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Introduction

> The space between Heaven and Earth is full of medicine, full of things, and full of coherence.[1]
>
> —FANG YIZHI (1611–71), *NOTES ON THE PRINCIPLE OF THINGS*

WHAT EXISTS IN THE WORLD, and exists in such a way that is intelligible to the human mind? Writing in the mid-seventeenth century, the Chinese scholar Fang Yizhi claimed that things (*wu*) do exist, and that their existence manifests a fundamental coherence (*li*) that gives meaning and order to the world. While Fang reaffirmed many of the epistemological and ontological positions held by leading neo-Confucian thinkers since the eleventh and twelfth centuries, the first part of the remarkable quote above raised further questions.[2] According to Fang, things that exist in the world exist primarily as medicines (*yao*) and ought to be known as pharmaceutical objects. In other words, the entire universe is a giant pharmacy, where all things bear the potential of transforming us, while being subject to modifications by us. All knowledge about the self is therefore at once knowledge about material remedies, and vice versa.

Know Your Remedies explores the career of pharmaceutical objecthood in Chinese culture between the sixteenth and eighteenth centuries. Viewing Chinese history through the lens of pharmacy, this book also seeks to present an explanation of how Chinese approaches to knowledge underwent a sea change during this period. During the Ming dynasty (1368–1644), an earlier model centered on imperially commissioned pharmacopeias known as *bencao* (*pen-ts'ao*, literally "basic herbs" or "roots and herbs," and frequently translated as

materia medica) gradually lost its commanding authority. Instead, a diverse range of pharmaceutical knowledge and practice emerged that sought to redefine the bencao tradition, motivated by new divisions of intellectual and professional labor that took shape under the Qing dynasty (1636–1912). This early modern transformation of pharmacy and pharmaceutical knowledge bears broad implications for China's modern scientific and medical developments, as can be seen from the prevalent practice of Traditional Chinese Medicine (TCM) around the world today.

The peculiar features of traditional Chinese pharmacy have fascinated many but offered few clues for a historical understanding. Back in the 1880s, the Pharmaceutical Society of Great Britain received a scale model of a Chinese pharmacy in the city of Canton (see figure 0.1). The carefully crafted shop front, peopled with figurines, exuded Oriental grandeur: the well-dressed owner, the pipe-smoking customer, and the clerks doing their jobs using rudimentary tools. The wares on display achieved a similar effect: conspicuous signs advertising ginseng, "jade cinnamon," deer horn, and monkey gallstones (*houzao*), with the pharmacist's neatly packed porcelain jars promising access to such exotic treasures. Should we, viewing the model today, take its facade of tradition at face value, seeing the pharmacy as a material manifestation of certain essential traits of Chinese civilization? Or can we see through the air of serenity and mystery shrouding the space, and imagine instead a recent past in which this kind of shop had not yet become a ubiquitous symbol of Chineseness? In other words, do pharmacies in China have a history, and, if so, where should we begin?

"There is no paradox or mystery in finding what is most human through what is most corporeal and palpable," writes Edward H. Schafer in his memorable study of medieval exotica in China.[3] No one, not even the emperor or the most enlightened philosopher of the day, could claim complete control over the pharmacist's cabinet; nor could they live without its offerings. Far from a timeless, monolithic tradition, pharmacy in China served as a dynamic meeting point of elite and popular culture, and is therefore subject to historical analysis. Pharmacies are also translocal enterprises, connecting the world of letters to that of the marketplace bridging nations and continents. Compared to the neat formulations of medical theory, the chaos, messiness, and contentions that inevitably arise during the therapeutic processes fascinate historians of medicine. Well into the early twentieth century, few governments around the world could exert effective regulations over the pharmaceutical trade, a global network in which Chinese actors played a pivotal role.[4] A pharmacy-

FIGURE 0.1. Model of Chinese pharmacy, nineteenth century. Credit: Wellcome Collection.

centered vantage point thus allows us to discern patterns of cultural change without necessarily prioritizing one group's knowledge over that of others.

The central historical question in this book is why the bencao pharmacopeia, a composite knowledge form that came under state patronage early on in Tang dynasty China (c. 659 CE; see more discussions below), ceased to claim

comparable prestige in Ming-Qing times. Following Nathan Sivin's view of ancient science as "cultural manifold," I argue that the fragmentation of bencao knowledge and the ascent of traditional pharmacies were two sides of the same coin historically, and we cannot understand one without paying equal attention to the other.[5] The complexity of the issue requires an *integrated* approach to different kinds of evidence. First, I use the methods of book history to grapple with the authorship, transmission, and reception of a large number (50–60, with 20–30 closely examined) of scientific texts composed in the field of bencao. The unique characteristics of each text are necessarily products of immense contingency, shaped by times of major political upheaval and doctrinal disagreements among individuals. Next comes the longer-term development of institutions and enterprises beyond individual lifetimes, such as the rise and spread of print culture in certain regions, the evolution of state fiscal policy, and the emergence of central marketplaces that definitively altered patterns of exchange. The salience of their impact is discernible only when we look across several generations, and for that reason I use a transdynastic approach to show the trajectory of change straddling the sixteenth and eighteenth centuries. Last but not least are the topographical and ecological features of lands and waters in Ming-Qing China. The sourcing and procurement of medicine from naturally occurring flora, fauna, and minerals depended on intimate knowledge of the land that remained, overall, stable. Even so, toward the end of this book, we will see how Qing pharmacies played a role in drastically altering the landscape and human use of natural resources, the impact of which was felt not only within China but also elsewhere.

