

Introduction

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Medical specialization is now a fact of life in all Western nations. The experience of medical care has been dramatically transformed not only because we now see many specialists for our ills (our ancestors changed physicians with greater frequency than we think), or because individuals suffering from multiple problems may now have difficulty receiving integrated care (undoubtedly true), but primarily due to the fact that specialization has simultaneously produced and been the product of the massive changes that have created high-technology “biomedicine” practiced in hospitals, financed (usually) by third-party payers, and expanding regularly into new domains of human life.

State authorities are now involved in medical affairs to a far greater degree than ever before and significantly encroach on the autonomy of medical professions. Everywhere nations struggle to balance a traditional free-market approach to health care with one based on administrative regulation. One of the key areas of government involvement is medical research, which has assumed massive proportions; it has become increasingly biology-based, even as large-scale clinical trials based on statistical reasoning have assumed a dominant position in evaluating therapies. Health insurance provided by the state or private carriers has affected the conditions of medical practice in most nations. The development of new technologies has vastly increased the scope of possible interventions and, in the process, raised the costs of medical care beyond a level considered affordable by most governments. The aging of populations throughout the Western world has exacerbated the apparently boundless need for and expense of health care.

Specialization in medicine has been at the heart of most of these changes. The division of medical labor is in many ways emblematic of contemporary medicine: of its successes as well as its failings; of its ability to transplant organs; and of its purported inability to deal with “whole” patients or provide personalized care. It is not that specialization has been the unique cause of all of the phenomena, both

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positive and negative, that we associate with biomedicine; rather, it has been a central and constituent element in their development.

It is thus rather astonishing that the major synthetic treatment of the subject dates from the mid-1940s.¹ Excellent national studies of specialization in Germany,² Britain,³ and the United States⁴ were written between the mid-1960s and the early 1970s. In the years since, there has been no attempt to reexamine a central feature of contemporary health-care systems, although recent publications⁵ suggest that a revival of interest may be in the works. What we do have in abundance are books and articles that have extended our knowledge of the history of individual specialties in specific countries. Several sociologists have presented sociological “models” of specialization⁶ that have highlighted previously underemphasized factors and forces. In the wake of this recent work, it is now possible to offer an empirically based survey and analysis of the development of specialization in historical and comparative perspectives. This is what I attempt to do in this book.

Specialization appears in many ways to be a self-evident necessity of medical science whose existence requires little explanation. This commonsense perception cannot be dismissed 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 had 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 sociologists say, “overdetermination”—of medical specialization still leaves us with many historical questions that are not in the least bit self-evident. Why did medical specialization first emerge when and where it did? Why and how did it come to appear as inevitable—though not necessarily unproblematic? Why did it take certain directions and not others? Did it evolve in pretty much the same way everywhere? These are the kinds of questions that I hope to answer in this book. The comparative nature of this study allows me to examine different national patterns of development and to search for both common features and variations in national specialization processes. I hope in this way to determine the degree to which specialization was an international phenomenon cutting across national boundaries and the extent to which it developed out of specific institutional and intellectual conditions in each nation. My chronological frame will be a long one, close to two centuries, and I will examine in detail four very different national cases: those of France, Britain, Germany, and the United States. Collectively these nations largely determined the shape of medical specialties as we know them.

The Existing Literature

In pursuing this study I have built on a significant body of existing work. The oldest, and the one most closely approximating my own efforts, is a book by George

Rosen published in 1944. Like any book of that vintage, it is in certain respects out of date. It can also be faulted for not making necessary distinctions among nations or historical periods and for generalizing a bit too much from the single case of ophthalmology. It nonetheless remains an impressive work full of astute insights that are still pertinent at the beginning of the new millennium. Although I disagree with Rosen on specific points of interpretation, I nonetheless consider his views as a natural starting point for my own work. I will be wrestling with his interpretations for much of the first half of this book.

Rosen contended that two factors were at play in the emergence of specialties during the course of the nineteenth century. First there was the “decisive influence exerted by social and economic forces”; then there were “to a not inconsiderable degree . . . antecedent and contemporary medical factors.”⁷ The discussion of the latter constitutes the most original part of Rosen’s argument and is usually emphasized by historians.⁸ (I myself discuss it below.) The tendency of historians to ignore Rosen’s account of the social factors behind specialization is due to the fact that our understanding of the “social” has changed since the 1940s. For Rosen a key social development behind specialization was urbanization. Here he borrowed directly from Durkheim the idea that division of labor was a consequence of population density in cities. Another “social factor” that Rosen emphasized had to do with the movement of people and ideas. Immigration, as well as the spread of shipping and communication, accelerated specialization by fostering international social and intellectual contacts.

Rosen’s concept of the “social” is surely pertinent to any understanding of specialization in medicine. In the 1970s, however, the dominant meaning of that term in the history of medicine and science shifted increasingly from broad social processes such as urbanization and immigration to the efforts of professional groups to raise their social and economic status and, more generally, pursue individual and collective interests within a “market” for medical services. This rather impoverished notion of the social is not missing from Rosen’s account. But rather than being constitutive of specialization, it is treated as a secondary factor. By the 1970s, Rosen himself had become thoroughly fluent in the vocabulary of professional markets and mobility, which he utilized in his account of the history of American medicine. In this later work, he presented in this idiom many insights about specialization in the American context⁹; nonetheless, he did not attempt to recast his earlier comprehensive analysis of specialization.

