century* (Cambridge: Cambridge University Press, 1987). The most recent reevaluations of this subject are the essays in Caroline Hannaway and Ann La Berge, eds., *Constructing Paris Medicine*, vol. 50 of *Clio Medica* (Amsterdam: Rodopi, 1998). (I review this last work in George Weisz, “Reconstructing Paris Medicine,” *Bull. Hist. Med.*, 2001, 75: 105–19.)

tious students and graduates who were seeking to make their mark in the world of academic medicine. In this competitive world nepotism thrived, and some nonentities managed to achieve notable success; but it was nonetheless deemed imperative to distinguish oneself by producing new knowledge. The advantages of specialization in this struggle to produce knowledge remained as pertinent as they had been for eighteenth-century pioneers like Gilibert: the ability to master and keep up with the literature, and the possibility of seeing many different cases of a certain type during a relatively brief period.

Specialization was further encouraged by some of the structural characteristics of the Parisian institutional world. The close proximity of medical to scientific institutions, and the overlapping of personnel among them, allowed the growing disciplinary specialization in the natural sciences to serve as a very immediate model for medicine. Furthermore, in the postrevolutionary institutions of Paris medicine, the M.D. degree became a state diploma uniting both medicine and surgery within the same profession. There were two consequences to this. First, a single, all-encompassing profession, defined and protected by the state, made internal segmentation more feasible. To the extent that medicine and surgery remained distinct, a primitive form of specialization came into immediate existence—an argument that was in fact made by some early supporters of specialization.<sup>36</sup> Furthermore, the unity of the state diploma defused a potentially serious problem: that specialization would fragment medical science and the profession beyond repair. In Britain, where the profession was deeply fragmented institutionally, specialization was widely perceived as a highly divisive force.

3. The French style of administration applied to science, medicine, and education promoted specialization as well. Even in the eighteenth century, it has been argued by Lorraine Daston, there existed in France a unique tolerance—in comparison with British and German institutions of learning and research—for specialized technical knowledge. This was associated with the state's patronage of scientific societies that provided expert knowledge of a utilitarian nature. The Academy of Science provided the most visible example of this orientation, with its built-in structures of specialization in the form of disciplinary sections.<sup>37</sup>

36. Louis Peisse, *La médecine et les médecins: Philosophie, doctrines, institutions, critiques, moeurs et biographies médicales*, 2 vols. (Paris: Baillière, 1857), 1: 310.

37. Lorraine Daston, "The Academies and the Unity of Knowledge: The Disciplining of the Disciplines," *Differences: J. Fem. Cult. Stud.*, 1998, 10: 67–86. (I am grateful to Dorothy Ross for calling this article to my attention.) Also see Roger Hahn, *The Anatomy of a Scientific*

Such tolerance for specialization increased in the nineteenth century. To a much greater extent than the small corporate institutions of the ancien régime, the huge scientific and educational institutions of Paris in the nineteenth century tended to carve up the medical knowledge needed to train practitioners into disciplinary units cultivated and taught by specialists. By far the largest single medical institution in Europe, the Paris Faculty of Medicine had twenty-six chairs representing nearly twenty different disciplinary categories, ranging from medical chemistry to obstetrics. Not all of these specialty commitments were lifelong: there was a tendency to migrate from theoretical to clinical chairs, and not all professors contributed to the area of knowledge that they taught—but there were enough who did to provide a model for younger doctors. And such models were reinforced by other institutions. In 1829 the Academy of Medicine shifted from dividing its members into three professional sections to dividing them among nine sections representing various disciplines. To the extent that many ambitious young candidates for the medical elite also frequented courses and laboratories in scientific institutions like the Muséum d’Histoire Naturelle, the Collège de France, and the Sorbonne, where lifelong teaching and research commitments to a single academic discipline were the rule, they were presented with a particularly powerful model to follow.

Disciplinary distinctions were not just limited to educational institutions. Long before being officially admitted into the medical curriculum, certain of the emerging specialties were thought to require an expert editor in the medical encyclopedias that proliferated in Paris. Consequently, the principle of disciplinary specialization was well established. It was not difficult either to apply it to emerging subject areas, or to use it explicitly to justify clinical specialization.<sup>38</sup>

4. The logic of state administration was critical to this process in two even more fundamental ways. First, it was the state that encouraged the development of medical knowledge as an accepted form of academic activity. The ordinances establishing the Paris Faculty of Medicine in 1803 specified that this institution should be concerned with advancing

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*Institution: The Paris Academy of Sciences, 1666–1803* (Berkeley: University of California Press, 1971), pp. 10–12.

38. Peisse, *La médecine* (n. 36), 1: 311, 313. For details about these medical encyclopedias and the editorial committees that produced them, see George Weisz, “The Development of Medical Specialization in Nineteenth-Century Paris,” in *French Medical Culture in the Nineteenth Century*, ed. Ann F. La Berge and Mordechai Feingold (Amsterdam: Rodopi, 1994), pp. 149–88.

and perfecting medical knowledge, and similar considerations led to the creation of the Academy of Medicine in 1820. Leaving details aside, I will merely note here that promoting the development of medical knowledge was part of the public health mission of the French state.<sup>39</sup>

But administrative logic also had a second effect: the functional specialization of hospitals. This is a complex story. Briefly told, an extensive municipal hospital system was set up in Paris following the Revolution. This included many specialist hospitals, some of which long preceded the Revolution: they might reflect philanthropic and administrative concerns to isolate certain types of patients in order to guard against disruption, immorality, or promiscuity, or they might be efforts to innovate in the provision of charitable care by catering to a group that was as yet not cared for. Or they might emerge for largely pragmatic reasons, as was the case with the St.-Louis Hospital: built by order of Henri IV in 1607, it was designed to isolate plague victims during epidemics; between epidemics, it admitted patients suffering from chronic skin conditions who could be sent home in the event of an epidemic.<sup>40</sup>

By the end of the eighteenth century, the values of the Enlightenment had transformed bureaucratic standards. In 1784 the minister of the Interior, Louis-August de Breteuil, visited the venereal ward at the Bicêtre and, appalled by the awful conditions in which its occupants, primarily prostitutes, were held, ordered their transfer to another institution. The process that this set in motion led to the opening of the Hospice des Vénériens in 1792.<sup>41</sup> In the years before the Revolution, the sheer size of Paris's major general hospitals suggested to reformers that the hospitals should be divided into rational categories; thus Jacques Tenon's famous report on the subject proposed that the Hôtel Dieu be replaced by four hospitals: one for maternity patients, a second for the insane, a third for "fetid" diseases, and a fourth for contagious diseases.<sup>42</sup> This was not uniquely

39. Weisz, *Medical Mandarins* (n. 35).

40. Danièle Ghesquier, "A Gallic Affair: The Case of the Missing Itch Mite in French Medicine in the Early Nineteenth Century," *Med. Hist.*, 1999, 43: 26–54, on p. 32. Also see Charles Coury and Mireille Wiriot, "'Unter den Linden,' ou la naissance de la dermatologie française," in *Medizingeschichte in unserer Zeit: Festgabe für Edith Heischkel-Artelt und Walter Artelt zum 65. Geburtstag*, ed. Hans-Heinz Eulner et al. (Stuttgart: Ferdinand Enke, 1971), pp. 233–40.

41. Susan P. Conner, "The Pox in Eighteenth-Century France," in *The Secret Malady: Venereal Disease in Eighteenth-Century Britain and France*, ed. Linda Merians (Lexington: University Press of Kentucky, 1996), 15–33, on p. 27.