Besides exploring the intrinsic characteristics of pharmacy as a composite venue of knowledge, this book also deliberately seeks to integrate separate historiographies of intellectual, political, and socioeconomic change in Ming-Qing China. A growing literature in the last few decades has done much to reshape the periodization of Chinese history away from a narrow historiographical focus on ruling dynasties, once the foremost unit of historical analysis. Politically, one can compare the Qing imperial formation and its multicultural legacy with those of other early modern empires around the world.[6] Intellectually, historians have instead proposed a continuous unraveling of neo-Confucianism that dislodged the hegemony of moral philosophy and ontological certainty, moving instead toward historicism, empiricism, and a more radical questioning of received wisdom on all fronts of scholarly inquiry.[7] Turning finally to socioeconomic analysis, scholars now start to recognize

Ming-Qing China's productive patterns as being on par with, if still distinct from, other agricultural, industrial, and commercial centers around the world.[8] All three approaches outlined above both showed the influence of an ascending global historical paradigm since the 1990s and made outstanding contributions to it. By pushing for Ming-Qing China to be recognized as an essential part of global early modernity, the works of these scholars not only reached a broader audience but also shaped the central questions of Chinese history itself.[9]

Yet the most exciting potential of this global approach to Chinese early modernity also has obvious problems. Today, while it no longer raises eyebrows to mention "early modern" and "China" in the same sentence, inevitably a question follows as to what "early modern" means in the Chinese context. Since the 1970s, historians have taken up a variety of approaches to the havoc wreaked by modernization theory on the historiography of non-Western places. The remedy proposed then—the return to a "China-centered" history—has now faced fresh challenges from the global paradigm. In fact, the introduction of the category "early modern" into Chinese history may have presented a thornier issue than the contested notion of a shared modernity. The appeal of a global early modernity built on connective registers might, for example, lure one into the old habit of only searching in non-Western places for what one already expected to find.[10] At the same time, armed with globally informed research, historians today still face the challenge of coming up with narratives that better connect the early modern to the nineteenth century and explain mechanisms of change, rather than slicing Chinese history into periodizations derived mainly from Western experience.

This book offers an analysis of cultural change in early modern China, motivated primarily by dynamism from within. By highlighting the factors that dislodged the bencao pharmacopeia tradition from its lofty status, this story defines China's early modern culture vis-à-vis medieval models of attributing expertise, value, and authority. By tracing the emergence of metropolitan pharmacies by the end of the eighteenth century, I also show continuities that linked that era with postimperial times. While many developments concerning pharmacy involved the imperial state, it will be apparent that the emperor and his officials were but one link in the chain of significance that shaped pharmaceutical objecthood. The core arguments of this book also conclude much earlier than the Qing dynasty's downfall in 1912. As a result, I use "late imperial" only when discussing patterns that encompass the broader period beyond 1500–1800.

Having charted out the basic contours of my argument, I now turn to a brief overview of how the scientific tradition of bencao came to be entangled with state power in medieval times. The task of explaining the early modern discontinuity of this state-centered tradition posed great difficulties in the historiography of Chinese science. After a review of that literature, I then present ways in which an inclusive category of knowledge opens new venues for historical interpretation. Finally, I offer a quick guide to key themes and actors in the chapters.

Universalism and Territoriality: State-Commissioned Pharmacopeias in Tang-Song Times

Based on excavated manuscripts and artifacts, we now know that healers in early China used various medicinal substances along with various techniques of acupuncture, moxibustion, and massage. The term "bencao" first appeared in the historical record at the beginning of the Common Era, when rulers of the Han dynasty issued an edict to recruit capable individuals who could master the use of materia medica. Also around this period, a corpus of canonical texts took shape that would define the contours of classical medicine still recognized in the teaching of TCM today. In this core literature, pharmacy appeared to be a marginal subject in these early texts in contrast to lengthy discourses on human physiology and etiology, as well as instructions on acupuncture.[11]

The medical landscape of early medieval China mirrors the heterogeneity and confluence of ideas in the divided political and religious realms. In the fifth century, the Daoist master Tao Hongjing (456–536 CE) synthesized various teachings of pharmacy under one collected commentary (*jizhu*). Out of the various schools, Tao endorsed one particular tradition identifying with the ancient sage-king Divine Farmer (*Shennong*) who, according to legend, tasted one hundred herbs to distinguish medicine from poison. Combining a set of 365 drugs from the Divine Farmer tradition with another 365 from a different source, Tao Hongjing created a standardized format and organizing principle for the study of bencao.[12] Despite his status as a hermit who stayed away from court politics, Tao's medical and alchemical works received generous sponsorship from regional rulers of the south.