After Rosen, the major studies of specialization focused on particular national contexts. Two works by Rosemary Stevens, written in 1966 and 1971, and treating Great Britain and the United States, respectively, have justifiably become classics.¹⁰ Both are cast in the language of policy analysis, with the emphasis on current organizational problems and their solutions. In these studies, specialization was presented as both inescapable and clearly beneficial: “it was an inevitable and desirable accompaniment of scientific advance.”¹¹ This tone is partly a product of the period in which it was written, but also follows from Stevens’s chronological focus. Each

book briefly discusses nineteenth-century developments but is emphatically about medicine in the twentieth century. By the beginning of the latter century, the advantages of specialization indeed appeared self-evident even to those who deplored the consequences; the great challenge was to find acceptable forms of organization for specialties within existing systems of medical institutions. This is the process that Stevens so skillfully analyzes in her two books.

Both of Stevens's books remain remarkable achievements, masterfully synthesizing huge bodies of material. As a cursory perusal of my notes makes clear, they remain invaluable accounts of specialization in Britain and the United States. One reason for their continued relevance, it seems to me, is that Stevens's emphasis was absolutely correct. The most interesting question about specialization is not why it succeeded—because there were in fact so many reasons for that success. If specialization was not inevitable, it was certainly overdetermined to an extraordinary degree. It is far more interesting and fruitful to focus on how specialization was integrated into existing networks of national medical institutions.

One last book that dates from 1970 is Hans Eulner's monumental study of medical specialties in Germany. This relates exclusively to specialties in the academic context, and pretty much ignores specialty practice (which the author discussed briefly in a separate article).¹² Each chapter focuses on an individual specialty, an approach that makes it difficult to understand the way in which the entire system of academic specialties evolved. Nonetheless, this work is a treasure house of information. And the decision to focus on specialization in the academic context makes perfect sense because, as I will argue shortly, specialization was, for much of the nineteenth century, understood primarily as a function of medical research and teaching.

Since the early 1970s, historians and sociologists have characteristically focused on individual specialties in a single country and, frequently, during a relatively limited time period.¹³ Providing a broader context for these studies—when these are not narrowly empirical—is one of several theoretical perspectives.

The most common of these perspectives is the result of several decades of work in the sociology of professions. Professionalization theory has a long history among sociologists and has been cast in a variety of different ways. But among its leading practitioners, including Everett Hughes,¹⁴ Elliot Freidson,¹⁵ Magali Larsen,¹⁶ and Andrew Abbott,¹⁷ specialties do not usually loom very large.¹⁸ Segmentation, to be sure, is usually treated as a common tendency among professional groups.¹⁹ But when specialties are not seen as a barrier to the professional unity required by professions to achieve success in their endeavors, they are treated pretty much as miniature professions engaged in much the same activities of collective social mobility and competition for power and resources as larger professional group.²⁰ Many sociologists and historians have utilized professionalization theory to study medical specialties. (Among historians, theory sometimes gets lost; specialists simply pursue rather vague "interests.") Sometimes the theoretical framework is fairly simple, a matter of greedy individuals seeking power and wealth. But more sophisticated

works in this vein have made an important contribution to our understanding of specialty development.

Sidney Halpern's excellent study of American pediatrics²¹ begins with an analysis of specialization in the language of sociological theory. Here a "model" rather than a historical account provides a general framework for understanding the specialization process. Halpern adds important insights to Rosen's pioneering account: the centrality of public health concerns as a focus for professional activity; the role of institutional innovation in creating a division of labor that serves as a basis and stimulant for specialty development. Perhaps most useful is her argument that specialties are dynamic and constantly changing, recasting their activities and identities at regular intervals. Much the same can be said about the overall system of specialties.

Less common are studies inspired by other theoretical perspectives. Some follow the late Michel Foucault in examining how specific specialties subject individuals to "surveillance," "discipline," and "normalizing judgment."²² Social interactionist accounts offer rich analyses of the "social world" of certain specialties in the contemporary era, which are observed directly and in minute detail by the sociologist.²³ (Historians by definition never have access to this level of detail.) Studies inspired by work in the sociology of science examine how scientific and technological innovations and their clinical applications are constructed, understood, and/or appropriated by different specialist groups.²⁴ Finally, a very few sociologists, political scientists, and policy analysts have undertaken comparative studies that contrast aspects of contemporary specialization in different countries.²⁵

Each of these theoretical approaches emphasizes different aspects of the complex development of specialization; each provides insight for specific kinds of issues. I make occasional reference to most of them at one point or another in my account but do not restrict myself to any single one. I utilize instead an open-ended historical perspective that attempts to be sensitive to theoretical work without being handcuffed to it. My text is built around change through time and national comparison.

The Scope of This Work

Historians are trained to look for movement through time, so it is not surprising that specialization is in my account constantly in process. I have built my narrative around a fundamental distinction between the specialization of the nineteenth century (running to roughly 1890, and about 1900 in Britain) and the decades that followed (to roughly 1950). During the earlier stage, specialization was organized primarily around the tasks of clinical research and training for general practitioners. It was largely a local phenomenon advanced by individuals or small groups. The major locus of competition during this period was the combination of medical school and teaching hospital. Specialist private practice and market conflict among specialists for control of specific domains certainly existed, but were usually

perceived as secondary phenomena; they became serious issues of contention only sporadically and in a few places. This initial stage of medical specialization provides the subject for the first section of this book.