42. Jacques Tenon, *Mémoires sur les hôpitaux*, XL, cited in Goldstein, *Console and Classify* (n. 13), p. 60.

a French response to the size of public hospitals: in Vienna, the Allgemeine Krankenhaus was established around this time with five divisions.<sup>43</sup>

After the Revolution, the system as a whole became characterized by the drive to distinguish and separate. A similar administrative impulse led in higher education to the creation of many specialized vocational schools rather than comprehensive universities. Planning of this sort was encouraged by continuous warfare lasting more than a decade, which promoted the tendency to regulate large populations and groups by dividing them into manageable categories devoted to pragmatic and bounded tasks. Applied to hospitals, it separated the sick from the poor, women from men, children from adults, convalescents from the sick, chronic from acute and surgical patients;<sup>44</sup> thus the specialized vocations of certain hospitals that had developed during the ancien régime were confirmed. The maternity ward of the Hôtel Dieu was transferred and became the Maternité Hospital on the Boulevard Port Royal; in 1814, the foundling hospital associated with that institution was administratively separated (becoming the Hôpital des Enfants Trouvés); and a new hospital for children, the Enfants Malades, was set up in 1802. Venereal patients from throughout the system were transferred to the Vénériens Hospital (later to become the Midi) on the Faubourg St. Jacques;<sup>45</sup> similarly, the insane were transferred into special hospitals or wards. In the postrevolutionary decades, children (Enfants Malades, Enfants Trouvés), women (Salpêtrière, Lourcine), the elderly (Salpêtrière, Bicêtre), the insane (St.-Anne, Charenton, special wards of the Salpêtrière and Bicêtre), and sufferers of chronic, venereal (Vénériens), and skin (St.-Louis) diseases were some of the categories of patients segregated in special hospitals. The system was designed according to norms of administrative rationality: a central admissions bureau was supposed to direct patients to the most appropriate of many available hospital institutions.<sup>46</sup>

The reasoning behind this strategy seemed too self-evident to require explanation. The older eighteenth-century concern with getting rid of those creating disorder or assuring moral propriety did not necessarily

43. Max Neuburger, *Das alte medizinische Wien in zeitgenössischen Schilderungen* (Vienna: Moritz Perles, 1921), pp. 63–72; Godelieve van Heteren, “Students Facing Boundaries: The Shift of Nineteenth-Century British Student Travel to German Universities and the Flexible Boundaries of a Medical Education System,” in *The History of Medical Education in Britain*, ed. Vivian Nutton and Roy Porter (Amsterdam: Rodopi, 1995), p. 305.

44. Dora B. Weiner, *The Citizen-Patient in Revolutionary and Imperial Paris* (Baltimore: Johns Hopkins University Press, 1993), p. 145.

45. *Ibid.*, p. 184.

46. The best discussion of the system and its operations is *ibid.*, pp. 133–90.

disappear, but it was supplemented by a new administrative and medical vision that was expressed clearly in a report to the Administrative Council of the Paris hospitals prepared in 1816, contrasting the situation before and after hospital reform. In the eighteenth century,

the confusion of patients and their crowding together [*entassement*] had very nefarious results. Fever cases, the wounded, those suffering from contagious maladies, pregnant women, the insane, epileptics, convalescents were brought together in connecting wards, or piled one on top of the other [on different floors] in the same building.<sup>47</sup>

Today, in contrast, the report continued several pages later,

every infirmity, every need, every stage of life has now, in Paris, institutions that are devoted to it. . . . those illnesses which cannot be conveniently treated [in general hospitals], which require special care and regimen, which must be isolated for the benefit of those who suffer from them and in the interest of those who do not, have special hospitals.<sup>48</sup>

Such specialization seems to have aimed primarily to improve the quality of patient care; but it may also have had another effect—that of improving clinical teaching by ensuring that there were sufficient numbers of “interesting” patients for each category of disease.

These were not private, semientrepreneurial institutions, as were the special hospitals of London; rather, they were integral parts of an extensive municipal system, and those physicians who served in them enjoyed all the prestige of service in general hospitals. These new institutions thus allowed individuals to pursue elite specialist careers.<sup>49</sup> Economies of scale made further innovations possible. During the 1830s, the hospital administration integrated some of the traditional surgical specialties into the system: it appointed an orthopedist, and a small hernia service in the central bureau became, under the direction of J.-F. Malgaigne, a full-fledged surgical clinic.<sup>50</sup> Most important, these institutions made it possible to demonstrate the validity of specialties by producing knowledge based on larger numbers of clinical cases than could be seen in general

47. *Rapport fait au Conseil général des hospices, par un de ses membres, sur l'état des hôpitaux . . . depuis le 1er janvier 1804 jusqu'au 1er janvier 1814* (Paris: Imprimerie de Madame Huzard, 1816), p. 5.

48. *Ibid.*, p. 7.

49. Halpern, *American Pediatrics* (n. 6), chap. 1, emphasizes that specialist identity frequently followed the emergence of new work patterns in institutions. Rosen, *Structure* (n. 1), pp. 32–33, emphasizes the importance of work in dispensaries and outpatient departments for the emergence of American specialists.

50. Ramsey, “Conception of Specialization” (n. 11), p. 85.

hospitals or private practice. Philippe Ricord, for example, was a young surgeon who had never shown a particular interest in any specialty when an appointment to the Hôpital des Vénériens led him to embark on an ambitious program of research and a lifetime career in this field.<sup>51</sup> When Philippe Pinel became physician-in-chief of the Salpêtrière, he fully recognized that a hospital treating so many women “opens a great career for new research on women’s diseases that have always and rightly been considered as the most difficult and complicated of all.”<sup>52</sup> J.-L. M. Alibert, appointed to St.-Louis Hospital in 1807, attempted the task of classifying skin diseases and offered the first lectures on dermatology. He also sponsored important research by students like J. C. Galès (on the insect origins of *la gale*, the itch).<sup>53</sup> Other hospitals playing a determining role in the early development of specialties included the Salpêtrière and later the Charenton Asylum, where J.-E.-D. Esquirol established the intellectual foundations for French psychiatry; the foundling hospital, in neonatal care; and Enfants Malades, in pediatrics. Such research buttressed the specialist claims to academic status. The most serious opponents of specialization understood full well that medical specialties depended on these hospitals, and would have liked to see them eliminated.<sup>54</sup>

The crux of my argument here is that emerging specialization in Paris was based on the coming together of a system of career competition based on some notion of advancing medical knowledge—which itself promoted specialization—with classificatory categories that emerged from efforts to impose bureaucratic rationality on huge institutional structures. Both these elements were promoted directly, though in quite different ways, by the French state.

5. There was no sharp distinction between medical research and practice because, except for practitioners of the laboratory sciences or public health specialists, research was necessarily based on clinical practice—most often, though not exclusively, in hospitals. Furthermore, spe-

51. Alex Dracoby, “Therapeutic Innovation and the Treatment of Syphilis in Mid-Nineteenth-Century France” (Paper presented at the American Association for the History of Medicine, Bethesda, Md., 17–20 May 2000; published as “Ethics and Experimentation on Human Subjects in Mid-Nineteenth-Century France: The Story of the 1859 Syphilis Experiments,” *Bull. Hist. Med.*, 2003, 77(2): 337–66).

52. Philippe Pinel, *La médecine clinique rendue plus précise et plus exacte par l’application de l’analyse* (Paris: Brosson, 1802), cited with translation in Weiner, *Citizen-Patient* (n. 44), p. 164.

53. Ghesquier, “Gallic Affair” (n. 40), pp. 33–36.

54. Jules Gavarret speaking at the meeting of the faculty assembly, Paris Faculty of Medicine, 10 February 1859, in Archives Nationales, Paris (ANP): AJ 16 6251, p. 233.

cialists, like anyone else with a prestigious post, were in a position to develop a lucrative private practice because patients viewed such posts as indicators of excellence. Some individuals even created small private hospitals as extensions of their public hospital practice. In psychiatry these included J.-E.-D. Esquirol, who opened a private mental hospital in Ivry, and Jules Falret, whose private asylum was in Vanves. Jules Guérin had a private orthopedic clinic, as did S. H. V. Bouvier. Julius Sichel, an ophthalmologist from Vienna, established a private clinic in Paris in 1832, which was also the basis for the private courses he offered in the subject.<sup>55</sup> The hospital administration set up a private venereal hospital under the direction of François Cullerier.<sup>56</sup> But it was not just members of the medical elite or potential producers of knowledge who called themselves specialists: once specialties became identified with the most advanced medical knowledge, they could be claimed by practitioners like Dr. Cheneau, identified in medical directories as specializing in the treatment of nervous maladies, migraines, and epilepsy, or Dr. Dechambre, identified as a specialist in maladies of old age and the nervous system.<sup>57</sup>

Some of the emerging opposition to specialties targeted such specialty practice, particularly when it included surgery. Not only did it lend itself to false claims and entrepreneurial abuse, but it seemed incongruent with the common understanding of systemic links both within the organism and between the organism and the environment. To criticisms at this level, defenders of specialization could respond with arguments about how specialization improved mechanical skills.<sup>58</sup> During the middle decades of the nineteenth century, however, the primary focus was on the role of specialties in medical education and research. Specialist practice advanced steadily but unspectacularly until the 1880s, and in the process provoked relatively little controversy. In contrast, the role of specialties as disciplines within the medical curriculum raised vociferous opposition.