State involvement in the medical arts intensified following the unification of the northern and southern regimes under the Sui (581–618) and Tang (618–906) dynasties. In 658 CE, a group of officials and court physicians appointed

by Emperor Gaozong completed a newly compiled (*xinxiu*) bencao based on Tao Hongjing's *Collected Commentary*, expanding the number of entries from 730 to 850. Following the Tang precedent, regional regimes in the tenth century, such as the Later Shu (934–65 CE), commissioned their own pharmacopeia in an effort to claim imperial legitimacy. The nascent Northern Song dynasty began compiling its first pharmacopeia in 973, even before its conquest of the south was completed. During 1057–61, the Song court issued another round of even more ambitious pharmacopeia projects, raising the number of entries to 1,083.[13]

It is important to note here that the Tang and Song bencao pharmacopeias were universalist in spirit and territorial in organization. At court, the emperor enabled medical experts and literati officials to work in collaboration, drawing both from reports and from specimens gathered from local administrations. On the one hand, the universalist character of state-commissioned pharmacopeias made a point of public interest transcending the proprietary practice of individual physicians. The pharmacopeia offered a stable, authoritative reference that encouraged, if not enforced, standardization in the sourcing, processing, and dispensing of simple and compound drugs. Taking pharmacy out of the esoteric realm of medical practitioners, the State harnessed their intimate knowledge of the potent substances while relying on the help of court literati to refine "vulgar language" into elegant prose.[14] In this sense, I use the term "pharmacopeia" to imply this normative task without suggesting that the legal infrastructure that surrounded the use of these texts in medieval China was identical to that introduced to European city guilds much later.[15] Once compiled, the bencao texts served as a basis for testing and selecting personnel to staff the imperial medical offices, but not for regulating the dispensing of cures by the average practitioner. If anything, the Chinese pharmacopeias were meant to counteract the anonymity and caprice of the marketplace of healing, not to set up rules for the marketplace per se.

The universalist outlook of Tang-Song pharmacopeias is also manifest in their scope of coverage. Aside from the immediate purpose of alleviating human suffering with drugs, these encyclopedic texts sought to name and describe all creatures and to designate them to their proper place in the world. On a symbolic level, they offered a framework of knowledge about the origin of all creatures that could be endlessly expanded. Su Song (1020–1101), chief compiler of one mid-eleventh-century bencao, announced in his preface that the emperor "nourishes and nurtures all living beings" (*hanyang shenglei*) with ultimate benevolence and virtue. The beneficiaries of this imperial compassion

consisted not just of humans, but also minerals, plants, and animals. "He feels sorrowful," writes Su, "even if one thing loses its proper place."[16] The pharmacopeia, therefore, had to be universal in its coverage, so as to prove that the emperor was truly acting in accord with the Mandate of Heaven. The governance of all life—what historian TJ Hinrichs has called "transformative governance"—formed the ideological basis of the collaboration between Confucian officials and medical experts at court in producing a pharmacopeia.[17]

The territorial organization of the Tang-Song bencao is arguably the most conspicuous departure from earlier pharmaceutical texts. Medico-alchemical practitioners knew that the procurement of rare material resources was closely tied to the territorial control of the state. Tao Hongjing, writing at a time of north–south division, framed the disruption of pharmaceutical supplies in political terms in his *Collected Commentary*:

> Ever since [the Jin Dynasty] retreated to the south of the Yangzi River, small and miscellaneous drugs often come from places nearby, and their power and nature are inferior to those from their original places. . . . This must be the reason why medication is less efficacious than previous generations.[18]

Later, Tao's own statements started to look parochial in the eyes of the Tang courtiers. Kong Zhiyue, a descendant of Confucius and son of classicist Kong Yingda (574–648), played a central role in the compilation of the pharmacopeia. In his preface, Kong made the following remarks about Tao Hongjing:

> At that time, regional regimes confronted each other, and he could not have heard or seen much about the distant lands. Without the opportunity for deliberating with colleagues, his interpretation was preoccupied with his own learning. And so . . . he made mistakes in [describing] millet and rice's yellow and white colors . . . and could not tell lead from tin, or oranges from pomelo.[19]

By contrast, the Tang pharmacopeia commissioned reports from all commanderies and districts (*junxian*), changing place-names that marked natural sites into the standard administrative nomenclature under the unified regime. The tone of superiority over ordinary practitioners was very clear.