During the later phase, extending from the last decade of the nineteenth century to the years before and after the Second World War, specialization continued to provide a significant framework for research and general medical education; but it simultaneously became the dominant form of medical practice, raising in the process new problems of specialist training, certification, and jurisdictional boundaries. It evolved from a largely local to a national phenomenon, producing new kinds of specialist associations, transforming the institutions of the larger medical profession, and, in some cases, becoming an issue for political authorities. From an individual career choice, it became a matter for national regulation. This second phase provides the subject matter for the second section of this book. My chronological end point differs somewhat from one nation to the next, according to the point when each worked out a system of regulation: the 1920s and 1930s in Germany and the United States, the late 1940s in France and Britain. After 1950, the consolidation of formal specialist training and certification, the spread of health insurance, the remarkable expansion of both state-sponsored medical research and the pharmaceutical industry, the rise of new modes of clinical testing, the appearance of myriad new medical technologies, and the rise of international standardization all combined to usher in a third era of specialization that continues to this day. I discuss the transformation of specialty systems since 1950 in the epilogue.

If the sections of this book are determined by chronology, they are simultaneously built around different national experiences. My account focuses on four countries: France, Britain, Germany, and the United States. Germany did not exist as a nation during the early stages of specialty development. Consequently, in discussing events during the nineteenth century, I usually refer to the German-speaking world, and particularly its great cities, Vienna and Berlin, where specialization was most developed. For the period that follows the unification of Germany, however, I focus on that country.

I argue throughout the book that there are major national variations in the development of specialization. These divergences are illuminating because they allow us to see clearly that certain characteristics that we tend to view as immutable and inherent in the very nature of medical specialization are in fact local and contingent. Nonetheless, we must be equally attentive to parallels and common features that cut across national boundaries. This is not always easy, because work based on comparison tends to be biased toward finding difference. What, after all, is the point of the exercise if one nation's history pretty much recapitulates that of another? Nonetheless, we must account for the fact that we find striking similarities among nations with very different medical traditions and histories. These may reflect common structural conditions or direct international influences.

From time to time, and especially in part III, I discuss the histories of individual specialties. But for the most part I am concerned with the larger "specialization"

process. The latter can be understood as a semifictitious term that allows us to generalize about the collective experiences of many specialty groups, or it can be conceptualized as a more or less real entity or “system” in which elaborate rules determine how a complex game is played by a diverse group of actors. My own preference is for the latter view, although most of the arguments in the chapters that follow are not dependent on this preference.

In talking about national “systems” or “networks” of specialties, I am entering territory made familiar by Andrew Abbott’s now famous idea of “the system of professions.” Because Abbott argues that his notion can be applied to medical specialties and presents a case study to prove it, it is necessary to distinguish clearly my use of the term “system” from his. It should be obvious that “systems of specialties” differ in fundamental ways from “systems” of professions. The fact of belonging to a larger professional group has significant consequences that no one would dispute. But the more serious difference in the way I use the term has to do with focus. For Abbott, a system applies to a particular area of social activity or need—the personal problems jurisdiction, for instance, that is dealt with at length in his book. In Abbott’s telling, different groups have competed and negotiated to control this social domain. Psychiatrists, neurologists, clergy, and psychologists have all, at one time or another, contested this social terrain and their activity has constituted it. Abbott’s approach works well if one examines a reasonably well-defined area of activity. But how does one deal with different specialties that do not in fact share domains? What is the nature of the relationship between psychiatry and ophthalmology, for example? What, in other words, is the nature of the “system” that holds together and shapes all the different specialties?

I have two responses. The first is that specialists spontaneously divide the evolving world of medical work into categories within which they distribute themselves. They do so in collaboration with the individuals who are their patients and the groups and institutions that constitute their social environment. As we shall see in part III, the contours of such specialty worlds may differ in substantial ways from one country or city to the next. In this sense, “system” is an abstract analytic term that attributes some degree of social logic and coherence to the particular local profiles discerned by the historian. (There is a “systemic” reason why gynecologists were so numerous in nineteenth-century Paris while there were so few pediatricians in Germany.) This meaning of the word “system” plays only a minor role in the account that follows. Far more central is a second meaning of the term that is more tangible and that has to do with concrete decisions and actions. Specialties do not differ from professions only in belonging to a larger professional group that confers advantages and forces compromises. Like professions, specialties gradually become subject to rules and models of behavior—some implicit and others quite explicit—that regulate and standardize the sometimes chaotic forms of activity that initially prevail and that determine the scope and nature of intraspecialty competition.

The rules and models imposed on systems of specialties have, until recently, been notably more constraining than those which govern relations among different pro-

essions; this is because medical professions successfully imposed a significant degree of control over the processes of internal segmentation that only the state is capable of imposing on the “system of profession.” Certainly the medical profession has not operated in a vacuum. Political authorities, the legal system, economic interests, and public opinion occasionally (and increasingly over time) act directly and decisively on particular specialties; for most of the period under consideration, however, medical actors have determined the general parameters within which professional self-government has taken place. The forces that collectively mold and regulate specialties—and that are in turn transformed by these same specialties—are located in networks of institutions: medical schools, elite hospitals, national medical associations, public health agencies, and insurance authorities. It is in this specific sociological sense that specialties have come to constitute “systems.” The gradual emergence of such systems in different national and professional contexts constitutes one of the major themes of this book.