## Opposition and Spread

In Paris as elsewhere, specialization initially aroused considerable opposition. Surgeons were unwilling to give up authority over any part of the body. Professors were hesitant to add new chairs to the already overcrowded faculty and new courses to the curriculum. Specialization,

55. Wunderlich, *Wien und Paris* (n. 18), p. 102; Ackerknecht, *Medicine at the Paris Hospital* (n. 13), p. 179; Weiner, *Citizen-Patient* (n. 44), p. 163.

56. Weiner, *Citizen-Patient* (n. 44), p. 187.

57. In Hubert, *Almanach général* (n. 19).

58. Peisse, *La médecine* (n. 36), 1: 316.

moreover, represented a break from traditional forms of systemic medical thinking. It seemed to many that specialization so narrowed the intelligence that it would hinder rather than foster real advance in medical science.<sup>59</sup> In part, such views reflected a continued belief in the systemic complexity of even local illness that survived the demise of traditional humoral doctrines and the rise of pathological anatomy. The surgeon Alfred Velpeau was particularly tireless in pointing to the systemic origins of many eye diseases.

Hostility to specialization also reflected a holistic notion of medical science itself that was expressed by M. J. Raige-Delorme in his editorial preface to the *Dictionnaire de médecine* in 1832. Raige-Delorme targeted not clinical specialties, which were not at this stage very developed, but disciplinary specialization and the intellectual isolation that inevitably ensued. While admitting that the growth of knowledge required that science be divided and subdivided, he nonetheless argued that usage had led to the arbitrary and harmful separation of subjects: of anatomy and physiology from medical practice, of pathology and therapeutics from surgery. It had also set up as special sciences subjects like public hygiene and legal medicine which were simple applications of medical knowledge. Beneath these practical considerations was a belief in a unified medical science available to the general practitioner and to which detailed empirical research had to be related. All parts of medicine were linked and one could not evaluate even the minutest aspect without knowing the whole, because "the science of man is one." It was precisely the lack of complete knowledge, of this view of the whole, which produced "schools" defending false theories; these, in Raige-Delorme's estimation, included both the nosological school and Broussais' physiological school.<sup>60</sup>

This view of science was considerably less influential in Paris than it was in Britain or the German-speaking world. Nonetheless, at the end of the 1850s the various forms of opposition to the official acceptance of specialties appeared to be insurmountable. By this time, the private teaching of many specialties was becoming widespread enough to arouse demands that these fields be recognized in the program of the medical faculty. Some of those making such demands must have had friends in high places, because in February 1859 the Paris Faculty of Medicine received a letter from the minister of Public Instruction asking whether it

59. Wunderlich, *Wien und Paris* (n. 18), p. 36.

60. M. J. Raige-Delorme, "Préface," *Dictionnaire de médecine*, 2d ed., vol. 1 (Paris: Bêchet Jeune, 1832), pp. xvij–xviii, xix–xx, quotation on p. xx. For one response to such views, see Peisse, *La médecine* (n. 36), 1: 315–16.

was advisable to create new chairs for the emerging specialties,<sup>61</sup> a commission convened to deal with the subject rejected the proposal.<sup>62</sup> And when the issue came up for general discussion in the assembly of professors, opposition remained overwhelming: only one professor, Armand Trousseau, supported the admission of specialties to the faculty, on the grounds that these important subjects were not being taught adequately; everyone else was more or less violently opposed.<sup>63</sup> Many reasons were cited: the claim that these subjects were in fact being acceptably taught in the context of existing clinical courses; the lack of any real pressure for change beyond the desire of a handful of specialists to become professors; the small amount of significant knowledge in most specialties; the fear that once the gates were opened, a flood of demands for faculty chairs would inevitably result. But above all, specialties were seen to represent an intellectual narrowness that was perceived as profoundly dangerous for medical science. It would fragment medical science and would “interdict the professor from any view of the whole.”<sup>64</sup> It is no accident that opponents of specialty chairs presented an alternative demand for the reestablishment of the chair of the history of medicine (which had been eliminated in 1823): this subject represented the breadth of spirit, the attempt at a comprehensive perspective that was thought to be vital for medical science. The unanimous vote against the creation of specialty chairs was followed immediately by a vote in favor of requesting a chair in medical history.<sup>65</sup>

The dean of the faculty suggested that the teaching needs of specialties could be met by elective courses taught by junior personnel (*agrégés*)<sup>66</sup>—but in the following years no move was made to implement this suggestion. In fact, hostility to specialties was so strong that Armand Trousseau in 1862 was roundly criticized in the faculty assembly for allowing the venereologist Ricord to lecture in his course: it was argued that this went against the unanimous opposition of the faculty to specialist teaching.<sup>67</sup> In the face of such hostility, the introduction of specialty teaching could be imposed only by force.

61. Meeting of the faculty assembly (n. 54), p. 233.

62. The presentation of this report is in ANP: AJ 16 6251, 17 March 1859, p. 229. What seems to be an incomplete version of the report is in AJ 16 6310, n.p.

63. Discussion of this issue went on for three meetings of the faculty: ANP: AJ 16 6251, 17, 24, 28 March 1859, pp. 229–55.

64. Gavarret, *ibid.*, p. 233.

65. *Ibid.*, 28 April 1859, pp. 253–55.

66. *Ibid.*, 17 April 1859, p. 229.

67. ANP: AJ 16 6253, 23 January 1862, pp. 6–7.

This occurred with remarkable speed. In 1862, the personal physician to Emperor Napoleon III, Pierre Rayer, was named to the newly created chair of comparative medicine; at the same time, he was also named to replace the retiring Paul Dubois as dean of the faculty.<sup>68</sup> Shortly thereafter Rayer introduced six new *cours complémentaires*, courses that were not part of the core curriculum, in the clinical specialties. These were taught by junior-level personnel, the *agrégés*. Rayer, to my knowledge, never explained his actions, probably because they seemed self-evident. But it is worth noting that he was closely identified with a new vision of medical science, one associated with the laboratory sciences and with the Société de Biologie, which he had helped to found. In the years to come, the young members of the Société whose careers Rayer supported would take power in Parisian medical institutions and would attempt to introduce this new model of science into medical training. Within this model, specialization seemed an obvious necessity.<sup>69</sup>

Rayer's reform was modest, and cheap to implement, but it provided significant official recognition of the specialties involved: mental and nervous diseases, skin diseases, venereal diseases, diseases of children, diseases of the eyes, and diseases of the urinary tract.<sup>70</sup> Once ensconced in the faculty, teachers of these disciplines might expect to eventually step up to full professorial chairs if representatives of the specialties succeeded in demonstrating the requisite scientific vitality. And indeed, they set out to do just that. During the 1860s and 1870s, many new specialty medical journals were set up; most were founded and supported by elite physicians at the faculty and in hospitals (or other state institutions, such as those for the blind or the deaf), and they were predominantly in those fields on the verge of full acceptance into the medical curriculum.

By the mid-1870s, the pressure to transform specialty courses into chairs accelerated. Reformers seem to have been particularly influenced by what they perceived as the rapid development of specialist medical teaching in Germany. If claims of Germany's growing superiority in this respect were vastly exaggerated, they were effective in the political climate that followed the French defeat at the hands of Prussia in 1870.<sup>71</sup>

68. *Ibid.*, 24 April 1862, p. 411.

69. The best discussion of the Société de Biologie is Bernard Brais, "The Making of a Famous Nineteenth-Century Neurologist: Jean-Martin Charcot" (M.Phil. thesis, University College, London, 1990).

70. Goldstein, *Console and Classify* (n. 13), pp. 346–48; Jacques Poirier, "La Faculté de Médecine face à la montée du spécialisme," *Communications*, 1992, 54: 209–27, esp. p. 214.

