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The Work of the Chinese Physician-Pharmacist in He Bian's Know Your Remedies

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PHARMACY IN HISTORY Volume 62, Numbers 3 & 4 (2020)

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Editor's Introduction

by Lucas Richert

This issue of *Pharmacy in History* is dedicated to the memory of Professor Glenn Sonnedecker, who died on June 26, 2021. A trained pharmacist and historian, he led the field from the 1950s to the late 1980s and was the founding editor of this journal in 1959. His was a pioneering mind, and he was a model of hard work. He was dedicated to the mission of advancing the knowledge of the history of pharmacy and medicines, both within the American Institute of the History of Pharmacy and the UW–Madison School of Pharmacy. Glenn was a regular source of conversation in the AIHP offices and that will not change. He will be missed.

In another way, this issue marks the end of one chapter and the beginning of another. Over the past sixty-odd years, since 1959, AIHP's journal of record has self-published. Glenn Sonnedecker, followed by John Parascandola, John Scarborough, and then Greg Higby, produced *PH* in house. That practice, however, concludes here. From 2021, the journal, newly renamed *History of Pharmacy and Pharmaceuticals*, will be published in partnership with the University of Wisconsin Press. One chapter closes, another opens.

This final issue of *Pharmacy in History* is filled with rich and diverse content. Indeed, it exemplifies the broad history of pharmacy and pharmaceuticals tent. A variety of geographical locations, time periods, approaches, and languages are on show in these pages. Ranging widely from ancient India and the Arab world, to the Netherlands, to post-Soviet Eurasia, and North America, the stories in this *PH* are, overall, eclectic and fun, as well as poignant and commemorative. Readers will learn about insulin's history, which is familiar to many and certainly generates useful debates about pricing and availability in the American medical marketplace. Readers will also learn about snakestones and other exotic pharmaceuticals, as well as ancient Indian medicine, which are not well known at all, but remain eminently captivating topics. Not only that, these pages are multi-lingual, drawing on Arabic, Chinese, Dutch, German, Italian, Latin, Russian, Ukrainian, and other languages.

In "Insulin at 100," Katherine Badertscher and Christopher Rutty, take a recognizable and often repeated case study in medico-scientific history and, using documents from the Eli Lilly Corporate Archives, offer a perspective that underlines the university-industry collaboration and the nature of insulin "innovation" as opposed to "discovery." It is a fitting piece of scholarship to mark the one hundredth anniversary of insulin's discovery and challenges readers to contemplate the virtues of pharma companies—before there was a Big Pharma—in scaling up lab-based discoveries to mass produce medicines for wider public health purposes.

Rachael Pymm, meanwhile, narrates a history of, and debate around, snakestones as a way of better understanding the Royal Society's mediation of scientific and medical knowledge in the seventeenth century, as well the boundary of pharmaceutical *exotica*. The article's narrative traverses Indonesia, The Netherlands, and the United Kingdom, and its characters are richly and wittily drawn. Pymm, to her credit, injects the theoretical concept of "weak ties" into her analysis, which forces consideration of how exactly medico-scientific knowledge was transmitted in the 1600s.

Turning eastward, Katarzyna Jarosz places a spotlight on under-researched and in some cases unknown pharmacy museums based in former Soviet countries. Her approach is not narrative; instead, she recounts valuable information about the interiority of pharmacy museums in the Ukraine, Lithuania, Latvia, Azerbaijan, and Tajikistan. In doing so, Jarosz helps identify gaps and future areas of research in the history of pharmacy and pharmaceuticals. One can only look forward to novel and archivally-based histories of pharmacy and pharmaceuticals from the countries she examines.

Finally, Oliver Kahl, in translating eleven fragments of an Ayurvedic text from Arabic to English (for the first time), reveals the gendered nature of medical and pharmaceutical knowledge. This article, which harkens back to many similar and earlier publications in the pages of *Pharmacy in History*, is a meticulous piece of scholarship that relies on fluency in several languages and disciplines, including archaeology, classics, and pharmaceutical history.

The concluding sections of this journal include a robust review essay by Sarah Schneewind, the recurring Conversations feature, which centers on an informative interview with pharmaceutical historian David Herzberg, and Visual Pharmacy's focus on Plastod in Italy. Again, the material here is topically and geographically diverse, a quality we at *PH* are proud of.

