Introduction

INVENTING MEDICAL REFORM

The physicians of Nuremberg gather, their heads bent in earnest consultation. Scholars and gentlemen, the doctors are bearded, gowned, and capped. Some wear robes, the loose and unstructured garments of scholars, while others sport the typical dress of nobles, including slashed doublets, fur trim, and intricately patterned cloth. Before them, seated apothecaries, in fashionable but unscholarly dress, tools in hand, look up to the clique of doctors. A single wise woman gathers plants for the distillatory equipment that will produce lifesaving remedies. On the far right, a patient lies in bed while another physician inspects his urine.

This image is taken from the frontispiece to Joachim Camerarius's 1586 *Kreutterbuch*, a German translation based on Pietro Andrea Mattioli's *Six Books on Dioscorides*.[1] It depicts physicians at the top of a medical hierarchy. Other practitioners, medical materials, and even the garden itself—symbolizing the local, medical space—all depend on the physicians.[2] In this imagined world, the apothecaries are literally overseen by the physicians. Their low stools, hunched posture, and mechanical tools reinforce their lesser position. They are manual workmen, like the gardener and the woman gathering herbs. Although permitted to work in the garden, none of these practitioners share any part in the medical decision-making that so engages the physicians. The division is clear: the physician inspecting urine in the corner of the picture is the sole, learned practitioner allowed to undertake this diagnostic practice.

Camerarius's image presents the physician's place as natural, but in 1586 the order of medicine was not so obvious. The elements of the woodcut—diagnosis and collaboration, their mutual links to medical treatment, and even the combination of nobility and scholarship that characterized the physicians—were all parts of a project under construction, one that took place over all the imperial cities of the Holy Roman Empire, but especially, and most articulately, in Nuremberg. In 1571, fifteen years earlier, Camerarius had drawn these aims together and offered a plan for reform within the city walls: *Short and Ordered Considerations for the Formation of a Well-Ordered*

Medicine.[3] In it, he presented a distinctly dystopian medical marketplace in which the threat of bad medicine loomed over every patient and fraudulent practitioners lured respectable citizens with false promises, only to fail them at their moment of need. He petitioned the council to establish a *Collegium medicum*, a professional assembly for academically educated, municipal physicians, in which he and his colleagues could discuss and debate problematic cases, inspect and license foreign practitioners, and oversee the jurisdictions of surgery, pharmacy, midwifery. Camerarius's propositions were simple, but their implications were not; they reached into the very substance of the discipline and organization of medicine, as well as the range of expectations and responses it evoked. In his manifesto, Camerarius praised midwives while advocating their regulation, defined a need for surgeons while dismissing their qualifications, and relied on apothecaries while subordinating them to his own botanical interests. Camerarius prescribed limiting the practice of diagnosis to Galenic physicians; at the same time, he expanded the definition of "diagnosis" to include aspects of treatment within it.[4] Second opinions, jurisdiction over other practitioners of medical treatment, the prescription of remedies, and even new preparations of pharmaceutical remedies now fell within the expanded remit of the physician.

Camerarius's manifesto became a blueprint for reform in Nuremberg. When the city passed its first medical ordinance in 1592, *Gesetz, Ordnung and Tax*, it effectively granted the majority of his claims.[5] It subordinated the members of Nuremberg's medical marketplace to its municipal physicians and created a hierarchy with physicians at the top that remains in place today. Nothing depicts this change quite so well as the sphere of medical concerns themselves. In 1571, when Camerarius claimed the gamut of health as the physician's domain, Nuremberg's senate may have disagreed, but by the end of the sixteenth century, it had basically acceded to these claims.

In part because it engendered relatively little by way of printed controversy, the reform of medical practice has largely escaped historical attention, particularly in Anglophone scholarship.[6] In one sense, this is because the ascendency of physicians seems self-evident: similar processes took place across the whole of Europe, although nowhere else did the competition divide in quite the same way as apothecary from pharmacy, nor regulate practice by political text.[7] By fixing what was essentially an intellectual contest within its city walls, Nuremberg provides a point of concrete measurement for both the expanses and limits of sixteenth-century Galenism. The turn to empiricism as a foundation for medical epistemology, the embrace of new remedies and exotic ingredients, the growing world of medical print and textual methods for noting and recording practice were given concrete form in the new insti-