One need not share the view that specialties constitute “systems” to agree that it is worth analyzing the larger historical development of specialization that cannot be reduced to the history of individual specialties. To be sure, individual specialties appear regularly throughout my account, and part III compares the way a handful of specialties have evolved in the four countries under consideration.²⁶ Nonetheless, I do not attempt, even in these chapters, to provide a comprehensive history of the specialties discussed. Here, as throughout this book, my goal is to account for the broader history of specialization.

This focus on “specialization” rather than individual specialties has determined certain research choices. While I have utilized a wide variety of historical sources, I have focused particularly on those in which specialists and specialties address the wider medical profession (and sometimes the public) in order to negotiate their positions within wider institutional networks. These forums include medical directories, national associations and journals, medical schools, and scientific academies and societies. I have utilized only selectively the specialist journals in which specialists address their peers. This is in part a survival strategy since there is no possible way to read even a small part of the immense literature generated by specialists in four countries. But my choice also reflects a methodological principle: one can best understand the general system of specialties through sources that describe public struggles for recognition and self-definition that take place in larger professional arenas.

The Emergence of Specialization: An Overview

Specialist healers existed long before medical specialization as we know it. There is evidence that they practiced in ancient Egypt, where, it has been argued, each body part was considered a separate entity; according to this view, the spread of systemic

humoralism put an end to such conceptions of the body.²⁷ Nevertheless, specialization was, according to Galen, common among the Roman doctors of his era.²⁸ One can find other examples of this sort, but specialist practice did not loom large in the history of Western medicine until the nineteenth century. During the eighteenth century, low-status if occasionally well-remunerated practitioners specializing in particular manual procedures—including tooth extraction, cutting for the stone, couching cataracts, childbirth, and treatment of venereal diseases—existed in most Western nations. In France many of these practitioners were known as *experts*; in Germany, as *opérateurs*. Among them were itinerants with little education; doctors possessing medical diplomas or licenses frequently viewed them as “charlatans” and “quacks.” Increasingly during the course of the eighteenth century, small numbers of those with formal credentials, 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. Such activity, however, occurred on a small scale.

In the chapters that follow, I will attempt to account for the emergence of specialization on a larger scale in the nineteenth century. First, I will suggest, as George Rosen did, that the commonsense explanation for the emergence of medical specialties—that the rapid expansion of knowledge forced doctors to specialize—is incorrect, at least as an explanation for 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 pathological anatomy, with its emphasis on organic localism, and then to new technologies. These factors, at most, provided an axis along which certain specialties were able to develop.

Instead, I argue that a fundamental precondition for these developments was the unification of medicine with surgery, both as categories of professional practice and, more important, within institutions of training and research. Only within an understanding of medicine as a unified domain did division into subfields make very much sense. Furthermore, I emphasize that specialization can best be viewed as part of the much wider change that gradually produced “professional” scientists and disciplinary communities in many different fields of knowledge. Historians call this process, which occurred roughly from 1775 to 1830, the “Great Transition.”²⁹ Medicine was a highly idiosyncratic but integral participant in the Great Transition. An emerging imperative to pursue clinical research of various sorts encouraged specialization that allowed for the rigorous empirical observation of many cases that had become a requirement of all serious medical science. Finally, I suggest that specialization was 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. The institutions that resulted allowed specialist medicine to emerge. All of these conditions emerged first in early nineteenth-century Paris.

Professional unity, scholarly commitments to research, and administrative enthusiasm for classification and division were thus intertwined; in fact, they can all be seen as part of the development of the nation-state in search of practical strategies and new knowledge to better fulfill its expanding commitments. This link goes beyond the obvious efforts of the state to create institutions capable of producing useful knowledge. A deeper-level symbiosis was at work; both state administrators and knowledge producers were pursuing similar strategies to gain control over vast and chaotic domains. Each group was increasingly carving up its respective sphere into smaller, more manageable categories within which it could impose order and some degree of standardization and uniformity. Division permitted conquest of many different sorts.

Specialization also depended on and reflected long-standing traditions of scientific work in each country. Lorraine Daston has argued that claims to specialized learning had far more salience in France than did claims to universal and synthetic knowledge. The Paris Academy of Sciences, during its formative years from 1666 to 1699, chose an orientation featuring specialized expertise, at least in part because it was a public institution devoted to, among other tasks, satisfying the practical needs of the state. The Royal Society of London, in contrast, was a private institution that long held on to “gentlemanly” notions of scientific work and resisted specialization in the name of polite learning. The situation in Berlin stood somewhere between the Parisian and London extremes.³⁰ Such national attitudes would influence the reception accorded to specialization.

Growing public interest in specific health issues encouraged the emergence and development of particular specialties. Such interest could be expressed through governmental action in the form of public health measures or the creation of state institutions; but it could also be expressed, as was the case in Britain and the United States, through private philanthropic activity. Public concern to reduce infant mortality was a potent stimulus to the early development of obstetrics and pediatrics as specialties. The emergence of such public “causes” led typically to the construction of new institutions within which specialties could develop. By the end of the nineteenth century, few specialties did not make at least some appeal to the public interest.