To close this issue of *Pharmacy in History* and to honor Glenn Sonnedecker, the final section is a memorial to him—and from those who knew him well. Dave Cowen's 1973 article, "Glenn Sonnedecker as Historian," is a glorious tribute to his accomplishments and leadership. Ernst Stieb's 1977 AIHP Presidential Address reflects on Sonnedecker in a personal and often funny way. "I Remember When. . ." goes behind the curtain and illustrates the human side of not just Glenn, but other notable figures in the history of AIHP. Lastly, Holger Goetzendorff's review of Sonnedeckers's publication list, which includes a brief biography, will act as a useful resource for others and also exemplifies the sheer heft of Glenn's academic contributions over the years. He was a leader, to be sure, but he was also a prolific writer and scholar.

In gathering, reviewing, editing, and formatting the materials for this final issue, it was enjoyable to occasionally reflect on the venerable history of AIHP's journal. This reflection was heightened even further with Glenn's death in late June as the production and layouts were being finalized. Thank you to all the editors, especially Greg Bond, and other staff at the Institute. I appreciate that former editor John Parascandola took the time to write up a reflection on *PH*. Gratitude must also be extended to the AIHP's Board of Directors. Most importantly, and as I have expressed before, the journal's peer reviewers must be singled out and celebrated for the service that they provide.

With this last issue of *Pharmacy in History*, it's fitting to end with one of George Urdang's principles. A co-founder of AIHP and intellectual leader in the history of pharmacy, as well as someone who understood new beginnings all too well, he argued that Institute activities ought to strive to make "the historical record of world civilization as complete as possible." While the name *Pharmacy in History* ends here, the struggle to meet Urdang's idealism continues its evolution.

Review Essay

The Work of the Chinese Physician-Pharmacist in He Bian's *Know Your Remedies*

*by Sarah Schneewind**

Abstract: He Bian's 2020 book *Know Your Remedies: Pharmacy and Culture in Early Modern China* analyzes many dimensions of the path to the development of the eighteenth-century "traditional Chinese pharmacy." This essay draws on the book and some of its primary sources to add yet another dimension. It deploys the sociology of occupations developed primarily by Everett C. Hughes and his students to further analyze the division of labor between physicians and pharmacists that Bian shows developing over the course of the Ming period (1368–1644). This essay explains concepts including technique and object of technique, practitioner and client, purpose and output, guilty knowledge, dirty work, license and mandate, and code and policy, and applies them to Bian's treatment of the occupations of physician, pharmacist, scholar-official, and merchant—and the interactions between them.

Keywords: Ming, China, physician, pharmacist, occupational sociology, Everett Hughes

He Bian's *Know Your Remedies: Pharmacy and Culture in Early Modern China* offers a history of Chinese knowledge of the plants, animals, and minerals used to make medicines (materia medica), particularly in the fifteenth through seventeenth centuries. Medicine was culturally central, Bian argues, so that studying these changes illuminates "a sea change" in "Chinese approaches to knowledge."[1] The changes included who claimed to know what, what they did with that knowledge, and the social acknowledgement or denial of those claims to authority. Bian presents these changes as passages in the histories of knowledge, book production, commercialization, and central-state retreat. This essay further analyzes her findings using the sociology of occupations, focusing on a new division of labor among medical occupations and related changes in the occupations of the merchant and scholar-official (or civil official, drawn from the literati, who were mostly of gentry origins).

Bian stresses two themes that align well with the sociology of occupations. First, she regards commercialization and other large-scale developments not as inevitable but as stemming from people's choices.[2] This essay will elaborate on how the rise of a new occupation (the "traditional" pharmacist) and changes in old occupations (physician, merchant, official) resulted from workers' reactions to stresses, strains, and opportunities in the social drama of work. Second, Bian follows materia medica

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1. He Bian, *Know Your Remedies: Pharmacy and Culture in Early Modern China* (Princeton: Princeton University Press, 2020), 1. Digital version of the book available: https://doi.org/10.23943/princeton/9780691179049.001.0001.
2. Bian, *Know Your Remedies*, 51.

"to discern patterns of cultural change without necessarily prioritizing one group's knowledge over others."[3] The sociologist, too, treats occupations equally, finding similar phenomena in different lines of work. Sociologists can talk to their subjects and engage in participant-observation. Historians cannot, but sociologists' insights can be applied for the analysis of historical sources.