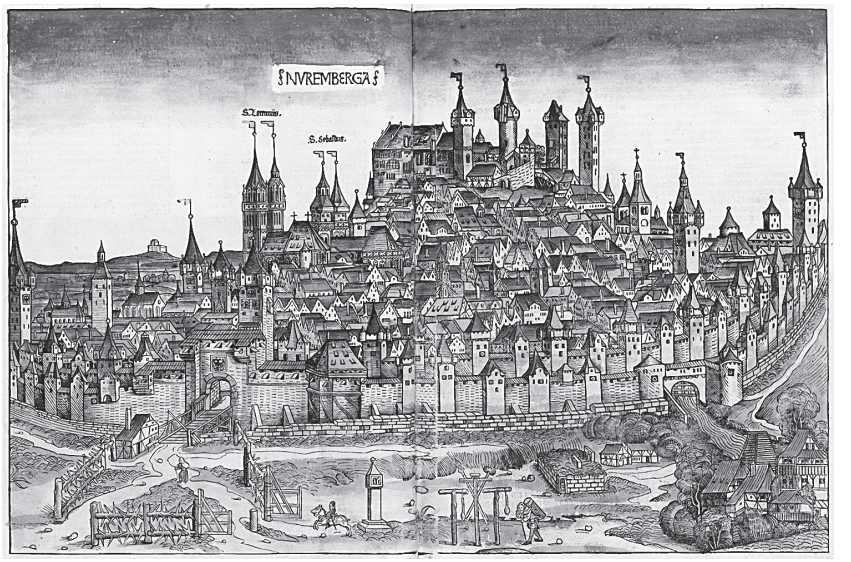

Fig. I.2. Michael Wohlgemut and Wilhelm Pleydenwurff, *View of Nuremberg*. In Hartmann Schedel, *Weltchronik* (*Nuremberg Chronicle*). Nuremberg: Anton Koberger, 1493.

tution of the *Collegium medicum*, the commodification of the second opinion, and the subordination of apothecaries. In another sense, however, the reform of medicine, as its proponents termed it, was a radically disingenuous term, involving the wholesale construction of a past, as well as a future. This was because the position of physician in Nuremberg—unlike in the cities of Italy, where universities had fundamentally shaped the profession, or London, where physicians emerged from well-established guilds—was *new*. The role of medicine in shaping and changing Nuremberg's political policies is thus a very particular example of the way in which early modern cities facilitated and responded to knowledge formation. By linking medical order to rule, and categories of medicine to the ordered political body, Camerarius advanced a discursive claim to civic power and connected the prestige of medicine to physicians' jurisdiction over practice. The Nuremberg ordering of medicine therefore equally demonstrated the way in which political, personal, and even coincidental circumstances shaped early modern intellectual regimes.

This book examines this new order of medicine, the deeply contingent circumstances on which it rested, and the multiple, overlapping processes by which it was created. Nuremberg physicians, in conjunction with civic authorities, aimed to reform medicine in a way that strengthened their own authority. Their reformation was essentially a conservative, top-down Galenic

movement, driven by texts as well as by conditions on the ground. It was nevertheless dynamic, embedded in broader networks of practitioners that focused on writing down observations and experiments. As such, it adds a learned twist to the recent focus on making knowledge. By offering a picture of learned Galenic medicine in full detail, it demonstrates how learned men used and appropriated artisanal methodologies in their own work while retrenching and excluding them in a series of cultural and political shifts. What physicians understood by reform encompassed ancient concepts of medical theory and authority while also reflecting the new interest in hands-on empirical practice. This was a political and social change, but it was driven by and organized around interactions with texts. In writing the history of the emergence of medical order, we must approach medicine as the reforming physicians did, as a subject embedded within different planes, practiced by different sorts of people on varieties of bodies, situated in space, and constituted by different epistemologies.[8]

REFORMATION NUREMBERG

As the woodcut representation of physicians in a garden demonstrates, cities were not the "natural" site of medical practice. From the time of Galen, whose criticisms of Rome as a fetid site of decay and quackery overlooked its very real place within his own career advancement, cities had presented a paradox for physicians. The same dangers, obstacles, and challenges they presented to the concept of health were opportunities for the ambitious.[9] The relationship between medicine as a profession and the rise of urban centers was intertwined, but it took place very differently across Europe.[10] Unlike their role in the centralized metropolis of London, or their steady medieval ascent in the communes of Italy, physicians were a new phenomenon in sixteenth-century German cities. The first physicians employed by cities in the Holy Roman Empire date back to the late fourteenth century.[11] The title of "municipal physician" (variously: *Stadtarzt*, *Medicum physicum*) only entered the realm of print in the 1530s. It was immediately connected to claims for authority and ideas of reform. The first to use the term in print was Otto Brunfels, originally a prolific author of theological works, in a tract calling for the reform of apothecaries, while Adam Lonicer, municipal physician in Frankfurt and heir to the Egenolph printing press, underlined his call for the reform of midwives by referring to himself with the title *Stadtarzt*.[12] Over the course of the sixteenth century, the role of the municipal physician proliferated, becoming synonymous in standing with court physicians (*Leibärzte*) and university posts across Germany.[13] The duties and practices of municipal physicians differed from place to place, according to the defining characteristics of the city in question,

whose "closed" worlds varied according to city walls, density of population, political systems, topographies, public spaces, languages, natural resources, composition of trades, institutions, and social structures.[14]