71. George Weisz, *The Emergence of Modern Universities in France, 1863–1914* (Princeton: Princeton University Press, 1983), chaps. 1–3.

The ambition to create new chairs in clinical specialties had broader significance because it was also seen as an integral aspect of that restructuring of medical and higher education which was gaining support among the nation's political and intellectual elites. New specialty chairs were perceived to be vital to maintaining France's position of prestige within the international community of medical science; they were equally essential in order to attract the foreign doctors who had once come to France to complete their postgraduate education but were now choosing instead to travel to Austria and Germany.<sup>72</sup> Debate of this issue began within both the educational administration and the Faculty in 1875. Although there was some disagreement about which subjects deserved representation, and about whether professors in newly created specialist positions should be granted full equality of title and prerogatives with those in existing chairs, there was little opposition to the principle of expanding the role of specialties.<sup>73</sup>

In 1877 a clinical chair in mental maladies was established, the first of seven chairs in the various clinical specialties that were introduced by 1890. (The others were in diseases of children and ophthalmology, both in 1878; dermatology and syphilology in 1879; neurology in 1882; and clinical obstetrics and urology, both in 1890.) These resulted from the imperatives of international educational and scientific competition, rather than from pressures exerted by indigenous specialty groups. Some Faculty reports on these matters explicitly distinguished between professional specialization, which was of little interest, and scientific specialization, which was vitally important in the competition against foreign science.<sup>74</sup> "If we ask for specialized chairs, it is in order to have professors devoting themselves entirely and without second thoughts to the study of certain specialized parts of science; it is in order that French science be capable of battling [*lutter avec*] in this area against foreign science."<sup>75</sup> Five more clinical specialty chairs were created in the decade before 1912.

Scientific considerations played a predominant role in faculty deliberations. With limited resources at their disposal, professors tried to

72. The clearest expression of these concerns is Léon LeFort, *Rapport sur la création de chaires cliniques spéciales à la Faculté de Médecine*, pp. 4–5, read to the Faculty on 18 April 1878: ANP: AJ 16 6310. The conclusions were voted unanimously. Also see the comments by Hardy to the Faculty Assembly, 6 January 1876, ANP: AJ 16 6257, n.p.

73. See, for instance, the faculty discussions of 30 December 1875 and 6 January 1876 in ANP: AJ 16 6357, n.p. Poirier, "Faculté de Médecine" (n. 70), pp. 214–18, gives a good account of these discussions.

74. LeFort, *Rapport* (n. 72), pp. 4–5.

75. *Ibid.*, p. 7.

determine what fields had developed sufficient knowledge to merit professorial chairs. At the head of the list was ophthalmology: academic reports and debates referred specifically to the discoveries that the ophthalmoscope had made possible.<sup>76</sup> Urology was rejected in the 1870s, on the grounds that it was not sufficiently advanced scientifically. Sometimes, however, scientific considerations came into conflict with political and public health concerns, and in such cases, politics usually triumphed. In 1879, for instance, a clinical chair devoted to diseases of the skin and venereal disease was established in spite of the fact that two separate faculty reports had recommended that only dermatology be raised to the status of a clinical chair: venereology, it was argued, was both a distinct subject and of little scientific interest.<sup>77</sup> However, it was of great public health concern to the government of the day; when it became clear that the Ministry would not consider a new chair in dermatology unless venereology was included within the scope of the field, the faculty capitulated.<sup>78</sup> One suspects as well that the creation of a chair in the diseases of children in 1878 owed more to state concern to combat infant mortality than it did to the scientific status of this field.

Almost all this institutional activity, it should be noted, took place in Paris. Provincial medical faculties were very slow to introduce clinical chairs. This was largely a result of the motives of international competition that underpinned the reforms: since the Faculty of Paris was the showpiece of the French system, the institution meant to attract foreigners, it was necessary to provide it with a full range of specialty chairs. One did not worry much about provincial institutions that were invisible internationally.

The events in Paris did not occur in isolation. During the first half of the nineteenth century, individual specialists practiced in many cities of Europe and North America, but most of these cities lacked the population and the extended medical research community that would allow specialization to emerge as a significant social and professional category. By the 1860s, however, none of this mattered any longer. The identifica-

76. The model of specialization based on new instruments was also consciously followed by otorhinolaryngologists: see the introductory editorial remarks in *Annales des maladies de l'oreille et du larynx*, 1875, 1: 1.

77. The LeFort report, voted by the Faculty in 1878, as well as the Broca report three years before: LeFort, *Rapport* (n. 72), p. 13.

78. ANP: AJ 16 6259, 16 January 1879, p. 187. To add insult to injury, the Ministry appointed to the chair, without consulting the Faculty (as was the usual practice), the venereologist Alfred Fournier. Fournier was in fact a popular choice but he showed little interest in dermatology, which languished during his tenure in the chair.

tion of specialization with the latest developments in modern science had become so strong that specialty posts were beginning to be seen as self-evident requirements of any medical education and research that aspired to scientific status. Specialization thus spread through the expanding medical schools of the German-speaking world, most notably in Vienna, as well as those of the United States. In the German-speaking world, specialties were even more identified with academic medicine and with the “great transition” in science than they were in France, being associated predominantly with university medical faculties and clinics. Both here and in the United States, specialists had to overcome opposition that was generally far more vigorous than any that had confronted their French counterparts; by the late 1880s, however, despite frequent complaints, specialties in both regions were largely accepted as disciplinary units for producing and disseminating the knowledge that all future general practitioners needed to possess.<sup>79</sup>

I will devote the rest of this paper to an examination of another, far more problematic case, that of London in the nineteenth century. Despite the size of the city’s medical community, almost none of the conditions that pertained in Paris applied. London provides an almost exact reverse image of the situation that allowed specialization to emerge and flourish in Paris. Here, specialization appeared to be something less than inevitable and self-evident, and it never achieved the strong identification with medical research and innovation that existed elsewhere.

## British Resistance to Specialization

London was the largest city in Europe. It had medical resources that were certainly as extensive as those of Paris. Among the many practitioners in the city, some specialists were quite visible. And yet, specialization as a compelling social category did not first emerge in London; and once it eventually did emerge, it faced a unique degree of hostility. There are at least four reasons why:

1. During the first half of the nineteenth century, the British medical profession was divided into three occupational groups—physicians, surgeons, and apothecaries; by mid-century such corporate divisions were gradually being replaced by another division, that between GPs and elite

79. This very superficial discussion of the German and American cases is dictated by space considerations. I will, however, devote equal time to them in my forthcoming book on specialization in comparative perspective.

consultants, but corporate distinctions remained significant. The fragmentation of licensing among the nineteen degree-granting or licensing bodies was another characteristic feature of British medicine that provoked considerable protest. From the early decades of the nineteenth century, the main thrust of efforts by would-be reformers of British medicine was to bring unity, simplification, order, and greater equality to this complex, if not chaotic, professional context.<sup>80</sup> Under these conditions, specialization appeared very threatening, foreshadowing even greater professional division and conflict. And for the medical elite in the royal colleges whose power was being challenged by reformers, specialization represented yet another of the forces that threatened to whittle away their sphere of power and privilege. Thus viewed with deep suspicion by both reformers and the medical establishment, by GPs as well as consultants, specialization had considerable difficulty in winning medical approval.

2. Despite its huge medical resources and population, London lacked the single unified hospital or educational system within which pressure for administrative rationalization and specialization might build up. On the contrary, the system of competing private hospitals of varying sizes, with many also serving as medical schools, was fragmented, unwieldy, and, some said, wasteful. The staff of even the larger teaching hospitals was small in comparison with the leading institutions in France and Germany;<sup>81</sup> furthermore, they had to provide all the basic necessities of medical education. This left little room for special interests to emerge. (In fact, since teachers were paid from student fees, there was financial incentive to exclude teachers of new subjects with whom fees would have to be shared.) While considerable private teaching went on in London, especially in fields like anatomy, the relationship between private teachers and the medical elite was one of antagonism. There was little chance

80. On the links between professional fragmentation and wider political conflicts of the era, see Adrian J. Desmond, *The Politics of Evolution: Morphology, Medicine, and Reform in Radical London* (Chicago: University of Chicago Press, 1989), esp. chaps. 1 and 3. On medical politics more generally, see Ivan Waddington, *The Medical Profession in the Industrial Revolution* (Dublin: Gill and Macmillan, 1984).