Underlying the rise of specialties were more basic changes in public attitudes. Numerous societal forces 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,” mobilized frequently to defend medical specialties.³¹ From the middle of the nineteenth century, the theory of evolution was used to justify specialism and complexity as higher forms of structure. Few aspects of life in Western societies, in fact, did not in one way or another legitimate specialization. But it was, I suggest, the developing natural and physical sciences that provided the most striking models of specialized work. These were particularly pertinent for a domain in which practitioners thought of themselves as belonging to the larger community of science.

Specialization, I suggest, gained its initial and primary justification as a form of knowledge production and dissemination rather than as a type of skill or form of practice. It is no accident that Carl Wunderlich referred to specialties he encountered in Paris as "diese einzelnen Branchen der Wissenschaft."³² There was, however, no sharp distinction in medicine between specialization as a form of knowledge and specialization as a form of practice; the two were inseparable because most medical teaching and research took place not in laboratories but in institutions devoted to clinical practice. Superior skill was sometimes invoked in favor of specialists; and the early entry into general hospitals of certain specialists and the creation of specialized hospitals reflected belief that these specialists could perform useful, even life-saving, procedures beyond the skills of general physicians and surgeons. Some types of institutions, notably lunatic asylums, were numerous and distinctive enough to generate specialist identities that were, in certain countries at least, independent of serious commitment to clinical research. Many sought commercial advantages from specialized practice. The successful specialist-innovator was almost always viewed as most competent to deal with difficult cases and could expect to develop a lucrative private practice. Not all or even most of those who claimed specialties were innovators or even serious researchers. Nonetheless, the public acceptance and rising status of specialization depended on the innovators and on the increasing identification of specialists with research and medical progress.

The handful of isolated specialists practicing in major cities at the beginning of the nineteenth century gradually grew in numbers and became a recognizable social category. The process began in Paris in the 1830s, moved a decade or so later to Vienna, and then to other cities in Europe and North America in the 1850s and 1860s. Specialization developed as well in Britain, but in a distinctive and uniquely troubled way. During much of the nineteenth century, debates and battles surrounding specialization usually took place in the arena of elite institutions, notably medical schools, hospitals, and medical associations and congresses, where each category battled for full acceptance. Only sporadically did specialist practice inspire controversy. By 1890 (and a decade or so later in Britain), the general battle for the acceptance of specialties in elite institutions was largely won. Individual specialties would continue to struggle for acceptance or improved position in elite institutions. But increasingly, as more and more doctors began to call themselves specialists, the battleground spread to the arena of medical practice.

That these developments occurred internationally was due in large measure to the fact that doctors everywhere faced much the same societal realities: intense professional competition, growing public faith in scientific expertise, increasing intervention by public authorities in the field of health care. But an equally important consideration is that medicine was probably the first large profession to develop a truly international culture not unlike that of the scientific disciplines to which it was closely connected. There was a striking parallelism in the timing of major developments in all the countries under consideration that can be explained only by the fact that medical elites observed closely and communicated regularly with one

another. Events abroad might serve as either a model or a foil. But specialization, like the related development of medical education,³³ was characterized by a significant degree of international contact that did not preclude striking differences among our four nations.

Paris was the first city to develop specialties on a significant scale. The basis for this development, I argue in chapter 1, was the emergence of a new kind of medical research community around the teaching institutions and hospitals of the city. It was the scale of this development, rather than any monopoly of the new tendencies, that made the French capital unique. The vast majority of French medical academics initially were opposed to clinical specialties; but specialization, along with laboratory experimentation (and much less problematically), became emblematic of a new vision of medical science that captured the attention of medical reformers after midcentury. The appointment of a leading academic reformer as dean of the Paris Faculty of Medicine allowed junior positions for specialists to be created in that institution in 1862. The consolidation of the Third Republic in the late 1870s put reformers firmly in charge and also made new funding available to institutions of higher education. Consequently, specialties became solidly established at the Paris Faculty of Medicine. However, institutional rigidity and chronic underfunding characterized French higher education at a time when expanding universities were everywhere becoming the driving force behind medical specialization and scientific research more generally. One consequence was the relative neglect of institutions in provincial cities. As a result, medical specialization in France was until the twentieth century a predominantly Parisian phenomenon.

My account continues with the case of London, where specialization was accepted relatively late and halfheartedly. Because the British capital lacked most of the institutional conditions that existed in Paris, we can more fully grasp the circumstances that promoted specialization elsewhere. Despite London's huge size and great medical resources, it lacked an integrated medical research community. Consequently, specialization developed during the first half of the nineteenth century as a relatively low-status career option oriented primarily toward practice and based on direct appeals to the nonmedical public rather than to medical elites. Even after specialization became identified as a necessity of science in other countries, the British medical elite resisted it. Like British academic elites more generally, it continued to be wedded to ideals of general knowledge in teaching and practice. This resistance could not block the development of specialization in Britain, but it did limit its scope to a significant degree and gave it a character rather different from the one it acquired in other countries.