Of all the free imperial cities, cities that owed fealty only to the emperor, at the turn of the sixteenth century, Nuremberg was exceptional—rich, politically eminent, and culturally preeminent. Some of this fortune was due largely to coincidences of geography—twelve major trade routes converged in Nuremberg, and in 1500 the cartographer Erhard Etzlaub placed it at the heart of his road map of Europe.[15] Much of its reputation was political; until it converted to Lutheranism in 1525, Nuremberg traditionally guarded the imperial insignia and held the first imperial diet of every emperor's reign. It therefore sat at the heart of the political and symbolic entity that was the Holy Roman Empire.[16] Its centrality and political importance made Nuremberg an attractive hub for artisans, merchants, and scientific thinkers, many of whom went on to contribute encomia, works of art, and material exports that further added to the city's reputation for culture, learning, and wealth.[17] The sixty-eight physicians who served the city of Nuremberg in the sixteenth century were not just subject to the city's particularity; they also contributed to it, as signified most emblematically by the physician Hartmann Schedel, author of the *Nuremberg Chronicle* (*Weltchronik*). Printed in 1493, this was the most famous book to appear in Germany between the bibles of Gutenberg and Luther and a behemoth historical undertaking that purported to chart the development of the world, with the imperial city of Nuremberg at its center.[18]

For Schedel, what set Nuremberg furthest apart from other cities were the unusual powers of jurisdiction its patrician government enjoyed. Describing Nuremberg in 1493, he wrote: "Under imperial laws it has the benefit of a council and a mayor, distinguished from the commons; for citizens of ancient and honorable ancestry have the care of civic matters, and the community awaits their judgment."[19] The nature of patrician "care" and "judgment" was important because it presented both challenges and opportunities for physicians, as well as the new forms of expertise they sought to express. In practice, these ancient and honorable citizens and their judgment centered on two councils: the Greater and the Inner. The larger of these, the Greater Council, numbered variously up to two hundred citizens, the *Genannte*, and served the purpose of ratifying decisions made by the Inner Council. Real power of legislation lay with the latter, the Inner Council, a still-sizable body of forty-two members, of which thirty-four were drawn exclusively from the ranks of the patriciate.[20] Once elected, the Inner Council retained a monopoly on city government. Like all imperial cities, Nuremberg's council operated its own courts

(in addition to those courts administered by university-trained lawyers and jurists) and oversaw the military and the administration of city offices. Unlike other imperial cities, Nuremberg lacked guilds, so the administration of crafts and trades also fell within the Inner Council's remit. Its members assumed a wardship over widows and orphans, provided a channel for disputes between servants and masters, and generally reserved the right to insert itself into the relations between all 25,000-plus members of its population.[21]

Within this tightly regulated, delimited jurisdiction, the physicians' ascendency was by no means self-evident, and in navigating their path to authority, they walked a careful line between artisanal and learned identities, tradition and innovation. German communities displayed a deep preoccupation with legal categories of identity and over the latter half of the fifteenth century had developed a rich literature on the question of *Stand*.[22] One's *Stand*, or identity, regulated whom you could marry, where you could live, what you could do, and even if you could leave the city. On one side of the spectrum, physicians differentiated themselves from those engaged in manual labor, trade, or artisanal approaches to medicine.[23] But, perhaps surprisingly, the idea of learnedness was equally problematic. There was no model in sixteenth-century Nuremberg for learned professionals or practitioners. As Gadi Algazi has shown, since scholarship was linked to celibacy until the fifteenth century, even the idea of a learned family was a relatively new phenomenon.[24] This was particularly problematic in Nuremberg, where there were no universities to have foregrounded the arrival of medical families. Furthermore, despite its status as a cultured city, Nuremberg was peculiarly resistant to integrating ideas of scholarliness into its patrician ranks. While many members of the senate had attended university, those with an advanced degree—lawyers, medicinal practitioners, and theologians—were barred from sitting in government.[25]

Nonetheless, over the course of the century, the role of "experts" in the inner workings of the city gradually increased. In 1560 the city's *Marktordnung* separated out authority over commercial matters from day-to-day governance. The establishment of the University of Altdorf in 1571 admitted a new cluster of prominent, salaried intellectuals to the city. Physicians were beneficiaries of this, particularly in areas where the traditional authority of religious figures had been displaced, as with caring for the poor sick. The increasing numbers of physicians who populated Nuremberg took on positions in hospitals and made interventions in communal as well as individual health. Nuremberg's council took increasing stock of physicians' written opinions—commissioning them to supply expertise in writing on plague, leprosy, and hospitals but also on diet, food and drink, and medical publications.