81. Susan Lawrence has calculated that in 1800 there were twenty-two physicians and twenty-two surgeons, as well seven assistants, at the seven London hospitals; from 1800 to 1819, only thirty-five physicians were appointed: Susan C. Lawrence, *Charitable Knowledge: Hospital Pupils and Practitioners in Eighteenth-Century London* (Cambridge: Cambridge University Press, 1996), pp. 351–52. See also Thomas Neville Bonner, *American Doctors and German Universities: A Chapter in International Intellectual Relations, 1870–1914* (Lincoln: University of Nebraska Press, 1963), pp. 93, 101.

that success in the private domain could lead to posts in elite institutions, as was frequently the case in Paris.<sup>82</sup> For all these reasons, specialization had to emerge outside the system of elite medicine. And because of their “outsider” status, specialists could be easily dismissed as opportunistic interlopers, if not charlatans and quacks.

3. A key distinction between Paris and London had to do with research. While there were many individuals in London who devoted themselves to the advancement of medical knowledge, the hospital elite as a whole did not. The leaders of the independent research community that had emerged in London from about 1750 to 1820 seem at the turn of the century to have been largely co-opted by the royal colleges.<sup>83</sup> The dissenting group of philosophical anatomists discussed by Adrien Desmond were impossibly alienated from the academic elite.<sup>84</sup> For all intents and purposes, the advancement of medical knowledge, particularly clinical knowledge, was largely dominated by an elite made up predominantly of “gentlemen,” usually appointed through patronage or the purchase of junior hospital posts, who prided themselves on clinical skill and “gentlemanly” personal and cultural attributes rather than on the methodical, empirical research that promoted specialization elsewhere. For British medical reformers who complained of the decline of British medical science, as well as for American doctors who voted with their feet and chose to study in Paris rather than London, the British medical elite seemed largely uninterested in medical science.<sup>85</sup> Such judgments need to be qualified, of course. Each hospital had its own medical culture. Guy’s, whose staff included Richard Bright, Thomas Hodgkins, and Thomas Addison, and which boasted a clinical society on the model of those existing in Paris, was clearly an institution where advancing science mattered a great deal. This may explain why it was frequently cited for its unique openness to clinical specialties—but Guy’s was exceptional in the London context. The impetus toward specialization generated in Paris by a large community committed to research emerged in London in only very localized milieus.

82. Desmond, *Politics of Evolution* (n. 80), chap. 1.

83. Lawrence, *Charitable Knowledge* (n. 81).

84. Desmond, *Politics of Evolution* (n. 80), chap. 1.

85. For the perspective of early nineteenth-century American doctors in London, see John Harley Warner, “American Doctors in London during the Age of Paris Medicine,” in Nutton and Porter, *History of Medical Education* (n. 43), pp. 342–65. See also Warner, *Against the Spirit of System* (n. 16), pp. 72–73, 195–200.

4. The weakness of British medical research mirrored the slow and hesitant professionalization of scientific research more generally—what we have called the “great transition”—in the larger British context. During the first half of the nineteenth century, professional research played a relatively minor role within universities and major scholarly societies. Even prestigious institutions like the Royal Society of London fostered a view of science as a “gentlemanly pursuit” and resisted specialization.<sup>86</sup> British academics, it has been argued, tended to subordinate the demand for specialized research to “an older professional ideal of the teacher as moral guide and member of a broadly literate community of gentlemen.”<sup>87</sup> Such views changed only slowly within the academic world during the second half of the nineteenth century. But even the spread of research ideals did not immediately provide elite London doctors with proximate models of specialized research, as did the scientific institutions of Paris, because so much medical training took place in general hospitals that remained isolated from universities—even when formal institutional links existed. In countries where medical education was closely tied to other institutions of higher learning, it was difficult for elite doctors to resist new models of research and specialization that were coming to dominate education in science as well as the humanities. Furthermore, British voluntary hospitals were controlled by laymen who held the power to appoint senior medical staff until the last decades of the nineteenth century. These lay directors tended to be more interested in matters of personality, style, and character than in matters of medical science or even clinical skill, and their appointees developed similar values, which shaped their careers and informed their choice of junior staff.<sup>88</sup> Making room for medical science (as well as for merit more generally) within the British system was one of the chief goals of reformers in the early nineteenth century.<sup>89</sup> Merit and research skills of various sorts did gradually become more pertinent for elite recruitment in the

86. Daston, “Academies” (n. 37), esp. p. 71.

87. Dorothy Ross, “Professionalism and the Transformation of American Social Thought,” *J. Econ. Hist.*, 1978, 38: 494–99, quotation on p. 497.

88. Jeanne Peterson, *The Medical Profession in Mid-Victorian London* (Berkeley: University of California Press, 1978), pp. 124, 141–43, 166–67. On the lack of scientific criteria in election to fellowships of the RCP, see *ibid.*, pp. 2–3.

89. The Provincial Medical and Surgical Association (which became the BMA) was initially set up as a scientific organization, inspired by the example of the British Association for the Advancement of Science. Only later did it become devoted to professional politics. See Peter Bartrip, *Themselves Writ Large: The British Medical Association, 1832–1966* (London: BMJ Publishing Group, 1996), pp. 5–6, 10.

latter half of the nineteenth century, without, however, completely displacing “gentlemanly” criteria.<sup>90</sup>

This combination of factors did not prevent specialization from emerging in the early and mid-nineteenth century, but the specialization that emerged took a unique form: it was cultivated to a considerable extent outside the medical elite, and it had a distinctly entrepreneurial cast. Britain had the usual kinds of specialists in the eighteenth century. Bonesetters, dentists, oculists, and specialists in venereal disease usually functioned outside the regular profession and were frequently considered “quacks” by physicians and surgeons.<sup>91</sup> In the late eighteenth and early nineteenth centuries some medical men encroached on these domains, becoming ophthalmic surgeons, surgeon-dentists, and later orthopedic surgeons.<sup>92</sup> By far the most widespread form of specialist practice, however, was midwifery; Adrian Wilson has masterfully described the process that transformed obstetrical surgery in the eighteenth century into a significant category of practice dealing with routine births.<sup>93</sup> This strong focus on practice rather than teaching and research (despite the importance of William Smellie and William Hunter in the development of obstetrical knowledge and techniques) may explain some of the difficulty that both obstetrics and specialties in general faced in the nineteenth century.<sup>94</sup>

During the eighteenth century, specialty hospitals appeared with increasing frequency. They were usually private and meant to serve those excluded from voluntary hospitals: initially the insane, parturient women, sufferers from fevers or venereal disease.<sup>95</sup> In the nineteenth century, the

90. Peterson, *Medical Profession* (n. 88), pp. 2–73. Also see Christopher Lawrence, “Incommunicable Knowledge: Science, Technology and the Clinical Art in Britain, 1850–1914,” *J. Contemp. Hist.*, 1985, 20: 503–20.

91. Bynum, “Treating the Wages of Sin” (n. 11), pp. 5–28.

92. For the slightly later case of bonesetters and orthopedists, see Roger Cooter, “Bones of Contention? Orthodox Medicine and the Mystery of the Bonesetter’s Craft,” in Bynum and Porter, *Medical Fringe* (n. 11), pp. 158–73.

93. Wilson, *Making of Man-Midwifery* (n. 12).

94. The Company of Surgeons excluded midwifery from surgery, as did its successor, the Royal College of Surgeons. The Royal College of Physicians did offer midwives a subordinate status and in 1783 introduced a license in midwifery, but this was viewed as a distinctly inferior form of practice and in 1800 the license was discontinued. See *ibid.*, pp. 200–201.