Overall, the Tang-Song state's appropriation of the bencao tradition resulted in a clear shift of priorities as expressed in its core terminologies. The *Divine Farmer's Classic,* quoted by Tao Hongjing, directed practitioners to specific sites, such as sacred mountains and caves, where plants, animals, and minerals "live/grow" (*sheng*). In the additional entries that Tao attached to the

old text, he described sites where medicinal substances "exist" (*you*). In the mid-seventh century, the Tang bencao listed names of local administrations where valuable drugs "come forth/emerge" (*chu*). By Song times, we see the discourse of "products/production" (*chan*) entering the pharmacopeia, which carries a more explicit meaning of exploitation. In chapter 2, we will see how this formulation was also entangled with the means by which the state obtained critical resources for its own use.

It is beyond the scope of this book to give a full historical account of Tang-Song pharmacopeias, about which much exciting new research continues today. It suffices to note that the Tang-Song pharmacopeias were no monolithic tradition, but contingent products of the political, economic, and intellectual exigencies of their times. Nevertheless, the court's high-profile sponsorship of these monumental texts, which lasted for over five hundred years starting in the seventh century, became a conspicuous point of reference against which later developments were measured. We now turn to the major approaches to the placement of later bencao in larger narratives about Chinese science and civilization.

Bencao and the Periodization of Chinese Science

"There is no zoology in ancient India, only catalogs of meats," writes Francis Zimmermann in his study of ecological themes in Hindu medicine.[20] Someone examining the Chinese pharmacopeia might draw a similar conclusion, for even though the bencao recognizes minerals, plants, and animals as belonging to different kinds (*lei*), it approaches them all as pharmaceutical objects. Nonmedical approaches to flora and fauna (e.g., a lexicographical approach to the names of creatures) developed in parallel with bencao but never received comparable prestige or the fanfare associated with imperial patronage in Tang-Song times.[21]

When Emil Bretschneider, a Baltic German who served as a medical officer in the Russian embassy in Peking beginning in 1866, discovered the value of Chinese bencao for the modern discipline of botany, the main reference he used was *Bencao gangmu* (*Systematic Materia Medica*) by the sixteenth-century physician Li Shizhen. Containing 1,892 entries, Li Shizhen's bencao surpassed previous pharmacopeias in its breadth and sophistication. Through his writings, Bretschneider presented the first systematic description of the unique Chinese tradition of state-commissioned pharmacopeias, citing them as valuable sources for the study of botanical and cultural exchange throughout the

ages.[22] For practical reasons also, physicians, missionaries, and foreign residents of the proliferating treaty ports found themselves urgently in need of an understanding of the native pharmacy. At the turn of the twentieth century, the Iowa-born G. A. Stuart (1858–1911) published an interpretive study of the Chinese pharmacopeia, preserving Chinese terminologies and adding notes from his observations on the bustling trade.[23] In the early decades of the twentieth century, Bernard E. Read (Chinese name Yi Bo-en, 1887–1949) taught pharmacology at the Rockefeller-sponsored Peking Union Medical College and later obtained his own PhD in pharmacology at Yale. Working with his Chinese colleagues, Read systematically studied Li Shizhen's *Bencao gangmu* and published studies of botanical, avian, fish, and other animal-derived drugs in the 1930s.[24]

Building on those early works, a verifiable field of research dedicated to the study of bencao and Chinese pharmacy emerged after the end of World War II. Scholars in Japan and Europe continued along their respective traditions of Sinological research with a focus on textual interpretation and bibliographical research. Motivated by the dominant ideological divide of the Cold War, historians in mainland China searched for a Marxist interpretation of premodern Chinese science, while publishing modern editions of bencao to facilitate the popular application of traditional therapies. Paul U. Unschuld, the preeminent scholar of Chinese medicine in Germany, built his own work on Japanese scholarship and collaboration with Chinese colleagues. Their meticulous research on bencao has provided a solid foundation for the present study.[25]

The postwar sentiments of national development and ideological rivalry came to be distilled in the so-called Needham question: based in Cambridge, the British embryologist-turned-historian Joseph Needham and his collaborators designed an ambitious publishing project known as the Science and Civilisation in China (SCC) series. The task of Needham's project was twofold: first, to document the awe-inspiring accomplishments of Chinese science and technology prior to the modern era; and second, to perform the "grand titration" of progress, so as to determine the point in time when Western civilization decisively surpassed that of China.[26] The case of bencao, which was translated as "pandects" of "pharmaceutical natural history" by Needham, presented excellent material for this task: on the one hand, the great Tang and Song pharmacopeias predated European efforts to implement medical administration by centuries, spurning the notion that already in the Song dynasty, China had undergone a sort of renaissance in science and assumed a modern outlook in its politics and society. On the other hand, Li Shizhen's *Bencao gangmu*,

hailed as the crowning achievement for the "prince of pharmacists" by Needham, sparked no further pursuit along similar lines in Ming-Qing China. "Nothing was quite the same" after Li Shizhen's death in 1593, lamented Needham.[27] This again seemed clear proof that the rise of the West could be dated to the late sixteenth to early seventeenth century, conveniently contemporary to Newton and the Scientific Revolution in England, where Needham resided. The case of bencao fit the general consensus of the 1970s and 1980s that late imperial China was trapped in a sort of "high-level equilibrium" of productivity and cultural maturity.[28] Only external forces, imposed by the ascending West, could deliver China from its predicament.