The involvement of experts in political communities is often linked to concepts of progress or modernity, but by 1571, when Camerarius submitted his manifesto to the council, the period of Nuremberg's preeminence had already, definitively, passed.[26] In 1525 Nuremberg became the first city to adopt the Lutheran reforms, and the city exchanged its traditional Catholic sanctity for a leading political role in the Protestant Reformation. However, Lutheranism damaged the city's relationship with the Catholic emperor and with former trade partners, most notably Cologne, Venice, and Antwerp. In the latter half of the century, the financial consequences of religious wars further depleted Nuremberg's coffers.[27] Even in the 1550s, the city lamented its lost status, pouring its efforts into a sponsored nostalgia for the immediate yesterday, as in, for example, Hans Lautensack's 1553 *Landscape with a Portrait of Albrecht Dürer*, which depicts the recognizable outline of the city, diminished in the hinterland, as Dürer, by this time deceased (1471–1528), dominates the foreground.[28]

This kind of civic mythmaking about the glory of the early sixteenth century has been largely mirrored by historians, who have concentrated for the most part on the city's adoption of the Lutheran reformation. The changes that took place during the latter half of the sixteenth century were quieter and more often worked out via personal negotiation behind closed doors, rather than through the propaganda of pamphlets. Because of this, when they are considered at all, they tend to be subsumed under the umbrella of religious reform, often addressed as by-products, effects, or impacts of Lutheranism or confessionalization. But the medical reforms in sixteenth-century German-speaking areas were not simply enabled by religious reformation nor was the use of the term "reformation," or "*reformatio*," necessarily intended to invoke the process of the Lutheran reformation: the singular meaning acquired by the term "reformation" in the seventeenth and eighteenth centuries had no such hold in the sixteenth.[29] The term "reformation" was a multivalent one, invoked synonymously with *Ordnung* and used to refer far more expansively to a notion of renewal, or ordering, or formation. This was a notion given real purchase in the political workings of the late fifteenth century, when the empire reformed the *Reichskammergericht*, as legal scholars began to publish vernacular treatises (often drawing together Roman and customary law) and universities were established to educate and train an administrative elite for service in imperial—and increasingly in princely, territorial, and civic—institutions. Civic and social order in Nuremberg was in flux well before Luther, as the city responded to and participated in these imperial developments.[30] In 1479 the city passed a new comprehensive set of ordinances, geared toward systematizing and synthesizing issues of law, governance, and policing. It was

published in 1484—the first such civic ordinance to take advantage of the new technologies of the printing press.[31] Rather than being provoked by (or indeed provoking) religious reform, the turn to medical authority was part of this larger political search for the codification of written traditions. The ascent of physicians signifies an overlapping of the medical with the political; rather than one replacing the other, what constituted an upheaval in one sphere consolidated authority in another.

The consolidation of physicians' authority within the city walls gained nuance, not just from the religious instability that preceded it but from the city's unfolding political decline and shrinking importance in the globalizing world. Similar shifts took place in other early modern German cities, most notably Augsburg and Ulm, which both established *Collegia medica* before Nuremberg, but also, if more gradually, in smaller towns and villages.[32] The distinctiveness of their different processes reveals the slipperiness of social mobility and intellectual prestige, on the one hand, and broader concerns with medicine, well-being, health, and ethics, on the other. What they have in common is perhaps more important, because they show that changes in the way political authorities viewed the relationship between order and knowledge were crucial prerequisites to the conceptual shifts in medical order that physicians' texts sought to delimit.

MAKING MEDICINE IN WRITING

What linked medical reform and political order was a common focus on new forms of writing in the construction and maintenance of expertise. Ordinary physicians, such as Joachim Camerarius, were not modern physicians; they were Galenic "servants of nature," as Camerarius put it, and they considered themselves philosophers. Like the depiction of diagnosis as a huddled, whispered process, collaborative but not transparent, early modern discussion of medicine was often analogical, metaphoric, or emblematic, relying on allusions to the process of medicine rather than insight into its procedures. The iconography of sixteenth-century physicians illuminates this conception, both in its traditional evocations of Hippocrates, Galen, and Aristotle, and in its early modern subjects, gowned, capped, and seated in front of books (fig. I.1). Galenism was crucial to the physicians and their sense of self. Galenic medicine, which drew on Hippocratic ideas about complexions, humors, and porousness, essentially relied on the manipulation of naturals and nonnaturals to preserve or restore health.[33] It remained the dominant heuristic throughout the sixteenth and seventeenth centuries.[34] In fact, as medical ordinances began to "ban" other categories of practitioners, Galenism shifted from a course of study to a public identity, legitimizing some practitioners and demarcating

illegitimate practitioners.[35] By the end of the century, Galenism was not just the only medical system; it was the official one.

This presents something of a quandary. In historiographical terms, the traditional periodization of medicine has always revolved around Galenic theory, or, more specifically, its decline.[36] More recent work has shown that the Galenic renaissance, described by the recovery, translation, and publication of new texts, brought with it renewed interest in the basic tenets of the Hippocratic body. Galen's works were published in Greek in 1525, and twenty-two Latin editions appeared throughout the century.[37] Sixteenth-century authors interrogated these in light of contemporary circumstances, and in the process invented new explanations for contagion (e.g., miasmas), new categories of disease (e.g., skin diseases, "women's" diseases), and new treatments (including new drugs, e.g., *terra sigillata*, and new techniques, e.g., grafting).[38] The publication of an ancient corpus of texts was therefore accompanied, as the previous section has mentioned, by internal structural reconfigurations within medical faculties, such as its gradual reorientation around anatomy, botany, and clinical medicine. The practice of Galenic medicine in the sixteenth century encompassed new technologies, new methodologies, and a heterodox set of understandings of the body, disease, and the place of therapeutics.[39]