95. Peterson, *Medical Profession* (n. 88), p. 260; David Innes Williams, *The London Lock: A Charitable Hospital for Venereal Disease, 1746–1952* (London: Royal Society Press, 1995), pp. 13–14; Donna T. Andrew, *Philanthropy and Police: London Charity in the Eighteenth Century* (Princeton: Princeton University Press, 1989); Linda E. Merians, “The London Lock Hospital and the Lock Asylum for Women,” in Merians, *Secret Malady* (n. 41), pp. 128–48.

establishment of such hospitals accelerated, giving rise to a new form of entrepreneurship: rather than making direct appeals to the public, through handbills or a publication that vaunted their treatments, specialists now targeted philanthropists who might support a small specialized dispensary or hospital; this could make a practitioner's reputation as a specialist and bring him wealthy private patients.<sup>96</sup> Although it was based on the philanthropic model of the elite voluntary hospitals, specialization in the British context had a dissenting quality: it was taken up by ambitious outsiders excluded for religious, educational, or social reasons from posts in general hospitals and who consequently established competing institutions.<sup>97</sup> Some had studied on the Continent,<sup>98</sup> and a few were foreign born and trained.<sup>99</sup> While the scientific value of special hospitals as manifested in continental Europe was frequently cited in defense of these institutions,<sup>100</sup> the logic of philanthropic fundraising tended to emphasize the provision of useful and heretofore unavailable charitable services.<sup>101</sup> One did not of course preclude the other, and certain specialists had very strong scientific interests.<sup>102</sup> Nonetheless,

96. On specialist entrepreneurship, see Lindsay Granshaw, "Fame and Fortune by Means of Bricks and Mortar": The Medical Profession and Specialist Hospitals in Britain, 1800–1948," in *The Hospital in History*, ed. Lindsay Granshaw and Roy Porter (London: Routledge, 1989), pp. 199–220; Peterson, *Medical Profession* (n. 88), pp. 244–82; Elizabeth M. R. Lomax, *Small and Special: The Development of Hospitals for Children in Victorian Britain*, Supplement no. 16 to *Med. Hist.* (London: Wellcome Institute for the History of Medicine, 1996). Of 144 hospitals founded in the nineteenth century, 83 percent were founded by doctors with lay support; the remaining 17 percent were primarily inspired by laymen: Charles Newman, "The Rise of Specialism and Post-Graduate Education," in *The Evolution of Medical Education in Britain*, ed. F. N. L. Poynter (London: Pittman Medical Publishing, 1966), pp. 169–93, on p. 172.

97. Good examples are Frederick Salmon, discussed in Granshaw, "Fame and Fortune" (n. 96); Charles West, in Lomax, *Small and Special* (n. 96), pp. 24–27; and Harry Lobb, discussed in Iwan Rys Morus, "The Measure of Man: Technologizing the Victorian Body," *Hist. Sci.*, 1999, 37: 249–82, on pp. 253–55.

98. Van Heteren, "Students Facing Boundaries" (n. 43), pp. 302–3.

99. Lomax, *Small and Special* (n. 96), pp. 24, 27; John V. Pickstone, *Medicine and Industrial Society: A History of Hospital Development in Manchester and Its Region, 1752–1946* (Manchester: Manchester University Press, 1985), p. 119; Morus, "Measure of Man" (n. 97), p. 254.

100. For several examples, see Lomax, *Small and Special* (n. 96), p. 1.

101. For examples from two women's hospitals, see Moscucci, *Science of Woman* (n. 5), pp. 82–84, 96.

102. Lindsay Granshaw pretty much discounts scientific interests in the rise of specialist hospitals, emphasizing motives of social mobility and the logic of philanthropy; publication is usually treated only as a strategy for social mobility: Granshaw, "Fame and Fortune" (n. 96), p. 200; Lindsay Granshaw, *St. Mark's Hospital, London: A Social History of a Specialist*

such interests were not necessarily at the center of public perceptions of special hospitals.

During the first half of the century, twenty-seven specialist hospitals, infirmaries, or dispensaries were established in London (joining twelve that survived from the eighteenth century), and another twenty-two in provincial cities.<sup>103</sup> Those devoted to diseases of the eye were especially prominent early in the century.<sup>104</sup> Overall, however, specialization made little impact on the profession. The Royal College of Surgeons early in the century had regulations to the effect that any newly elected member had to resign posts held in specialist hospitals (though this rule was ignored in the one case in which it came into play).<sup>105</sup> The College refused to consider specialists for its new fellowships when it was reorganized in 1843, but it was forced by political pressures to back off in the case of obstetricians.<sup>106</sup> The Royal College of Physicians was if anything even more hostile to specialists. The marginality of specialists stemmed, in some ways, less from outright hostility than from the fact that they were largely ignored; during the 1840s and 1850s, specialization was rarely discussed in a medical press that was preoccupied by the various campaigns for professional reform.<sup>107</sup>

The major medical directory of the period provides another indication of how little specialization seemed to matter in the British context. In 1847, the *London and Provincial Medical Directory* allowed practitioners to specify their area of practice (physician, surgeon, or general practitioner) and to mention specialty interests: less than 5 percent of the first 1,000 London practitioners listed identified themselves with some specialty

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*Hospital* (London: King Edward's Hospital Fund for London, 1985), pp. 26–29. Peterson, *Medical Profession* (n. 88), also emphasizes issues of mobility, but acknowledges that new perceptions and scientific interests may also have been at work. Still, one finds many examples of specialty hospitals generating serious medical publications in such works as Bynum, “Treating the Wages of Sin” (n. 11), p. 24; Lomax, *Small and Special* (n. 96), pp. 155–57; Morus, “Measure of Man” (n. 97), passim.

103. Peterson, *Medical Profession* (n. 88), pp. 362–63.

104. Granshaw, “Fame and Fortune” (n. 96), p. 204.

105. Zachary Cope, *The Royal College of Surgeons of England: A History* (London: Anthony Blond, 1959), p. 72.

106. See “To the Right Honorable Sir George Grey, Bart. Her Majesty's Principal Secretary of State for the Home Department, 23 April 1850,” an uncatalogued printed pamphlet in the Royal College of Surgeons Archives, London, that was the College's response to calls for the establishment of a Royal College of General Practitioners.

107. The subject is also absent from most histories of the British medical profession during this period.

designation.<sup>108</sup> The figure itself is less telling than the fact that, in the majority of cases, the specialty was combined with general medicine or surgery. Even more significant is how few specialist categories were actually represented. More than half (twenty-five) of those supplying specialty designations were practitioners of midwifery, a long-established field. The other well-represented specialty in the directory was dental surgery (with ten mentions), which was in the process of becoming a partly autonomous profession. The only other groups identified were specialists of the eyes and homeopaths (with four mentions each), alienists (three), and orthopedists (one). This is a far cry from the richness of specialty designations in Parisian directories of this period.

Starting with the edition of 1849, the editor decided “[o]n mature reflection, and in accordance with the opinion of the profession generally,” to eliminate any mention of areas of practice on the grounds that listing an individual’s diplomas or other qualifications was sufficient.<sup>109</sup> It is not clear just what motivated this decision. There is no evidence of massive pressure from the profession on this matter. Even if lobbying did occur, it is well to remember that the editor, John Churchill, would several years later vigorously resist the demands of the medical profession to prohibit homeopaths from listing their honors, posts, and publications in his directory. It is in fact quite likely that Churchill viewed specialization as too insignificant to bother with.

Indifference to or, in some cases, qualified support for specialization turned to vigorous hostility after mid-century as new specialty hospitals multiplied at an even faster rate than previously. During the entire first half of the century, remember, twenty-seven specialist institutions had been established in London and twenty-two in the provinces. During the 1850s, fourteen more London and twelve provincial hospitals, infirmities, or dispensaries came into existence. During the 1860s, a further twenty-two London and twelve provincial institutions were set up.<sup>110</sup> Most of

108. *London and Provincial Medical Directory, 1847* (London: Churchill, 1847). For a brief but illuminating quantitative analysis of the professional information in this volume, which does not, however, discuss the specialties mentioned, see Irvine Loudon, *Medical Care and the General Practitioner, 1750–1850* (Oxford: Clarendon Press, 1986), pp. 224–27; and see also idem, “Two Thousand Medical Men in 1847,” *Bull. Soc. Soc. Hist. Med.*, 1983, 33: 4–8. On the origins of this and other directories, see George Weisz, “Medical Directories and Medical Specialization in France, Britain, and the United States,” *Bull. Hist. Med.*, 1997, 71: 23–68.

109. *London and Provincial Medical Directory, 1851* (London: Churchill, 1851), p. vi.