From Physician-Pharmacist to Physician vs. Pharmacist in *Know Your Remedies*

He Bian narrates a complicated shift away from a knowledge of medicine that encompassed the entire natural world and was expressed in pharmacopeias (bencao 本草) first issued by the central government in about AD 650.[4] By 1800, medical practice and knowledge had fractured. Doctors prescribed, while for-profit pharmacies handled materia medica, both filling doctors' prescriptions and selling patent medicines. Bian explains, "the fragmentation of bencao knowledge and the ascent of traditional pharmacies were two sides of the same coin historically."[5]

The changes stemmed from state action and economic development, but also occupational competition. In Song times (960–1276), as paintings illustrate, physicians both diagnosed and prescribed in small shops. Song commerce gave doctors an extensive menu of drugs supplied by local collectors, market fairs, and their own gardens. From about 1200 until sometime after 1400, doctors ran pharmaceutical chambers as family businesses, with brand names that stressed benevolence. Song doctors also wrote texts and administered examinations on them to select palace physicians—similar to the selection of civil officials. Civil officials, for their part, respected the expertise of physician-pharmacists.

The Yuan government (1276–1368) recognized "medical households" as one of many hereditary tax categories. Physicians still both diagnosed and dosed, and the most successful members of hereditary medical families "attracted literati advocates, established long-standing family reputations, and even occupied key governmental positions."[6] They were distinct from scholar-gentry households, but not dramatically inferior to them in social prestige. The Ming dynasty (1368–1644) initially hired hereditary physicians to staff local medical schools and county-level charitable pharmacies so that some physicians were still recognized by the state and looked up to by Confucian scholars.[7]

In the mid-fifteenth century, however, civil officials fought to increase their own purview at the expense of physicians and other experts. Their aggressive "amateurism" claimed that Confucian scholars could understand all technology and transcend any particular technical discipline with a superior, holistic understanding of the cosmos.[8] Physicians fought back. Li Zhongzi (李中梓), for instance, compiled an easy-

3. Bian, *Know Your Remedies*, 2–3.
4. Princeton University Press's inadequate glossary omits some basic terms (e.g., *bencao*) and prominent names, like Miao Xiyong.
5. Bian, *Know Your Remedies*, 4.
6. Bian, *Know Your Remedies*, 31–32.
7. Bian, *Know Your Remedies*, 32.
8. Bian, *Know Your Remedies*, 14–15, citing Francesca Bray, "Chinese Literati and the Transmission of Technological Knowledge: the Case of Agriculture, in *Cultures of Knowledge: Technology in Chinese History*, ed. Dagmar Schäfer (Leiden: Brill, 2012), 299–325, https://doi.org/10.1163/9789004219366_019; and Angela Leung, "Organized Medicine in Ming-Qing China: State and Private Medical Institutions in the Lower Yangzi Region," *Late Imperial China* 8, no.1 (June 1987): 134–66, https://doi.org/10.1353/late.1987.0003.

to-use list of only 140 drugs to sever practical healing from the cosmic mission and to delimit the parts of the pharmacopeia physicians actually needed. He wrote that "Confucians like to self-aggrandize and put physicians into the Nine Currents [of minor professions]."[9] Bian sums up his point: "How can one expect effective cures if physicians were so dismissed and disrespected?"[10] The occupational competition is clear.

A 1636 work by Portuguese Jesuit Álvaro Semedo (1585/6–1658), resident of Ming and Macao, described for European readers how late-Ming doctors carried medicines to prescribe and provide immediately.

> Physicians . . . give the medicine themselves to the patient whom they visit, And all is done at the same visit, therefore the Physician hath always following him a boy, carrying a Cabinet with five drawers, each of them being divided into more than fourty [*sic*] little squares; and all of them furnished with medicines ready ground and prepared.[11]

By contrast, in Qing times (1644–1911), doctors did not mix their own medicines; they only prescribed them. And pharmacists freely admitted that they did not know about bodies, they only filled prescriptions. By 1800, in Chinese cities, labor was divided

> between physicians, who prescribed without dispensing medicine, and pharmacists, who were connected to a national market and manufactured compound cure . . . The communities of wholesale dealers, brokers, shop owners, and their apprentices replaced the small-scale operation of medical households in earlier times.[12]

As a late eighteenth-century Japanese work put it, "There is absolutely no such thing as medicines dispensed from the physician. No matter how grave and acute the illness is, physicians do not bring their own medicines"—*unless* they are working far out in the rural areas where there are no pharmacies.[13]

Conversely, pharmacists explicitly disclaimed knowledge of doctoring and instead specialized in selling drugs in the mature market economy, setting up "dispensaries of compound medicine" and even "market[ing] their name-brand products nationwide."[14] Their shops—"the traditional pharmacy"—"out-competed the businesses run by individual physicians in dispensing compound medicines."[15] In the new, Qing division of labor, physicians prescribed and pharmacists dispensed.[16]