The pliancy of this vivified sixteenth-century Galenism was especially visible in Wittenberg, where a general reform of the university's curriculum, undertaken by Philip Melanchthon, drew heavily on changing Renaissance ideas about nature. Melanchthon's vision of a university included a reformed emphasis on natural philosophy, with the affirmation of astrology, anatomy, and mathematics as central pillars of the liberal arts.[40] As many scholars have noted, anatomy was a central component of Wittenberg's new curriculum.[41] Botany was also important; from 1546 the university offered lectures on Dioscorides.[42] With the exception of Volcher Coiter, the Frisian physician at the heart of chapter 3, all of Nuremberg's physicians passed through Wittenberg, and it is worth noting that they often undertook this education with the added benefit of having first attended the *Melanchthonschule*, the gymnasium in Nuremberg that was reformed under Melanchthon's guidance in 1525.[43] One of the first teachers at this school was Joachim Camerarius the Elder (1500–1574). Renowned throughout Europe as a scholar, and an intimate friend of Melanchthon, he was also the father of Camerarius the Younger, who spearheaded the reforms in the city. As his son, Joachim Camerarius the Younger was the beneficiary not only of Melanchthon's keen pedagogical oversight but of his pastoral attentions as well—hundreds of letters from Melanchthon survive for Camerarius the Younger's student days. The centrality of Melanchthon in this very personal relationship was emblematic. Melanch-

thon loomed large among sixteenth-century German physicians, and indeed, among networks of humanists more generally. Preoccupation with his scholarship, his academic legacy, and his personality was shared more broadly by physicians across the Holy Roman Empire.

Nonetheless, while it has been suggested that the Wittenberg curriculum was distinctly Protestant, far from creating a unified set of confessionally determined intellectual interests, among Nuremberg's physicians, the influence of Wittenberg was tempered by exposure to Italian or French universities and the engagement and broadening of social circles to include Italian, French, Dutch and Flemish, Bohemian, and other medical men, and it facilitated a diverse range of medical interests.[44] In the organization, practice, and intellectual orientation of learned medicine, for the physicians at the heart of this book, religious belief rarely determined medical action. That is not to say that religion itself was unimportant in or to their personal beliefs—manifestly the opposite. Nonetheless, physicians recognized the disciplinary difference between theology and medicine, and their lives as lived reflected their medical career paths. Despite the centrality of belief, morality, and prayer to cultural concepts of emotional well-being and individual health, the aspects of medicine on which the physicians' professional claims were based—new standards of evidence, new remedies and recipes, shared practices of writing—did not break down along confessional lines.

The investment of theological as well as political leaders in the delivery and regulation of medical knowledge, however, makes it unsurprising that challenges to Galen could be regarded as dangerous, subversive, and political. This was evident in the popular response to Paracelsus, and to other "radicals" elsewhere, such as Michael Servetus or Valentine Greatrakes.[45] The figure of Paracelsus loomed large in late sixteenth-century Germany and, equally, its historiography.[46] The profound cosmology, theology, and dense philosophy of Paracelsus attracted scholarly attention from advocates and critics alike. The esoteric, heretical, and hermetic components of his thought, as well as the secrecy with which many practitioners veiled their adherence to his writings, have meant that Paracelsian has become almost code for sixteenth-century radicalism,[47] but the opposition between Paracelsus and traditional Galenism is easy to overstate. His reputation for controversy was more the result of his bombastic personality than the substance of his writings, which remained largely in draft and unpublished during his lifetime.[48] As Charles Webster reminds us: "In the short term, our reformer was just another irritant rather than the catastrophic threat he was to pose in the course of time."[49] Paracelsian practitioners were occasionally a source of civic or territorial controversy, but until the blanket banning of them by medical ordinances, decisions were made

on a case-by-case basis and could often be laxly tolerant.[50] Nuremberg physicians actively collected Paracelsus's works and even contributed to the appearance of his writings in print, even while consolidating their Galenic identities.

Despite outlying criticism by figures such as Paracelsus, the most important challenges to Galen in the second half of the century arose not from a competing philosophy but from the intrinsic conditions of practice, which conformed far too little to the ideal conditions of the Hippocratic Corpus. The authority of antiquity could be overwhelmed, as in the case of botany, where the number of plants ballooned, from the hundreds of species described by Dioscorides to the thousands described by Pietro Andrea Mattioli, Carolus Clusius, Conrad Gesner, or, indeed, Joachim Camerarius. The inaccuracies or incompleteness of Galen or Dioscorides might sound like Whiggish observations about the backwardness of past practitioners, but they were contemporary problems of terrifying proportions for the growing *Stand* of practicing physicians employed in Germany.