Vienna early in the nineteenth century contained many of the same resources that allowed Paris to become the first center for specialties. But the size of its academic medical community was considerably smaller and political conditions were unfavorable; this explains why specialization did not initially develop here on a significant scale. However, once specialization became identified as an integral element of the new medical science that was emerging internationally, size came to

matter less and Viennese institutions moved with remarkable speed to make the city a leading center of specialism and a magnet for foreign doctors and medical students. Equally significant was the fact that the university was part of a large network of German-language universities that underwent significant expansion in the second half of the century, allowing for disciplinary specialization in all areas of knowledge. Far more than in France, medical specialization in nineteenth-century Germany was centered in universities. Building upon the competition among many institutions for students and scientific prestige, and financed generously by multiple state authorities that recognized the benefits—at once practical, symbolic, and ideological—of investments in scientific research and higher education, the German-speaking world was by the late nineteenth century widely perceived as the dominant international center of scientific and medical research. Specialties were the beneficiaries of these developments, although they were not quite so well developed outside Vienna as French reformers liked to claim.

Almost none of the conditions that prevailed in Paris and Vienna existed in the United States. Yet despite some virulent opposition, the American medical elite embraced specialization with remarkable speed and enthusiasm after 1860. American doctors flocked to Europe to become specialists. The primary cause of this development was the especially low public status of American medicine, which provoked an intense desire to raise the standing of the profession through the embrace of science. Specialization was fully associated with the new medical science but was nonetheless accessible and practice-oriented in a way that was not true of laboratory disciplines such as experimental physiology. Furthermore, the plethora of small, private medical schools competing for students, clients, and patrons, and far less bureaucratic and elitist than those of continental Europe, made it both necessary and relatively easy to introduce specialties into academic medicine. Since such institutional openness produced a medical elite that was less clearly distinguished and less prestigious than its European counterparts, it was harder in the United States to discriminate between scientific justifications for specialization and the purely commercial motives of many practitioners. The United States was thus the first country where specialist practice was directly challenged. The ongoing conflict between medical elites favorable to specialization and rank-and-file practitioners who were frequently hostile to it was actively mediated by the American Medical Association.

Regulating and Standardizing: An Overview

For much of the nineteenth century, specialization was primarily about producing and teaching specialized knowledge necessary to train general practitioners. It was locally organized and, for many, a highly individual career choice. From the mid-1880s on, however, the number of specialists began to rise precipitously; most of

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them made no pretense to being teachers and researchers, and claimed instead expertise in specialist practice. They did so because by now private specialist practice seemed to offer substantially greater economic rewards and professional status than general practice. Patients were demanding attendance by specialists, who were increasingly identified with scientific progress. Everywhere, developments in science, from electrification of cities to the germ theory of disease, promoted popular faith in the scientific expert. Furthermore, rapidly expanding networks of institutions dramatically augmented the sum of medical and scientific knowledge that could be taught and mastered. Medical schools in every nation faced major difficulties in organizing and imparting the mounting glut of potentially relevant information and skills.³⁴ For perhaps the first time, specialists could plausibly argue not only that it was more effective to specialize than to learn everything, but also that there was no longer an alternative, since it was impossible to learn everything. Specialties thus became national in scope, and they raised critical policy issues for organized medical professions and, occasionally, for governments.

Many forces propelled these developments. Population growth in large cities and new modes of transportation that facilitated travel over longer distances made specialty practice increasingly viable. Medical professions everywhere expanded rapidly during these decades, intensifying competition that encouraged doctors to differentiate themselves in order to survive economically. Humanitarian and public health issues assumed ever greater significance as governments became involved in new areas of health care. The development of mass media and novel techniques of publicity allowed fashionable objects of public concern to spread quickly and widely. Consequently, more and more specialties benefited from public campaigns on behalf of specific types of patients. Such public interest created new needs and new institutions, so that, in the words of one twentieth-century orthopedist, "very large numbers of cases have become available for clinical and teaching purposes."³⁵ New social metaphors became available as justifications of specialization. To the traditional "division of labor," and later ideas of evolutionary complexity, was now added the notion of "industrial organization of production."

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Individuals and even entire specialties could differ substantially in the degree to which they adopted a professional identity based on specialist practice or held on to the nineteenth-century idea of specialties as domains of disciplinary research. Academic physicians remained especially attached to the latter view. Overall, however, a major shift in both identity and practice did occur. To the characteristic nineteenth-century concern that specialization might have negative consequences because it promoted intellectual narrowness and "one-sidedness" were added new worries about the explosive expansion of specialists. Would general practitioners survive? How could specialists themselves support so much competition? What were legitimate categories of specialization, and which types of practitioners could perform what sorts of procedures? Above all, it was asked, how could one ensure that specialists were in fact competent?

There were many possible responses to this last question. For a dwindling minority, allowing individuals to define themselves in such venues as medical directories, business cards, and door plaques was acceptable because the public was capable of making decisions about medical competence. Elitist specialist societies frequently set conditions on membership that implicitly or explicitly reflected definitions of specialist status. One very common condition of membership was full-time practice as a specialist and renunciation of all forms of general practice. Another was selective election based on the premise that the specialist was someone recognized by his or her peers to have exceptional knowledge and experience in a particular sphere. Or a specialist could be defined as someone who held a particular kind of post in a hospital or medical school, as was becoming the case in Britain.