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9. Bian, *Know Your Remedies*, 100. Yet Li Zhongzi accepted the superiority of the scholarly approach: he expressed frustration that his "expert skills" (*zhuanmen xue* 專門學) made him no more than a "master physician" unable to investigate cosmic and political questions.
10. Bian, *Know Your Remedies*, 100.
11. Fr. Alvaro Semedo, *The History of that Great and Renowned Monarchy of China* (1636; reprint London: E. Tyler, 1655) part 1, p. 56, quoted more fully in Bian, *Know Your Remedies*, 126.
12. Bian, *Know Your Remedies*, 150.
13. Bian, *Know Your Remedies*, 126–27.
14. Bian, *Know Your Remedies*, 127.
15. Bian, *Know Your Remedies*, 128.
16. Bian, *Know Your Remedies*, 150.

Technique and Object of Technique

The members of any particular occupation are called "practitioners." Sociological analysis begins by specifying three things: "technique," or practitioners' repertoire of skills and knowledge; the "object of technique," or what the practitioners work on; and clients, or who the practitioner works for.[17] Table 1 summarizes the changes in the Chinese medical marketplace during the time period of Bian's study.

Table 1: Shifts that Created the Traditional Pharmacy			
	c. Pre-16th Century Physician-Pharmacist	*c. 18th Century Physician*	*c. 18th Century Traditional Pharmacist*
Technique	Diagnose disease	Diagnose disease	
	Prescribe cure, including medicine	Prescribe cure, including medicine	
	Acquire materia medica		Acquire materia medica
	Compound medicines		Compound medicines
	Run business	Run business	Run business
Objects of Technique	Disease	Disease	
	Human body	Human body	
	Materia medica		Materia medica
Client	Patient and patient's family	Patient and patient's family	Patient and patient's family
			Physician

Merchants also entered the picture as materia medica multiplied, as materials came from farther away, and as the state withdrew from its role in collecting materia medica as tribute and redistributing them as gifts or commodities. Bian writes:

> We hear hardly any testimony from the numerous middlemen who took part in buying and selling thousands of ingredients, sourced from different regions of China and distant foreign lands. One could argue that the claim to universality of the *bencao* pharmacopeias hinged precisely on the deliberate omission of fluctuating cost, price, human labor, and the pursuit of profit.[18]

Nevertheless, parts of merchant technique around pharmaceuticals do appear in "The Making of a 'Medicinal Wharf'" section of Chapter Five. Merchants procuring and distributing materia media in the sixteenth through nineteenth centuries meant:

- knowing where one of thousands of plants grew;
- being able to reach that place and carry the plant out;

17. Everett C. Hughes, "Personality Types and the Division of Labo," chapter 2, in *Men and Their Work* (Glencoe, IL: The Free Press, 1958), 35.
18. Bian, *Know Your Remedies*, 128.

- harvesting the plant at the right time and in the right way;
- storing and transporting the plant so that it was still fresh (or dried appropriately, according to its individual requirements);
- knowing the right place to sell the plant, and the right price;
- competing against other sellers for business and working with brokers;
- knowing the trade routes and how to hire and manage boatmen, porters, warehouse owners, and others;
- managing relations with the communities that merchants traveled to;
- and, of course, managing relations with those ever-present, troublesome parasites: government officials and their staff members.

In the earlier period, some of these tasks would probably have been part of the physician-pharmacists' technique. In the later period, some of these tasks became technique of pharmacist shop owners; and some tasks, which had been government technique, became merchant technique.

In addition to gathering raw materials, the process of turning materia into medicines is a vital part of the medical marketplace. Each of the thousands of materials and substances derived from plants, minerals, and animal (even human) sources, required proper treatment. An illustration from 1591 [Figure 1], showing a master pharmacist overseeing a staff of nine men, demonstrated the variety of tasks pharmacists needed to master. The men in the illustration seem to be:

- boiling over an iron, pot-bellied stove;
- steaming over a square, earthen stove;
- gently mixing without heat;
- shaking and sifting;
- grinding with roller (or perhaps cutting into strips with a rolling blade);
- gently mixing over heat;
- pounding with a pestle requiring two arms, in a heavy mortar;
- cutting into precise lengths with a hinged, paper-cutter style blade; and
- rinsing and working with the hands as one does rice.