It is hardly surprising, then, that physicians found medical practice difficult. Every day, across the Holy Roman Empire, physicians walked the tenuous line between success and failure, and their achievements and disappointments are preserved in private correspondence, in political archives, and in print as a legacy to the professional burden of medicine in the early modern era. Their letters, diaries, libraries and annotations, wills and legacies testify to the hardships they saw themselves enduring. This could be due to the particular demands of their clients or the social circumstances in which they found themselves. Johannes Crato von Krafftheim wrote bitterly about the demands of his court practice.[51] In letters to his brother Hieronymous Wolff, Heinrich Wolff, the Nuremberg physician, complained about the demands the senate made on him.[52] In Basel, Felix Platter recorded hardships endured while traveling to patients outside the city walls, recording journeys overnight in darkness; through snow, fog, and rain; and over mountains and wildlands.[53] Such difficulties could be due to the particular demands of their clients or the social circumstances in which they found themselves, or both. As Volcher Coiter complained in a letter to Camerarius, when having sent an opinion to one Dr. Jugelius, he was irate to find that the physician followed not his advice, nor even the advice proffered by their mutual colleague Erastus, but that of his sister.[54] City records are littered with minor petitions from physicians, hoping to offset their problems with pay raises, permission to travel, or practical resources—horses, guards, and equipment. The difficulties of medical practice came from the pressure physicians exerted on themselves as well as the intellectual rigor they brought to bear on their own efforts. In fact, the narrative of suffering entered into the desirable virtues of a learned physician,

as demonstrated by the familiarity of the trope within firsthand prefaces of late sixteenth- and seventeenth-century printed books.

In answer, physicians turned to the pen. In ephemeral paper slips, personal archives, prolific correspondence, and printed books, sixteenth-century physicians created new methods, habits, and written practices.[55] Their works have come to describe both the empirically driven "science of describing," as one historian has termed it, and the "defense of the text," as another has evocatively conjured.[56]

I argue that the sixteenth century saw the emergence of new forms of written practice. These took place within Galenic structures of thought but independently of conventional institutions, such as universities. They were also, at least initially, radically personal. As scholars such as Richard Yeo, Elizabeth Yale, Volker Hess, Andrew Mendelsohn, and many others have shown, seventeenth-century standardization of certain forms and procedures of communicating, recording, and preserving in print and personal archives, such as written knowledge practices, contributed to new modes of knowledge, new subjects, and the advent of the Scientific Revolution.[57] But these developments should not be taken for granted. Before such conventions and modes gave rise to seventeenth-century "Republics of Letters," modes of "Sociable Knowledge," or epistemic genres, they arose piecemeal, often in fundamental consideration of contingent, practical, and social circumstances.[58] Lauren Kassell has pointed to the way in which new note-taking practices in seventeenth-century England were not self-evident and had to be invented and worked out over time.[59] This was even more true for sixteenth-century German physicians, who had no such structured customs to guide their practice.[60] In the context of the development of material practices of text, the Nuremberg physicians add nuance to narratives that privilege standardization. They demonstrate that before seriality, systematization, and codification of written medical practices came to define the profession, the impulse to write was erratic, interdisciplinary, sometimes emotional, and often deeply connected to political, civic, and bodily concerns.

It was nonetheless crucial. What comes across clearly, in my view, from physicians' letters, notebooks, annotations, marginalia, and even from the way in which they conducted their campaign for professional recognition is that they wrote alongside their practice, fixing incremental changes in ink, if not always in print.[61] Privileging their written sources as evidence, not simply of intellectual interests but of material medical practices, gives us fresh insight into aspects of medical history not necessarily available from traditional approaches, which often focus more exclusively on institutions, social backgrounds, or new "subjects" such as anatomy or botany. Writing took place across these registers. Indeed, as just one example out of the more than eighty

imperial cities in the Holy Roman Empire, the physicians in Nuremberg demonstrated an almost astonishing diversity of approaches to the problems of medical practice. Fifteenth-century physicians such as Hartmann Schedel copied hundreds of manuscripts by hand, obsessively pursuing new, often controversial, pharmaceutical remedies.[62] Johannes Magenbuch kept "Tagebüchern" from 1526 to 1528.[63] His patients were patricians such as Hieronymus Paumgartner, Andreas Tuchers, and Hieronymus Ebners. The Detzels, Geuders, Grundherrs, Hallers, Hirschvogels, Holzschuhers, Imhoffs, Kresses, Löffelholzs, Nützels, Schürstabs, Starcks, and Stromers all appeared in the course of his two-year record—the same names that would appear in Georg Palma's (another physician) notebooks fifty years later. Outside Nuremberg, well-known examples such as Georg Handsch, whose work Joachim Camerarius would later appropriate, left records numbering thousands of pages.[64]