110. Peterson, *Medical Profession* (n. 88), pp. 262–63. On the case of Manchester, see Pickstone, *Medicine and Industrial Society* (n. 99), pp. 100, 113–22. And see Richard Kershaw,

these were very small, but perhaps because a mobile middle class was eager to confirm its social status through new forms of philanthropy, the public response was enthusiastic.<sup>111</sup> Nor did these institutions lack for patients.<sup>112</sup> For this reason, perhaps, the movement provoked a major medical backlash. The resulting outcry was aimed less against specialized practice than against the specialty hospitals' being seen as a threat to the prosperity of the general voluntary hospitals.<sup>113</sup>

A steady stream of articles and letters to the editor by practitioners began to appear in the medical press. In June 1860, in response to the announcement of the imminent establishment of St. Peter's Hospital for the Stone, a committee of hospital physicians composed a statement of protest against specialist hospitals. Nineteen eminent consultants, including the presidents of the two royal colleges and the Royal Society, signed the widely published statement.<sup>114</sup> Within months, more than four hundred hospital physicians added their names.<sup>115</sup> Both the *British Medical Journal* and the *Lancet* ran active campaigns against specialist hospitals.

Criticism centered on the damage that special hospitals inflicted on general hospitals. The former, it was charged, diverted charitable funds away from the latter. This was bad for both the hospitals and the poor because it deflected money away from care and into extensive duplication of services and facilities. Such special institutions also drew valuable clinical material away from general hospitals and threatened medical education because entire categories of cases could no longer be seen by medical students. They harmed the reputations of general hospitals by fostering the unfounded belief that these were inferior to special hospitals.

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*Special Hospitals: Their Origin, Development, and Relationship to Medical Education, Their Economic Aspects and Relative Freedom from Abuse* (London: Pulman, 1909), pp. 61–72, for a complete list of hospitals created from 1801 to 1899.

111. The government also offered occasional financial support: "Parliamentary Votes for Hospitals," *Brit. Med. J.*, 1863, 1: 369, reported on funds voted by Parliament for several special hospitals. Keir Waddington, "Finance, Philanthropy and the Hospital: Metropolitan Hospitals 1850–1898" (Ph.D. thesis, University College, London, 1995), pp. 155–56, suggests that support often had a practical dimension—as, for instance, the support of printing and textile firms (in which chest diseases were common) for the Royal Chest Hospital (his thesis is now available in book form, *Charity and the London Hospitals, 1850–1898* [Woodbridge, U.K.: Boydell Press in association with the Royal Historical Society, 2000]).

112. Peterson, *Medical Profession* (n. 88), p. 264.

113. Waddington, "Finance, Philanthropy and the Hospital" (n. 111), pp. 163–64, suggests that special hospitals were actually more successful at attracting philanthropic support than were general hospitals.

114. "Special Hospitals," *Lancet*, 1860, 5: 97.

115. "Special Hospitals," *Lancet*, 1860, 9: 574–75.

They provided free care to patients not requiring charity, thus damaging the interests of medical practitioners. And finally, by focusing on isolated organs and specific illnesses they drew attention away from the systemic nature of most disease, thus fostering an inferior form of medical science and practice. In Sir Benjamin Brodie's frequently quoted formulation:

Diseases generally are so connected with each other, and a knowledge of one is so necessary to a right understanding of another, that no one who limits his attention to any given disease, can be so competent to investigate its nature, and to improve its method of treating it, as those are who have a wider field of observation, and who are better acquainted with general pathology.<sup>116</sup>

The campaign against special hospitals can be seen both as a defense of traditional systemic views of disease and as a self-interested effort by the medical elite to defend its turf; neither of these motives was different in kind from the conservatism of professors in Paris or Berlin who initially refused to admit specialists to the institutions that they controlled. The major distinction in the case of London in the 1860s is the near total absence of powerful voices supporting specialization in the name of medical science. There were no administrative equivalents of Rayer in Paris or Ludwig Baron von Türkheim in Vienna, who insisted on making room for specialists in elite institutions. Nor were there figures comparable to the Harvard professor of clinical medicine Henry I. Bowditch, who in 1866 wrote a "Minority Report" defending specialization against the majority report of a special committee of the American Medical Association that condemned its exclusive practice.<sup>117</sup>

One reason for this lack of support is the almost exclusive identification of specialization in Britain with specialist hospitals. As a result, even institutional reformers did not step in to defend specialties. The radical reformer and editor of the *Lancet*, Thomas Wakley, for instance, was not averse either to specialization or to increasing the role of science in medical institutions.<sup>118</sup> However, he abandoned his early qualified support of specialist hospitals when he became convinced that they threatened one of his most cherished aspirations: a single educational portal of

116. Benjamin C. Brodie, "Sir Benjamin Brodie on Special Hospitals," letter of 16 July 1860 in *Lancet*, 1860, 2: 92. See also "London: Saturday, August 6, 1864," *Lancet*, 1864, 2: 159.

117. Henry I. Bowditch, "Minority Report," *Trans. Amer. Med. Assoc.*, 1866, 17: 511–12; reprinted in Charles Rosenberg, ed., *The Origins of Specialization in American Medicine* (New York: Garland, 1989), pp. 29–30.

118. In 1852 Wakley delivered a qualified endorsement of the "division of professional labour. . . the subdividing and specializing process has continued, until in these latter days, medicine, surgery and midwifery, are little else than three great systems of specialties" ("London: Saturday, October 22, 1852," *Lancet*, 1852, 1: 382).

entry into the profession. For Wakley, the only possible institutional foundation for such an innovation was the general teaching hospital that, reorganized and comprehensive in scope, might create a unified medical profession whose members were fully competent in all branches of practice. Special hospitals seemed to threaten both the existence of general hospitals and the possibility that they could evolve into the kinds of institutions that he envisioned.<sup>119</sup>

In defense of the general hospital, Wakley proposed two related strategies, one negative and the other positive. The negative strategy was to ruthlessly banish anyone attached to a special hospital from all posts in general hospitals; in this way, special hospitals would be denied the legitimacy afforded by their links to the medical elite. The positive strategy involved “the practical assertion of the unity of medicine by the gathering together of its disjuncta membra in our great general hospitals”<sup>120</sup>; special departments had to be established in all the recognized fields, as some hospitals, like Guy’s, were already doing. Throughout the 1860s, the *Lancet* appealed for more special departments while at the same time defending the progress being made.<sup>121</sup>

Wakley’s advice, repeated frequently in the *Lancet* during the next three decades, was in fact followed by hospital consultants, but not with the thoroughness and ruthlessness that Wakley would have liked. Consultants sought to isolate special hospitals, and in a number of well-publicized cases they forced men with dual appointments to choose between a post in a general hospital and one in a special institution.<sup>122</sup> Such efforts, however, had only limited effect. In 1866 the new editor of the *Lancet*, James Wakley, cited figures based on the most recent *Medical Directory* to the effect that of the 170 medical officers attached to general hospitals, no fewer than 61 were also attached to one of the special hospitals;<sup>123</sup> by 1889, only 31 of 195 medical officers in general hospitals were *not* also attached to a specialist hospital.<sup>124</sup> Many of the general

119. See *Lancet*, 1859, 2: 624; “London: Saturday, July 14, 1860,” *Lancet*, 1860, 1: 40–41; “London: Saturday, July 21, 1860,” *Lancet*, 1860, 2: 65–66; “London: Saturday, September 1, 1860,” *ibid.*, pp. 216–17.

120. “London, September 1, 1860,” *Lancet*, 1860, 2: 216–17.

121. For a survey of special wards in general hospitals, see “London, Saturday, February 6, 1869,” *Lancet*, 1869, 2: 195.

122. For examples, see Peterson, *Medical Profession* (n. 88), pp. 276–77.

123. “Specialism,” *Lancet*, 1866, 4: 732.

124. Brian Abel-Smith, *The Hospitals, 1800–1948: A Study in Social Administration in England and Wales* (London: Heinemann, 1964), p. 159, based on a report of the *Hospital Gazette*.