Bian discusses even more ways that raw materials became drugs.[19]

As the number of available drugs increased, it would not have been reasonable for doctors—who needed to understand the (also increasing) complexities of the human body—to know the time, location, nature of disease, etc., to diagnose illnesses, to prescribe treatment, and *also* to have to know the right preparations for hundreds of different medicines. Even if civil officials had not attacked physician-pharmacists, some division of labor probably would have arisen as medical knowledge increased.

19. Bian, *Know Your Remedies*, 123, 165–69.

Figure 1. First page of Anon., Master Thunder's Discourse on Pharmaceuticals 補遺雷公炮製便覽 *(1591), from He Bian,* Know Your Remedies *(page. 43), demonstrates some processes of preparing medicines.*

Dirty Work and the Master Physician

After understanding technique, sociologists study social relations—the social drama of work. Much tension swirls around the simple fact that the practitioner has knowledge, and the client does not. Precisely because of the ignorance that sends him to the practitioner in the first place, the client is unable to judge whether he is being overcharged. When hiring a physician-pharmacist, a patient or his/her family would pay twice, I gather: once for the diagnosis and once for the drugs. Thus, Tang poet Zhang Ji (張籍) (c. 766–c. 830) complained about "being overcharged by 'physicians of the pharmacies'" in about 800, and gentry compilers of later pharmacopeias also warned against wicked and conniving pharmacists, offering their compilations to help patients avoid being cheated.[20] Physicians had to make a living, however, and while medicines were expensive, they were also a concrete item that could be sold to supplement the consultation fee. This created additional tension between the practitioner and the client. Moreover, figuring out how much to charge and, in particular, prescribing a very expensive medicine and then charging for it was, for the physician,

20. Bian, *Know Your Remedies*, 129, 127.

probably "dirty work": a task necessary to the occupation but which injures the practitioner's highest conception of himself.[21] Aspects of the interaction made both client and practitioner uncomfortable.

Bian seems to express a certain anti-business view when she writes that the "labor and entrepreneurship" hidden by the pharmacopeias was carried out by people "whose foremost concern had always been the wellness of their own businesses."[22] Every organization has both "purpose"and "output," and co-workers may hold different views about what those are.[23] Pharmacies' stated purpose was to provide highly efficacious cures through properly sourced and compounded medicines; while their output also included livelihood for the hired hands, profit for their owners, and catalogues that boosted their reputations and brought in customers.[24] Physicians and pharmacists, though motivated by the desire to heal, still had to support themselves.

A key figure in the developing division of labor between physician and pharmacist is the highly-educated Ming doctor Miao Xiyong (繆希雍) (1546–1627). Known for his new explanation of a classic on materia medica, Miao was born into a gentry family and worked as a doctor from about the late 1580s in the wealthy Yangzi delta. A "master physician," Miao diagnosed diseases and healed them, as Bian reports based on a local gazetteer, "without bringing a bag of medicine."[25] Miao insisted "on building a medical practice that was detached from the proprietary concerns of shopkeeping, while claiming superior understanding of the nature of drugs that led to clinical success." [26] Bian connects this strategy and the texts that Miao and others in his place-time published with the aggressive amateurism of gentry, who learned from him how to set up rooms in their homes where servants mixed medicines.[27] She concludes that recording knowledge about compounding medicine "was motivated by a combination of practical and philosophical interest among elite patients, not professional standardization."[28]

His clients may have been amateurs, but Miao was a professional doctor—one who made his living that way. First, he acted the part. As a classic sociological study of medical residents says, "In training for medicine . . . one must also be initiated into the status of a physician; to be accepted, one must have learned to play the part of a physician in the drama of medicine."[29] Describing Miao's theatrics, Bian writes, "At heart still an esoteric magician, Miao Xiyong impressed [the scholar-official Donglin partisans] not only with his display of medical virtuosity but with his promised mas-