Even very practical medicine was increasingly written down in the form of individual regimes for patients (who could afford them). In 1570 Volcher Coiter recommended that his patient Anton Breem make a medical pilgrimage to the waters at Wildbad in the Black Forest. He dispatched a detailed set of instructions with Breem, fourteen folio sides with instructions for everything from how much sleep Breem was to get to the temperature at which his food should be eaten.[65] The contents of his involved writing demonstrate how difficult it was to direct patients—even the language created complications, since Coiter had to explain in vernacular terms to a patient what he might have simply assumed that other physicians might know. Breem was an active participant in his own healthcare, one who was admitted at this specific moment into the written practice of professional medicine. But the degree to which a patient should be included was not always clear. Full discussion of diagnosis and practice was often withheld completely. This could be for the patient's own good. In 1584 Georg Palma wrote a letter to Theodor Maphil with bad news on a case involving a patient's steady decline. He urged Maphil to withhold the bad news from the patient, for fear of aggravating the condition. Indeed, he went so far as to include a second letter for the physician to share, a much more upbeat version, full of solicitations and good cheer.[66] In this case, writing a letter literally enacted the emotional side of medicine, tending to the patient's psychological needs.[67] The efforts of physicians such as these gave rise to whole cultures of record-keeping and linked the demands of medicine to the development of science.

Notebooks were only one way into the demands of practice; Nuremberg's physicians participated in the broad culture of curiosity, wonder, reading, and collecting that precipitated seventeenth-century natural history as well. Erasmus Flock labored in the arts of astrological medicine.[68] His son, Erasmus Flock the Younger, *Stadtarzt* in Frankfurt, mapped the Vesalian body ac-

cording to the chart-like forms of the stars.[69] Georg Marius, who worked intermittently in Nuremberg, closely researched and published on the potential panacea *terra sigillata*.[70] Like physicians and apothecaries across the continent, Melchior Ayrer collected rarities.[71] But one way or another, the diverse sets of interests taken up by such different men tended to coalesce around written pursuits.

This was not a change that took place in isolation. As we have already seen in the case of political order, physicians' writing happened in tandem with textual developments elsewhere. The link between regimes for individuals and the prescriptive purpose of ordinances was made explicit in printed texts, such as Johannes Jacobi's *Regimen contra pestilentium* (A Regimen against the Pest/Plague) or "*Regimen sanitatis, das ist von der Ordnung der Gesundheit*" (*A Regimen for Health, That Is of the Order of Health*). These married medicine to governance, coopting patients within new forms of moral order. Letter collections produced new bonds between far-flung physicians; they also contributed to exclusionary attitudes to heterodoxy.[72] Hundreds of plague pamphlets testify to the growing eloquence of civic medicine, linking remedies with ethical, moral, and political concerns. By making remedies available, they facilitated and constructed new ideas of expertise. The importance of text to medical practice should not be interpreted as either coldly codifying (i.e., imposing a regime on people) or as exclusively abstract, learned, and elite. Writing medicine was clearly a balancing act. The impulse to write usually came at moments of change. While the fixity of day-to-day practice remains obscured by its own material nature, its unsteadiness and its difficulties are captured in writing across a variety of forms.

PRACTICE AND PRESCRIPTION

The approach to writing and practice described previously guided physicians' attempts to fix their civic identity, and, as a result, it guides the structure of this book. The methodological assumption behind this book is that texts functioned as materials of practice. *A New Order of Medicine* draws on two rich bodies of literature—one from the history of science, which attempts to uncover the effect of textual changes on disciplinary modes of study or epistemology, and the other a literary approach to text, which seeks to recover its material nature and opens up new avenues to what can be considered text in the first place.[73] In the chapters that follow, I consider a broader range of texts than might usually appear in a study that is first and foremost a medical history, and I attempt to knit together themes more often considered separately in institutional, political, social, and intellectual approaches to historical change.

In six chapters, *A New Order of Medicine* mediates between the political privileges gained by physicians, the theoretical framework within which they moved, and the more eclectic practices they undertook. Chapter 1 traces the publication of Germany's first official *Pharmacopeia* (i.e., a register for pharmaceutical remedies), which appeared in Nuremberg in 1547. The emergence of the pharmacopeia, a generation before Camerarius submitted his text, foregrounds the way in which paper, politics, and medical practice would come to overlap both within and around physicians' practices. In the civic context of medical reform, as well as in the structure of this book, the story of the pharmacopeia acts as a prologue, while at the same time, it places the written practice of medicine firmly in a more general European context.

Chapter 2 traces the development of medical authority in the sixteenth century, focusing on the growing role of municipal physicians in Nuremberg and their expert authority as a recourse for the civic senate. In different ways, both chapters look at the role of medical writing supporting municipal governance. But they also demonstrate the way in which the city provoked medical change. The growth of medical authority is a well-established feature of early modern history, which generally focuses on its gradual incursion into new spheres of social life, such as charity. For physicians in Nuremberg, the experience of this extension of medical authority was not simply about claiming new areas of authority per se; it was also an experience of encounter—coming to terms with the demands of civic practice for the first time.

The heart of the book focuses on the individual, eclectic practices of Nuremberg's physicians in the wider context of early modern learned medicine. More specifically, it focuses on three general medical developments in their specific civic context: anatomy (material, tactile practice), bibliophilia and pharmaceutical remedies, and letter-writing, which literally connected the Nuremberg physicians to a constellation of practitioners across the European continent.