However, we must not ignore the fact that Chinese authors in the seventeenth and eighteenth centuries did create a large number of bencao. They did not follow the "pandect" type of Li Shizhen and earlier pharmacopeias. Bibliographical research of extant Chinese medical texts indicates that more than 130 new titles can be dated to the seventeenth century and over 110 to the eighteenth century, compared to fewer than 20 in the fifteenth century and 50–60 in the sixteenth century.[29] Compelled to evaluate their significance by earlier standards, historians have largely dismissed the later titles as either "eclectic" monographs that merely rearranged earlier insights, or worse, atavistic attempts to return to the ancient nucleus of bencao, discarding by the wayside the progress made over centuries.[30] In any case, the Needham question has become a rhetorical device that invites the set answer of a race between civilizations for scientific dominance, which China lost circa 1600.

Today, the Needham question appears outdated to our multicultural sensibilities. Scholarly consensus has indeed moved from a search for priority of discovery and competitiveness in science toward interpreting science as practice and culture, malleable to political exigencies and constructible social norms.[31] It is thus most fitting to see the French sinologist Georges Métailié take over Needham's unfinished discussion of botany in China and reformulate the latter's questions along very different lines. Rejecting *The Grand Titration* and its presumption of cross-cultural commensurability, Métailié closely studied Li Shizhen's *Bencao gangmu*, along with the Song pharmacopeia in its textual and pictorial conventions, to explain how different they were from their European counterparts. Highlighting the interactive nature of pharmaceutical objecthood, Métailié rejected the applicability of terms such as "botany" to Chinese bencao, preferring "ethnobotany" instead to connect the study of plants with human affairs. Doing so allowed Métailié to cast his net widely

across the seventeenth-century transition and see *continuities* in Ming-Qing approaches to the natural world. His work broke new ground and shed light on the confluence of the study of plants with Confucian natural and political philosophy in the later period. In the end, Métailié saw neither evidence nor necessity that traditional botany in China and the modern science of botany could have a "fusion point."[32]

Replacing Needham's concern with civilizations with a more flexible notion of epistemic cultures, the early 2000s saw a further diversification of interpretive strategies toward China's scientific past. In *The Monkey and the Inkpot*, Carla Nappi offers an intimate reading of Li Shizhen's epistemic and compositional strategies in *Bencao gangmu*, taking the readers on a panoramic tour of the world presented therein. Writing against the notion of irreducible cultural difference—and the tendency, therefore, to see non-Western culture as irrational—Nappi shows the ways in which the spontaneous transformation of matter informed Li's understanding of the world, as well as the myriad species that reside in it. Similarly, Dagmar Schäfer's study of Song Yingxing (1587–1666), another figure of the late Ming who was much discussed in isolation but rarely contextualized, sheds light on the debt Song owed to earlier advocates of materialistic ontology, which in turn allowed Song to formulate a powerful discourse on the cosmic efficacy of technology. These two works carry forward Nathan Sivin's earlier insight about the possibility of redefining revolutionary moments in Chinese science independent of Western-centered periodization. Both studies also go beyond cultural comparisons to emphasize the necessity of elucidating the epistemic premises and genealogy of ideas that motivated Chinese authors.[33]

Another important development since 2000 calls for a reexamination of regional and global scientific exchange, emphasizing the agency of Chinese actors who, in Benjamin Elman's words, reacted and engaged with Western learning "on their own terms." In so doing, we can now see the seventeenth century as a multidirectional reckoning of global connections and differences, in which Chinese science emerged as an object of intense interest *and* underwent deep transformations at the same time. Furthermore, Elman's account also serves to connect the early modern in a continuous arc with the nineteenth and early twentieth centuries, allowing us to see how Chinese reformers in the late Qing drew their inspiration not only from Western nations and Japan, but also from within the Chinese intellectual tradition.[34] In the regional context, Federico Marcon and Suyoung Suh's works shed light on the different dynamics in early modern Japan and Korea, where Chinese ideologies and artifacts informed, but by no means predetermined, local scientific cultures.

Exchanges of medical and pharmacological ideas, in addition to the more prominently discussed fields like astronomy and mathematics, inspired many new works and ongoing research.[35] Below, I turn to the ways in which this book makes a new contribution to this vibrant field.