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21. Everett C. Hughes, "Work and the Self," in *Men and Their Work* (Glencoe, IL: The Free Press, 1958), 49–54.
22. Bian, *Know Your Remedies*, 128.
23. Louis Kriesberg, "Internal Differentiation and the Establishment of Organizations," in *Institutions and the Person: Essays Presented to Everett C. Hughes*, ed. Howard S. Becker, Blanche Geer, David Riesman, and Robert S. Weiss (Chicago: Aldine Publishing Co., 1968), 141–43.
24. Bian, *Know Your Remedies*, 148–49.
25. Bian, *Know Your Remedies*, 84. The block quotation from Qian Qianyi (錢謙益) (1582–1664), however, says that Miao, emerging from his meditative act, "put together some medicines" or as Bian translates in her dissertation "proceeds to . . . grab some medicines." He Bian, "Assembling the Cure: Materia Medica and the Culture of Healing in Late Imperial China," (PhD diss., Harvard University, 2014), 87, accessed May 25, 2021. http://nrs.harvard.edu/urn-3:HUL.InstRepos:12269850.
26. Bian, *Know Your Remedies*, 84.
27. Bian, *Know Your Remedies*, 81, 84.
28. Bian, *Know Your Remedies*, 85.
29. Howard S. Becker, Blanche Geer, Everett C. Hughes, and Anselm L. Strauss, *Boys in White: Student Culture in Medical School* (Chicago: The University of Chicago Press, 1961), 4.

tery over the nature of drugs."[30] Second, Miao had clients (not just friends), who recompensed him for his special activities with money, goods, or services that contributed to his livelihood. Third, he had at least one paying apprentice, "a young disciple who also covered his [Miao's] lodging expenses."[31]

Miao was indeed responding to the feelings of patients. He was not only dazzling them with theatrics but also responding to the swirl of social anxieties around payments for medicines. To ease relations with clients, Miao distanced himself from the business of selling drugs, by removing suspicion that he might misuse his knowledge to prescribe expensive drugs or overcharge for medicine. Giving up the medicine bag meant pushing away the dirty work of charging for medicines.

Daoist Li and the Business of Business

He Bian introduces an interaction between two medical professionals in a late-Ming short story by writing, "It was physicians, not pharmacists, who frequently became popular targets of ridicule in late Ming literature." She argues that the short story in question presents a drug wholesaler as superior in status to a doctor, because the doctor must buy drugs from him: "the trader laid bare the fact that physicians relied on him for supply of their pharmaceutical chambers, and that he alone had claim on the latter's debt."[32] This amounts to ridicule, she argues. But the story, "Daoist Li Enters Cloud Gate Cave Alone," in my view, presents the two occupations as naturally cooperating.

Our hero, Li Qing, a wealthy owner of a dye mill, enters a Daoist paradise, but is soon expelled with only a thin book of pediatric prescriptions. Back in the world but long after his own time due to a Rip van Winkle effect, Li recognizes immediately that he should open an herb store for pharmaceuticals. But he has never set foot in such a shop nor does he have any capital. So, he says, "I'd better go to a pharmacy shop (*yao pu* 藥舖) to consult an experienced person (*cheng ren* 成人) before I decide what to do next."[33] The pharmacy (or herb store) he finds features a "whitewashed signboard on which was written, 'Mr. Jin's ancestral family store selling dried processed medicinal herbs from Sichuan and Guangdong.'" The proprietor, Big Brother Jin, about twenty-years old, is sitting in his shop. Li Qing first asks whether he takes only cash or operates on credit. Pharmacist Jin's response shows that he has two types of customers. Patients themselves pay cash. Although the story does not clarify whether patient prescriptions came from a doctor or a book, or whether Jin sells patent medicines as well as raw materials, these clients do *not* ask Jin to prescribe for them. Secondly, he has regular customers, "physicians who practice in shops." If he is out, and someone else is minding the shop, these customers take what they need, leave Jin a note, and settle up every quarter or every month.

Li Qing sets up as a physician who practices in a shop. Not wanting to mention the Daoist paradise, he explains to Jin that he is a pediatrician who once "carried a bundle and made the rounds of the villages. Now that I'm getting old, I'd like to open an herb store and have the patients come to me." This matches what Semedo, the Por-

30. Bian, *Know Your Remedies*, 93.

31. Bian, *Know Your Remedies*, 84.

32. Bian, *Know Your Remedies*, 134.

33. Feng Menglong (馮夢龍) (1575–1646), *Xingshi hengyan* (1620), story 38, accessed through Airusheng; the translation in Shuhui Yang and Yunqin Yang, "Daoist Li Enters Cloud Gate Cave Alone," in *Stories to Awaken the World* (Seattle: University of Washington Press, 2009), 886–914; and He Bian's translated snippets. Yang and Yang translate *cheng ren* as "experienced physician" but the original does not say "physician."