London hospitals did establish specialty departments: from 1855 to 1875, the number of special departments rose from twenty-three to fifty-two<sup>125</sup>—but a large number of these were not well appointed. In the words of one dermatologist, “no proper accommodation has been provided for them, as if the aim were rather to strangle the existing special institutions rather than to grapple with the subject in any adequate manner.”<sup>126</sup> Furthermore, most general hospitals systematically appointed nonspecialists to run specialized wards (obstetrics and ophthalmology were exceptions in this respect). In justification it was argued that since diseases were systemic and all closely connected, the physician in even a specialized ward required wide general knowledge.<sup>127</sup>

Despite profound and widespread opposition to it, specialization continued to spread. Starting in the 1880s, it became possible to have something like a real specialist career in general hospitals. Specialized hospitals and wards produced increasing numbers of permanent specialists who dominated the societies and journals that were being established. Many of these combined posts in specialist hospitals with posts in general hospitals. The Royal College of Physicians remained reluctant to allow specialists to become officers;<sup>128</sup> however, in 1876 the Royal College of Surgeons appointed a specialist in ophthalmology (admittedly the most acceptable of the special fields) to its prestigious Hunterian Professorship of Surgery and Pathology.<sup>129</sup>

Leading specialists also contributed to a growing consensus about the limits of acceptable specialization by frequently warning of the dangers of narrow specialization and advocating the introduction of special departments in general hospitals.<sup>130</sup> Ideas about the unity of the body and of medicine no longer served as an argument against specialization, but rather for the integration of specialties into a hierarchical and unified system.<sup>131</sup> The research potential of specialties was frequently seen prima-

125. Peterson, *Medical Profession* (n. 88), p. 248.

126. T. McCall Anderson, “The Progress of Dermatology during the Last Quarter Century,” *Brit. Med. J.*, 1879, 2: 239–40. Obstetricians were particularly unhappy that they were not allowed to do gynecological surgery: see Clemont Godson, “Address, Section of Obstetrical Medicine, Annual Meeting BMA, 1884,” *Brit. Med. J.*, 1884, 2: 232–33.

127. “The Ethics of Specialism,” *Lancet*, 1866, 2: 777; “London: Saturday, February 6, 1869,” *Lancet*, 1869, 2: 196–97.

128. Peterson, *Medical Profession* (n. 88), p. 191.

129. This was Robert Brudenell Carter: “London: June 24, 1876,” *Lancet*, 1876, 1: 930–31.

130. *Ibid.*, p. 931; *Lancet*, 1890, 2: 253; John St. Swithin Wilders, “An Address . . . Section of Laryngology and Rhinology . . . BMA . . . 1890,” *Brit. Med. J.*, 1890, 2: 376–77.

131. Steve Sturdy and Roger Cooter, “Science, Scientific Management, and the Transformation of Medicine in Britain c. 1870–1950,” *Hist. Sci.*, 1998, 36: 421–66, on pp. 428–29.

rily as a resource for general medical practice: “the benefit to be derived from specialism in the future is likely to be proportionate to the degree in which its researches are made to enrich medicine in its entirety and to be contributory to the increased efficiency of the general practitioner.”<sup>132</sup>

There are three primary reasons, in my opinion, for the gradual acceptance of specialties. First, this process to some degree reflected the growing tendency of the British medical elite to come to terms with international developments, and particularly to gradually accept a central role for clinical research, by now fully identified with specialization. Increasingly, the British Medical Association referred to the growing number of specialized sections that comprised the major part of its annual meetings as the locus of its “scientific work.”<sup>133</sup> Furthermore, the British elite was part of an international network of medical elites monitoring each other in the medical press and meeting regularly at international congresses. Specialization was impossible to ignore if British medicine was to avoid becoming marginal internationally. Second, growing governmental involvement in health care produced many of the same kinds of pressures for administrative rationalization that supported specialization in other countries.<sup>134</sup> Finally, the thirst for professional unity that I identified earlier among reformers spread widely and encouraged compromises that everyone could live with. Both the introduction of the referral system and a qualified acceptance of specialism promised conflict resolution as much as administrative efficacy by reconciling the rival interests of elite doctors and general practitioners. This compromise also allowed elite consultants to appropriate and eventually monopolize specialist practice.

This compromise was far from perfect. Relatively few specialties were represented in the teaching hospitals of London, and almost none had a place on licensing examinations.<sup>135</sup> Britain remained the only major Western country in which, after the turn of the century, specialist identification in medical directories was rarely practiced. Even where it was allowed, the unwillingness of many eminent figures to be classified as specialists made such directories uniquely unreliable. An international directory of laryngologists and otologists first published in 1899

132. “Specialism,” *Lancet*, 1905, 1: 727.

133. See, for instance, the minutes of the Arrangements Committee in the British Medical Association Archives, London, Minutes of Council and Sub-committees, 1888–89, p. 1165.

134. Sturdy and Cooter, “Science” (n. 131), pp. 1–47.

135. Only obstetrics/gynecology and diseases of the ear, the eye, and the skin were represented by special departments in virtually all of the great London general hospitals.

complained that its listings for Great Britain were especially incomplete because it felt it could not include British practitioners without their expressed agreement.<sup>136</sup> In 1908, the *British Medical Journal* expressed this mixed record of achievement: On one hand, it could with some smugness contrast the identification of specialization with quackery that had been predominant just twenty-five years earlier, with an emerging recognition that specialization “is a necessary consequence of medical science,” so that every consultant, “whether he likes it or not, is driven to more or less open specialism.”<sup>137</sup> On the other hand, the editor quickly admitted that “the state of things is not satisfactory” because the teaching of specialties in hospitals was in many cases inadequate and “in subtle ways the specialist is made, in the language of the police courts, to feel his position.”<sup>138</sup>

## Conclusion

Specialization in its modern configuration emerged initially in the early nineteenth century as a form of knowledge production and diffusion that was, it is true, closely linked to clinical practice. For much of the century the number of specialists remained small, and the crucial political battles revolved around struggles for recognition in hospitals and medical schools. But starting roughly in the mid-1880s, things changed dramatically as more and more doctors took up specialties that increasingly became perceived as distinctive forms of medical practice. In the twentieth century, the proper training of specialist practitioners and demarcation of the boundaries of various specialist activities would emerge as major issues.

By the mid-1880s, in most large cities for which we have data, from 10 to 15 percent of the medical population announced themselves as specialists in one professional directory or another.<sup>139</sup> In the years that followed, the number of medical practitioners identifying themselves as specialists increased at a spectacular rate. In 1905 something like 30 percent of all doctors in Berlin announced themselves in directories as specialists of some sort; in Paris, the figure was 35 percent. Curiously, we have no real idea of the number of specialists in London or any other part of Britain because in the major national directories of that country,

136. *International Directory of Laryngologists and Otolologists*, ed. Richard Lake (1899; 2d ed., London: Rebman Publishing, 1961), preface to second ed.

137. “The Development of Specialism,” *Brit. Med. J.*, 1908, 1: 946–47.

138. *Ibid.*, p. 946.

139. Weisz, “Medical Directories” (n. 108).

announcing a specialty was simply not done. Specialization was tolerated so long as it remained largely invisible to the public at large. Hostility to specialization gradually dissipated in the twentieth century among members of Britain's consultant elite, who would in fact come to monopolize it. The fact that specialties eventually overcame such fierce hostility suggests just how powerful were the international forces behind the spread of specialization. But the difficult beginnings of specialties in Britain, their early failure to become irrevocably identified with advanced medical science, as was the case in France and the German-speaking world, would profoundly mark the development of British medicine.<sup>140</sup>

140. Britain's National Health Service was launched in 1947 with a uniquely small number of specialists to staff it. The goal of specialist regulation was not to curb the spread of specialists, as was the case in most other nations; it was rather to train greater numbers of specialists in order to meet the needs of the Health Service. This situation was a consequence of the way British specialists were and continue to be defined as hospital consultants who do not engage in primary care. This model has many advantages. It is for instance relatively cheap as every health economist knows. And the system permits the consultant aristocracy to remain privileged and exclusive. But such a clear distinction between primary and consultant care has been rejected in most other Western nations because neither doctors nor patients will tolerate it. It is hard to imagine that it could have been so easily imposed had large numbers of non-elite British doctors claimed and built their identity around specialist status, as was the case in France, Germany and the United States. The fact that this was quite uniquely not the case is partly due, I suspect, to the problematic status of specialties in Britain before the 1930s.