The Ming-Qing Transition as a History of Knowledge: Three Themes

No singular pattern governs any period of Chinese history. The Tang-Song pharmacopeia celebrates a neat model of pharmaceutical knowledge that keeps expanding along with the state's power, and yet the processes of making such knowledge were fraught with digressions, deletions, and dissonances. Similarly, the end of the pharmacopeia tradition must be grasped as the gradual unraveling of multiple conditions that once sustained its legitimacy. Following historians Karine Chemla and Evelyn Fox Keller's call to examine science as "culture without culturalism," I treat the unruly corpus of Ming-Qing bencao as evidence of ongoing contention within the Chinese epistemic tradition.[36] Extraordinary individuals such as Li Shizhen and Song Yingxing, like trees in a forest, stood at the edges of the whole range of possible epistemic positions in their times. By following the changing contours of bencao across three hundred years, this book seeks to give a holistic sketch of the life of that forest.[37] Let me now introduce three consecutive themes that will guide my analysis in this book.

The Sixteenth Century: Reconstituting the Center

Historians of late imperial China often speak of the state in terms of the center versus the local. The literati elite used the civil service examination system to gain access to national politics, or, in adversarial times, retreat to a "localist" stage of leadership. The Mandate of Heaven (*tianming*), which bestowed supreme power on the emperor to govern all lives, also bound him to adhere to a set of moral codes that was considered natural. Prefects and magistrates, appointed by the emperor through an intricate process of bureaucratic assignment, administered the locality and formed, in Sarah Schneewind's words, a sort of "Minor Mandate" vis-à-vis the populace they directly governed. Thus constituted, the State sought to monopolize the field of political action and mold the fabric of society according to its own image, notwithstanding the reality that commoners could always find ways of resistance, evasion, and subversion.[38]

Seen from a different perspective, the State also mediated the relationship between human society and the larger world. We have discussed how the universalist outlook of the Tang-Song pharmacopeia equipped the emperor with knowledge of all things, so as to better perform his duties in a kind of "transformative governance" that mimicked the nurturing (and punitive) powers of heaven. Seen thus, medicine, along with astrology, became an essential technology that upheld the imperial state's promise to fulfill Heaven's Mandate. Along with productive technologies that also, in Dagmar Schäfer's words, fostered the "inception of things" (*kaiwu*), medical and astrological experts claimed their rightful place in central and local government.

Beginning in the fifteenth century, we see a steady atrophy of what Angela K. C. Leung has called "organized medicine" in government, replaced by a more aggressively human-centered theory of governance that emphasized the welfare of human society above all else. The advocates of this humanist politics were, unsurprisingly, also vocal teachers and preachers of neo-Confucianism. Empowered by a righteous conviction deduced from their fervent belief in cosmic unity, these scholar-officials pushed for a decisive shift in Ming policy on all fronts. Francesca Bray's study of agricultural treatises vividly captures the scholar-official elite's ambition to dominate the technical sphere of governance, while at the same time criticizing state involvement in other kinds of technology such as industry, seafaring, and trade.[39] The process of reconstituting the center, replete with strife and uncertainty, took place over the fifteenth and sixteenth centuries and would become keenly felt in all corners of the Ming world. The reason why this process has not yet received much scholarly attention lies in the fact that the historiography of Ming China, which itself stemmed from these policy debates, was dominated by sympathizers and descendants of activist scholar-officials.[40] We still live in the shadow of this ideologically charged historiographical stance that sought to impose moral judgment on its subjects, offering caricatures of powerful eunuchs and technicians at court in particular. The corpus of bencao and the pharmacist's cabinet offered a good vantage point from which to see a different aspect of the changing nature of the Ming state.

The Seventeenth Century: Literati Amateurism and Its Discontent

In his influential trilogy on Confucianism and China's "modern fate," historian Joseph Levenson chose to open the entire study with two short chapters on the "tone of early-modern Chinese intellectual culture." Back in the 1960s

when Levenson wrote, it was radical of him to see an intellectual continuity between Ming-Qing times and the twentieth century by speaking of an "early modern" moment. In his analysis, however, Levenson considered the subject of science only to claim that empiricism in early Qing thought was "abortive" and nowhere close to becoming truly scientific (we now have, among others, Elman's account of Qing philology that refutes Levenson's claim on this point). For Levenson, the modern transformation of Chinese intellectual culture was synonymous with the "corrosion of the amateur ideal," in which the Confucian literati, whether serving in central offices or living a local gentry's life, possessed the authority to be the cultural arbiter of all trades. Using literati painting as his primary example, Levenson observed that "the Ming style was the amateur style; Ming culture was the apotheosis of the amateur."[41]