tuguese Jesuit, and Bian wrote about a rural/urban divide in the provision of drugs. Li's explanation does show a separation between drug traders who supply doctors and doctors themselves. But it does *not* show a difference between pharmacists who fill doctors' prescriptions for patients and pharmacists who sell to doctors. We should not expect that difference at this time (a decade before Semedo's observations). Jin the pharmacist (Bian suggests that he begins to fit that category) sells some retail drugs to patients who know what they need, but his steady business is wholesaler. The doctor, Daoist Li, depends on the wholesaler for his stock, and he both prescribes and sells drugs. Li buys his drugs from Big Brother Jin, and he directly prescribes according to the Daoist book. He may *perhaps* also issue prescriptions according to the complicated set of considerations he lays out for disciples.[34] In this story from about 1620, we can, therefore, see the beginning of the pharmacist/physician separation according to the client and the object of technique. Pharmacist Jin's clients are both patients (or family members) and doctors, and his object of technique is the materia medica alone; physician Li's clients are patients or the family members paying the bill. His primary object of technique is the patient's body.

Considering the sources of medical material, however, it is unlikely that doctors gathered all their own medicines even during the Tang era (618–907). Raw materials for drugs came from a number of (mostly northern) places. If medicine had been the same everywhere, there would have been no need for special tribute allocations to the central government. Even for materia medica acquired from the state, doctors could not guarantee that it was authentic or that it was fresh or dried properly for shipment, etc. So, the separation between those who gathered and distributed materia and those who prescribed drugs cannot have been new in Ming China. Nor could it have been new for doctors to rely on others for quality medicines—contrary to Bian's suggestion that the sixteenth century "posed new questions for the physicians' ability to maintain good quality for the material remedies they dispensed."[35]

What *was* new was the middle-man of the wholesale shop, which saved the physician from dealing directly with merchants, officials, or local gatherers. This change—far from being a hindrance to the physician—spared him some of what he might well have seen as the dirty work of haggling over each and every price. That work was now offloaded onto the middle man, who did not get the credit of the cure even if his medicines effected it. This seems to follow the pattern identified in occupational sociology of a high-status profession (like a physician) pushing dirty work down the occupational hierarchy to a lower status occupation (like pharmacist).[36]

Returning, then, to the question of profit: Bian notes correctly that the wholesaler, Big Brother Jin, "alone had claim on [Li's] debt." Bian presents the physician's temporary debt as degrading and as a signal of ridicule by the author reflecting larger social denigration. But this is just how business transactions work. Individual patients, unlike regular doctor clients, did not have the privilege of owing Jin money—still less of waltzing into the store, taking what they needed, and leaving a note—patients had to pay up front. Jin, who rents Li a room and supplies his initial equipment, describes the arrangement: "Wouldn't that be convenient (*bian* 便) for both of us?" So it is with their whole relationship. It is no more lowering for a physician to owe money to a

34. Yang and Yang, "Daoist Li," 904–5. The considerations match those of Yuan-era physicians, see Bian, *Know Your Remedies*, 29.

35. Bian, *Know Your Remedies*, 134.

36. David N. Solomon, "Sociological Perspectives on Occupations," in *Institutions and the Person: Essays Presented to Everett C. Hughes*, ed. Howard S. Becker, Blanche Geer, David Riesman, and Robert S. Weiss (Chicago: Aldine Publishing Co., 1968), 9.

wholesale pharmacist than for a literatus to owe money to a bookseller. What Bian calls an "indeterminate tension between medicine and the marketplace"[37] is simply native to all medical (and other) occupations for deeper reasons.

Civil Officials vs. Physicians: License and Mandate

Occupational sociology distinguishes two kinds of "license." First, a government imprimatur grants the right to practice. The Song state's exams for palace physicians might approach this type of license.[38] The second type is "social license." Many physicians and other healers throughout Chinese history acquired "social license," which meant laypeople (everyone outside the occupation) agreed, for example, that physician-pharmacists could cure through their knowledge of medicine and the pharmacopeia. (But since there were so many kinds of healers, no one healing occupation had a monopoly. This is watered-down license).