If determining who was a specialist was a relatively new problem, an older question—what constituted a specialty?—took a new twist. The nineteenth-century test of an acceptable academic specialty was whether it was generating substantial new knowledge and practices. On this basis, only a few specialties might merit full chairs and a place on examinations, but almost any promising discipline could be represented by relatively cheap junior faculty. However, once specialties became forms of practice, fears of professional fragmentation intensified. There was general agreement everywhere that the number of specialties should be kept small. But how was one to choose from among the many that were in fact emerging? It was at this point that doctors began discussing whether there were abstract principles that might define a legitimate specialty. Did fields that treated specific populations, such as children, have as much justification to specialty status as those based on specific organs or hard-to-master technologies? And what about those based on social needs, laboratory procedures, or specific therapeutic modalities? One of the reasons for the persuasiveness of George Rosen's claim that the rise of specialization was based on organic localism and new technologies is that many doctors in the early twentieth century sought to delegitimize certain existing specialties by arguing that "real" specialties were defined by these very features.

Medical directories served as a major forum for the working out of such definitions, and are the subject of chapter 5. After presenting a history of these publications that sought to display the medical world of a city, region, or entire country, we examine the various ways they struggled to come to terms with increasing numbers of physicians now calling themselves specialists. One option that was available to directory editors was to attempt to control the specialty categories used by individuals for purposes of self-identification. The French made little effort to do so, a decision foreshadowing their later lack of interest in trying to define specialist competence. In the three other countries under discussion, organized medical professions first tried to suppress the use of specialty designations in directories, on the grounds that these constituted a form of unethical advertising. The British never fully abandoned this position because they viewed such published information as a threat to their developing system of patient referral. Although the British Medical

Association (BMA) was grudgingly forced to recognize the ethical legitimacy of specialist self-identification, the practice did not in fact spread to the leading national medical directory. German and American directories, in contrast, reflected the evolving positions of their respective national medical associations and repealed the ban on specialist self-identification during the first years of the twentieth century. However, they predefined and significantly limited the specialty categories that doctors were permitted to mention. This prefigured their response to the issue of certification.

The editorial policies of medical directories constituted a telling but relatively small part of professional struggles to regulate the expanding domain of specialties. The central and most difficult task had to do with finding formulas for identifying specialists on the basis of formal training and certification. One had to decide whose right to practice could be restricted in this way and by what agency or body. A related problem had to do with resolving intraprofessional disputes about which groups could perform what medical acts. How the struggle over certification unfolded in our four nations is the subject of chapters 6 through 9. It was resolved in different ways in each country, depending in large measure on the nature of national medical associations and their attitude toward professional regulation more generally. My central argument is that those countries with strong national medical associations committed to wide-ranging professional reform were the first to resolve the issue of specialist certification. My second argument is that governments and state agencies (except in the United States) played an important but indirect role in inspiring these developments by setting up the health insurance systems that distinguished between generalists and specialists in matters of fees, thus necessitating precise definitions of who was who. Governments also created the larger political and institutional conditions within which this could occur and occasionally intervened in direct ways. Nonetheless, the process of specialist certification was by and large led by organized medical professions and reflected their beliefs and values.

Debates over certification first emerged in Germany at the end of the 1880s. This occurred primarily because a national medical body representing both specialists and GPs was in a strong position at an early stage to confront and debate the difficult issues that were arising in this domain, as in many others. The chief of these problems, and a major impetus for regulating specialties, was the creation of a state health insurance system in 1883. That the Prussian government, with its tradition of intervention in the regulation of medical training and care, took an active interest in the question of specialists helped to precipitate matters. The United States followed suit, soon after the reorganization of the American Medical Association (AMA) made that body a far more representative and effective national association. Given both the direct influence of German medicine in America and similar structural conditions in the two countries—regional decentralization and vigorous competition from unlicensed or irregular healers—it is not coincidental that both medical professions opted for systems of specialist training and certification controlled by organizations representing the medical profession. The mechanisms set

up for this purpose, however, were quite different in the two nations. In Germany, specialty certification was the responsibility of bodies representing the entire medical profession in a particular locality. In the United States, the national representative bodies of specialists themselves played a determining role, with the AMA and several other national groups struggling to bring coherence and more uniform standards to the patchwork of specialty programs that was being set up.

In France, the medical profession lacked an effective national representative body until well into the twentieth century. Consequently, specialization provoked remarkably little debate and the profession was slow to consider the issue of specialist certification. When it finally did so, at the end of the 1920s, it opted very characteristically for a national, state-controlled system of certification. The enormous difficulties of successfully implementing such an ambitious project in the French political milieu produced long delays. The French system of specialty certification was set up more than two decades after those of Germany and the United States began to function.

The situation in Britain was fundamentally unlike our other cases. Various sorts of short, low-level, specialty training programs were introduced in the early twentieth century but, with only a few exceptions, certification never became a widespread professional demand. The pressure for specialist training that developed in the 1930s and '40s was not linked to medical desire to curb unbridled specialist practice, as was the case elsewhere, but reflected the need to provide well-trained specialist personnel for a health care system desperately in need of reform. The traditional definition of specialists in terms of appointment to hospital posts through largely informal modes of peer selection was congruent with a technocratic vision of a unified, coordinated, and "efficient" health system that began to spread during the interwar period. The introduction of the National Health Service after World War II confirmed and extended this view of specialties. For those building a new health-care system, the purpose of organizing specialty training was to produce many more specialists in order to meet the nation's needs.

Certification was not a necessary condition for jurisdictional battles over control of medical practices. Specialists were often in the front lines of early conflicts pitting the medical profession against competing nonmedical occupations, including opticians, dentists, radiological technicians, nurse-anesthetists, and physical therapists. They might also take on those controlling specific kinds of institutions, as did American neurologists who criticized asylum superintendents. Nor did it require the existence of formal certification for specialists to try to convince hospital administrations that special wards with appropriately recruited staff should be established. But once certification in one form or another was introduced, the question of what medical activities were appropriate to each sort of practitioner became highly contentious; these disputes were intensified by the establishment of various kinds of health insurance schemes.