Was amateurism, or a kind of "epistemic promiscuity" in our terms today, truly a hallmark of premodern Chinese elite culture? To say so risks essentializing Levenson's observation of Ming China as an *ahistorical* explanatory framework. In the *Analects*, we can, in fact, find a famous passage in which Confucius demonstrates the utmost humility by conceding expertise over farming and planting to experienced farmers and gardeners.[42] It is more historically accurate to see statements of Confucian amateurism as aspirational, contentious, and always in competition with other claims to technical expertise. For instance, the Han dynasty scholar Yang Xiong (53 BCE–18 CE) defined a Confucian (*ru*) as "someone who thoroughly comprehends heaven, earth, and human beings," as opposed to a technician (*ji*) who "comprehends heaven and earth, but *not* people."[43] While acknowledging the technician's mastery over the external world, Yang reaffirms the humanistic core of Confucianism as not only compatible with technical learning, but also capable of transcending "mere technicians" in forging a holistic understanding of both inner and outer worlds. Yang's flamboyant statement became a point of reference for like-minded Confucians in later times, yet it by no means indicated that their polymath ambitions were necessarily fulfilled in social life.

Seen in this light, the emergence of the bencao pharmacopeia in Tang-Song times rather proved the tenacity of medical expertise in the face of rising Confucian interest in the art of medicine for a range of ethical, intellectual, and political reasons (more on this in chapter 3). The literati elite became more generally inclined to claim medical expertise during the Northern Song, at the very moment when their privileged access to politics was cemented in the regularization of civil examinations.[44] Confucian amateurism in medicine served, in other words, almost always as a metaphor of their command over

politics on the national stage, and this remained true also for literati medicine in Ming-Qing times.[45] The heightened sense of amateurism in late Ming culture should thus be read as a symptom of politics at that time, not as an unchanging feature of Chinese elite culture. Nevertheless, we will see that Confucian amateurism did play a crucial role in the transformation of bencao throughout the seventeenth century.

Compared with previous high points of Confucian amateurism, the impact of certain iconic cultural figures became much more amplified by the flourishing print culture. The effectiveness of print, however, also lowered the barriers to access, inviting heretofore marginal cultural actors to claim their own voice in published words. Historian Kai-Wing Chow sees publishing as a crucial venue for the emergence of the so-called *shishang* (literati and merchant) culture, one that was capable of forging a "public domain" of expression distinct from the State.[46] Elite women also gained access to published authorship during this time; so did a large number of middling literati who were kept out of official careers and ended up as professional writers.[47] The diversification and commodification of culture continued after the wars of Qing conquest concluded following the 1680s. By that time, however, it had turned out that the widened venues of publishing had become an equally effective means for opponents of Confucian amateurs to rebuild orthodoxy in their areas of expertise.[48] Again, we can see the convulsions of war and conquest leave a clear mark on the diverse corpus of bencao compiled during the seventeenth century.

The Eighteenth Century: A Triangle of Knowledge-Wealth-Power

By the time the Ming fell in the 1640s, the previous model of transformative governance, and its manifestation in state-commissioned pharmacopeias, had become outdated and contorted beyond recognition. Therefore, the succeeding Qing dynasty faced the challenge of redefining the State vis-à-vis human society as well as the larger world. The Long Eighteenth Century, also known as the High Qing era, witnessed the consolidation of Qing responses to both questions under the leadership of three Manchu emperors and their court officials. In social administration, the Qing state strengthened monarchical leadership over the civil bureaucracy, compressing the local administrator's autonomy in performing the "Minor Mandate." Instead, the Qing government, staffed by elite officials who vowed absolute loyalty to the emperor alone, used its administrative muscle to manage society in areas such as hydraulic engineering and famine relief. To fund governmental initiatives without raising

agricultural taxes, the Qing state also entered into an informal alliance with mercantile interests, both encouraging, and later on directly investing in, commerce and various industries.[49]

There began to emerge "luxurious networks," as Yulian Wu put it, which entangled the political and mercantile elite in Qing times and decisively shaped the outlook of culture in eighteenth-century China. The Qing rulers relished their command over the material realm and made a point of asserting the *technical* sophistication of the administration on all fronts, including the directed production of highly valued objects such as porcelain, jade, and certain fashions of attire. The imprint of Manchu rule was visible on dresses, shoes, every adult man's shaved forehead and braided queue, food, and collectibles such as fancy carved inkstone. The Qing was, in Dorothy Ko's words, a "material empire" in a different sense from the Ming.[50] Whereas historians are hard-pressed to locate many records of the Ming state's equally extraordinary material ventures (such as the early fifteenth-century expeditions that reached the shores of Africa), scholars of Qing China can use the abundant archival records generated by the growing bureaucratic management of material resources, coupled with a rich collection of extant artifacts. The existence of such records has not only enabled the reconstruction of the "social lives" of individual commodities but also reflects the changing cultural priorities throughout the eighteenth century. The commodification of pharmaceuticals offers a distinct yet related example vis-à-vis other bulk commodities, such as grains, timber, and salt for the domestic market, and porcelain, tea, and silk for the export-oriented economy during this period. While much scholarship has focused on ginseng, the wonder drug of China's early modernity and the only medicinal herb monopolized under the Qing administration, we still do not have a good account of how pharmaceutical trade as a whole evolved with relatively little formal intervention from the State.[51]