Volcher Coiter, the subject of chapter 3, was an anatomist. Coiter, who lived in Nuremberg only for a period of several years, nonetheless published two anatomical treatises with the support of the city council, dissected bodies in private, and used his findings to demonstrate causal theories of disease. As an academically trained anatomist operating (quite literally) outside the framework of the academy, Coiter provides an unusual window into the abundance of material activities practiced by learned physicians in cities and elsewhere. He also, partly because of this, produced unusual anatomical work. Coiter, unlike other published authors, saw a clear link between the diseased and the healthy body, and his many case studies prove that he used surgical and anatomical knowledge to treat a wide variety of accidents, injuries, and

diseases. Coiter was a renegade figure, an underground anatomist, a rootless, restless peregrinator whose work encompassed the strange as well as the familiar. But municipal physicians conformed as well as confronted, and the key figure in chapter 4 can be taken as an example of the "ordinary" physician par excellence.

Georg Palma, who was born in Nuremberg in 1543 and died there in 1591, appears at first glance to be remarkably staid, following the dictates of convention. Chapter 4 focuses on his library collection, some six hundred–plus medical volumes, which he amassed over a lifetime of reading and annotated copiously. Palma's chapter excavates the rich interior practice of medical thought, the way in which it intersected and interacted with the local knowledge, with eclectic literature and the traditions of Galenic thought. Even the most "orthodox" of Galenic practitioners deployed a diverse set of medical practices, and traditional academic education was enlivened and vivified by the local, empirical networks in which it was ultimately practiced.

This emphasis on local knowledge found its correlation in the strong networks of communication that linked practicing physicians across the Holy Roman Empire and enabled both shared knowledge and consensus between them. The subject of chapter 5 is Joachim Camerarius, the ringleader of Nuremberg's medical community and the link between Nuremberg's physicians and the wider medical world. In addition to his political campaign for reform and his botanical publications alluded to here, Camerarius was responsible for one of the largest, densest networks of correspondence that survives from an early modern physician. Camerarius's epistolary community drew in physicians across Europe and linked the Nuremberg medical practice to the wider constellation of the medical world. Camerarius's massive correspondence network engaged hundreds of physicians in his quest to better procedural identification and demonstrated a dynamic *esprit de corps* among the empire's practicing physicians.

Chapter 6 returns to the written submissions made by physicians and apothecaries in Nuremberg, and traces the contours of their contest. Examining the overlapping interests of physicians and rulers, this chapter examines the emergence of Nuremberg's medical ordinance, as a printed text and as a marker of social change. When Nuremberg passed its first medical ordinance, it put in place a relationship between the physician, treatment, and the patient that endures today.

It should be acknowledged that some sources lend themselves more naturally to consideration as medical materials than others. The challenges of an approach such as this is not to neglect the contextual elements that served to embed, enable, and frame medical experiences in the early modern city—

marriages, marketplaces and economic demands, institutions, cultural beliefs and religious practices, and so on. These are all aspects that have received significant attention in previous studies and in some cases have formed the bases of entire historiographical schools of thought. The aim of this book is not to overturn such work but to enrich it—to move us out beyond the canon of the published text rather than reify it. Knitting these approaches together are the physicians themselves, whose personal life stories, careers, practices, and emotional arcs form the narrative through line of this book. Text and practice only met through people. It is my hope that focusing on this can help us understand something bigger about the practice of medicine in early modern Europe but, also and equally, remind us that to individual people and their lives, the immediate, the material, and the local was often more important.

The routine elements of medical practice were tasks that united practicing physicians across the farthest reach of the Holy Roman Empire. Coiter, Palma, and Camerarius were just three of hundreds of physicians who worked alongside them.[74] Few of these men have been remembered (and even fewer of the wives, daughters, and sisters who supported them, the midwives with whom they shared cases, and the, admittedly rare, female physicians who worked alongside them).[75] If medicine was influenced by overarching interests and trends that dominated the sixteenth century, by religious reformations and struggles, by Renaissance approaches to text and antiquity, by the shifting political landscape, or even by events and consequences not made by man, by plague, by weather, by the new and profoundly unsettling geography of the New World, the ways in which physicians viewed these shifts were similarly influenced and informed by the routine tasks they had elected for themselves. It behooves us to take seriously the diligent municipal medicine they practiced. It was a duty for which the physicians endured tedium, hard work, ridicule, competition, imprisonment, and even danger. Palma slaved in his library and Camerarius in his garden; Coiter dug up bodies and suffered imprisonment. In steadfast attendance during epidemics and plague, other Nuremberg physicians, such as Heinrich Wolff, Justus Müller, and Johann Vogt, gave their lives to the service of medical practice. In some cases, they viewed themselves as uniquely suitable for facing these problems. In other cases, they found themselves the victims, their work made difficult and dangerous by the vicissitudes of fortune or fate. But always it was at the bedsides of their patients that the stakes were highest. These Galenic physicians, rather than renegade Paracelsians, or even artisan practitioners, were the greatest proponents of the new turn toward empiricism.

Fig. 1.1. Valerius Cordus (1515–1544). Courtesy Wellcome Collection.