From its origins, we have suggested, specialization was connected to notions of bureaucratic rationality. For those responsible for vast numbers of clients, dividing

these into rational categories seemed like an imperative of effectiveness and order. In the twentieth century, as the role of public authorities increased, such pressures toward bureaucratic rationality multiplied. Everywhere health insurance agencies, either public or private, were set up. Their need for clear definitions of specialist status in matters of coverage and payment served as a major stimulus to certification. The world wars of the twentieth century were especially important in diffusing notions of bureaucratic rationality that legitimated the advance and regulation of specialties. Those responsible for rapidly setting up medical services for huge numbers of military personnel seem to have been particularly susceptible to the attractions of specialization.³⁶ In addition, specific military manpower needs provided considerable support for the development of particular specialties, including cardiology, orthopedics, and psychiatry.

Nonetheless, notions of bureaucratic rationality could be flexible and adapted to local cultural and professional values. The National Health Service in Britain could live without formal certification of its specialists; insurance agencies in Germany could accept specialist accreditation based on training credentials rather than written examinations; in France nothing less than national certification under the aegis of the state following formal studies and examination was acceptable. Norms of bureaucratic rationality could also be utilized to argue that specialization had gone too far and that the health system now needed more GPs or new forms of practice to compensate for the narrowness of the specialist practitioners. Bureaucratic rationality was a highly elastic concept.

The 1920s and 1930s, the decades that witnessed the nearly total victory of reductionist medicine founded on specialization, also gave birth to a holistic revival that reviled narrow specialists and that looked to a new “synthetic” medicine more sensitive to the total human being. Various institutional proposals were suggested to compensate for the perceived narrowness of specialist practice, including revitalization of general practice, group practice, and gathering together specialized institutions within a single medical center. Many specialties now cast their claims to significance and resources in more holistic terms: the growing emphasis on psychosomatic factors in illness and healing gave new life to psychiatry.³⁷ Even organ-based specialties frequently emphasized that their organs provided a gateway to the entire “constitution” of individuals. An ugly variant of the anti-specialist impulse during these years was to blame nefarious Jewish influences for the continuing spread of specialization. This was of course only one of many evils for which Jewish doctors were held responsible. The identification of specialization with Jewish doctors was especially prevalent in Germany but was not restricted to that nation.

The international culture of medical science became even more influential during these years. International associations of every sort proliferated and contributed to a common medical culture. To be sure, extreme political conditions in Germany led to extreme, indeed hideous, medical ideas and behavior that eventually took that nation’s medical profession well beyond the international pale. And neither cultural nor institutional differences among nations disappeared. Nonethe-

less, one is struck by many similarities of development among our four national cases. During the 1930s, one international association undertook large-scale inquiries into the ways that different nations were dealing with such major issues as specialization, illegal practice, and national health insurance. Emerging from these surveys, it suggested, was the following conclusion:

Whatever may be the form of government, the medico-political and medico-social problems are identical in all countries. . . . Secondly we find that they are being resolved in every country by methods which are either identical or analogous; our discussions and annual conferences have therefore always been of a practical nature. We have tried in each case to formulate conclusions which could be quoted as evidence of international medical agreement, and have nearly always been unanimous.³⁸

Such purported agreement, however, did not prevent the emergence of major differences in the way specialties came to be organized in each country.

National patterns and characteristics are not the only perspective from which to view all the forces and issues that were at play. The final chapters in part III shift focus, and examine the formation and development of a number of specialties in comparative perspective. Some, such as surgery and internal medicine, were the original divisions of medicine that had been recast as specialties. Many others gradually assumed their modern form as they split off from or combined with other specialist groups. A few, such as gynecology, developed in a particularly complex environment and faced particularly intractable problems. Yet others, notably stomatology, gradually lost their positions as fields of medicine in at least some of the nations under discussion. Taken together, these studies demonstrate how different nations worked out tensions between the forces favoring international standardization and national variations, in the context of evolving institutional arrangements, and shifting balances of power among contending groups.

Conclusion

The title of this volume, *Divide and Conquer*, highlights some important features of specialization. First, it expresses a fundamental intellectual strategy: dividing problems into smaller and more manageable units in order to solve them more easily. This strategy has become the hallmark of modern science and has produced almost unimaginable advances. It also has serious limitations about which we are regularly reminded by proponents of more “holistic” or synthetic intellectual strategies. Second, it represents a way of dividing people into smaller and more manageable groups based on common attributes in order to facilitate their management in every sense of the term. It is this quality, more than anything else, that explains the very close links between specialization in medicine and state administration. Third, it describes what has happened to medical institutions and the medical profession

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that in the space of a century were literally divided and conquered by new forms of organization based on a novel kind of expertise. In some ways this has been the most spectacular conquest of all. Finally, it portrays what we now experience as patients: we are allocated to special wards or hospitals so that specific parts of our bodies can be treated. One consequence is that our diseases are more predictably cured or at least controlled than at any time in the past. Another is that our autonomy and capacity for informed judgment in the face of huge, segmented institutions have been severely curtailed. The triumph of specialization has involved painful trade-offs.

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