The question of knowledge inevitably comes up to form the third leg of a triangle, adding to the nexus of power and wealth. Just as in social administration, the Qing state took a much more active role in reshaping the world of letters than its Ming predecessor, achieving nothing short of a complete reclassification of knowledge in numerous monumental projects conducted at court. Instead of ceding cultural authority to the elite literati, the Qing state co-opted them and patronized their scholarship so long as their pursuit remained within regulated boundaries of propriety.[52] Yet it would be wrong to see the various moments of alliance and antagonism between the Qing state and scholars in isolation from the widening disparity of status. Classically

educated men in Qing China, whose numbers had greatly increased compared to earlier periods, had a much slimmer chance of entering governmental positions through the civil examination than their Ming predecessors. As a result, they no longer acted in concert politically as a "literati" class, but assumed a variety of statuses, priorities, and, for that matter, intellectual orientations. As a result, the holistic ideals of Ming neo-Confucian philosophy gave rise not only to High Qing philology but also to many other subfields that came to be redefined during the eighteenth century. Among them was a new type of bencao that reflected primarily orthodox medical interests, and a new trend of encyclopedic documentation of minerals, plants, and animals that became demedicalized, resembling natural history (see chapter 4).

The triangular relationship among power, wealth, and knowledge was by no means stable. Toward the end of the eighteenth century, pharmacy had achieved a similar transition from the emblem of literati culture to part of what Evelyn Rawski and Susan Naquin have described as an emergent "national culture with a broad urban base."[53] Largely excluded from elite sources, the popular culture among laborers, peddlers, and other increasingly volatile sectors of society generated its own clandestine codes of expression and channels of communication.[54] The harvest, preparation, and consumption of pharmaceutical objects provided a meeting point between elite consciousness and popular culture, opening up questions of epistemic power among plebeians and its political implications.[55] The question of pharmaceutical objecthood persisted long after the disintegration of the bencao pharmacopeia and the diversification of knowledge forms that derived from it.

Chapter Outlines

Chapter 1 traces the decentralization of prestige associated with the state-commissioned pharmacopeia up until the end of the sixteenth century. Chapter 2 tells a parallel story of the State's retreat from directly procuring materia medica from localities as tribute, resorting instead to collecting a monetized surtax. Chapter 3 zooms in on the early decades of the seventeenth century to examine the amateurization of bencao in certain literati circles. The division of parts one and two at the juncture of dynastic transition is intended not as a marker of absolute discontinuity, but a deliberate pause for the reader to consider the multiplicity of actors covered so far, as well as their future trajectories under a new regime.

Chapter 4 picks up the transformation of bencao in post-Conquest Jiangnan to highlight the vocal critics of amateur authors and consider the ways in which the Qing state's cultural policy over the eighteenth century shaped the now-marginalized field. Chapter 5 describes the commodification of the wholesale and retail trades of pharmaceuticals since late Ming times and assesses the contribution of mercantile actors to the overall discourse of pharmacy. Chapter 6 ends the book by considering the marginal literati authors whose knowledge of exotica drew from both official sources and the marketplace. Qing China entered the nineteenth century with not one but many competing claims to knowledge that would trigger a new round of negotiation over pharmaceutical objecthood in the modern era.

One last note before we proceed to the chapters. The writer Katherine White (1892–1977, married to E. B. White) reviewed mail-order gardening catalogs for the *New Yorker* in the 1950s and 1960s. Like her, I found myself more interested in the human actors responsible for creating catalogs of pharmaceuticals than in how to use the pharmaceuticals themselves.[56] It is not my purpose here to vouch for the efficacy of the substances deployed by my historical actors, nor am I qualified to evaluate their pharmacological mechanisms. I do hope that the historical analysis presented in this book might shed new light on protracted debates over TCM, and I offer some preliminary thoughts in the epilogue.

In this book, I refer to pharmaceutical materials by their common names in English wherever possible (e.g., ginseng [*renshen*], rhubarb [*dahuang*], aconite [*fuzi*]), in consultation with Shiu-ying Hu's guide to Chinese materia medica. In doing so, I hope both to minimize cluttering of the prose and also to offer leads for readers interested in the technical details. Dates for Chinese dynasties discussed in this book and Ming-Qing reign eras, as well as a table of conversion for Chinese units, are provided in the appendix for reference. Unless otherwise noted, Chinese names are mentioned with family names preceding given names. Authors of secondary sources in Chinese or Japanese are mentioned in the notes with their full names, and in the bibliography with original characters.

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