Social license meant that laymen permitted physician-pharmacists to pronounce about how to save one's health or one's life, and to prescribe and issue remedies that might save one's health or life. But, due to doctors' specialized knowledge, those same actions might (and how could the client know?) also endanger a patient's life. This is one of the various kinds of "guilty knowledge," so named because it would be suspicious if anyone *not* in a socially-licensed occupation knew it. In fact, laypeople often maintain suspicions even when they must trust the practitioner with their health or life.[39]

Many occupations have license—society agrees that they know best how to carry out certain activities. Fewer occupations, however, have a social "mandate": social permission to tell others how to think. License let physician-pharmacists tell patients what was wrong with their bodies. "Mandate" meant laypeople agreed that physician-pharmacists could also properly instruct everyone how to think about health and disease and about how the body and cosmos related.[40] Bian's narrative, however, shows that civil officials in the mid-fifteenth century began to contest this mandate. They argued that "The proper way of looking at things was to look *through* them without holding on to any sensual distractions."[41] Experts could not then properly tell literati scholars how to think about their areas of specialization. This denied physicians' mandate. Further, literati "amateurs" claiming deep and broad knowledge about medicine tried to deny license to doctors. This constituted occupational competition.[42]

Despite this power struggle, patients apparently continued to grant physician-pharmacists license and mandate. By hiring a specialist, clients outsourced the psychological burden of anticipating mistakes and taking blame.[43] The physician-phar-

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37. All quotations in this paragraph are from Bian, *Know Your Remedies*, 134.
38. Bian, *Know Your Remedies*, 27.
39. Everett C. Hughes, "License and Mandate," in *Men and Their Work* (Glencoe, IL: The Free Press, 1958), 80. Everett C. Hughes, "The Study of Occupations," in *On Work, Race, and the Sociological Imagination*, ed. Lewis A. Coser (Chicago: University of Chicago Press, 1994), 26.
40. Hughes, "License and Mandate," discusses license, mandate, and guilty knowledge.
41. Bian, *Know Your Remedies*, 81.
42. The same elite men who preferred complicated texts also sponsored and purchased simple lists of drugs, and "their boats and carriages ceaselessly docked at [Li Zhongzi's] door." Bian, *Know Your Remedies*, 100–101. Their contradictory behavior reflects two different social roles. As scholar-officials, they sought to increase their own occupational mandate and challenge that of others. As patients and clients, they sought healing.
43. Everett C. Hughes, "Mistakes at Work," chapter 7 in Everett C. Hughes, *Men and Their Work* (Glencoe, IL: The Free Press, 1958), 91.

macists' necessary possession of guilty knowledge gave rise to at least two separate client worries reflecting social discomfort about profits and about poisons. I discussed worries about profits above. The next section turns to poisons.

Guilty Knowledge and Poison

The physician-pharmacists' guilty knowledge created the fear that they could, carelessly or wickedly, harm patients instead of healing them. A key example is the case of imperial physician Liu Wentai (劉文泰). Bian narrates how Liu and the chief palace eunuch had just finished the manuscript of a beautiful new pharmacopeia to be issued under the imperial seal when their patron, the Hongzhi emperor, died at age 35. Civil officials—who had earlier refused to assist Liu with proofreading—accused Liu of killing Hongzhi by mis-prescribing drugs and of having killed his father before him. Although Liu was not executed, civil officials continued to spread rumors and stories about him for a century. Any real evidence of regicide would have doomed Liu, so civil officials had to explain his escape from punishment with scurrilous insinuations about the empress's favor. Bian shows that the episode was, immediately, a professional conflict "between scholar-officials and technical experts" and, in the longer term, an outcome of the centuries-long decentralization of pharmaceutical knowledge.[44]

But while those factors account for the *fact* of the case, they do not account for its *form*. Why did the civil officials graphically portray Hongzhi "on his deathbed, begging for water, his nose bleeding from excessive heat, with Liu refusing to let him drink"? Why did they accuse Liu of prescribing hot-natured medicine inappropriate to the summer months? Why did they accuse him of killing the previous emperor in a similar way? And, beyond the specificity of the malpractice, why did these stories make sense to the public audience? I speculate that the stories expressed social anxiety around guilty knowledge. Clients often feel uneasy about their lack of knowledge that requires dependence on specialists. Doctors demand full trust, and patients want to grant it, but they cannot quite do so precisely because of physician's powerful, esoteric knowledge. This episode suggested that even emperors were, ultimately, thought to be at the mercy of physician-pharmacists' guilty knowledge.

The Liu Wentai story teaches us something else, too. In later, Qing times, it was thinkable that providing the wrong drugs (the pharmacist's business) was a greater danger than mis-diagnosis or mis-prescribing drugs (the doctor's business). By outsourcing the preparation of medicines to pharmacists, physicians pushed the dirty work of charging for drugs down the occupational hierarchy and also spread the risk of mistakes more widely. The newly-created occupation of the non-doctor pharmacist faced significant risks from public perceptions about the misuse of guilty knowledge. At the same time, the pharmacist worried about making mistakes at work. The risks and emotions swirling around such occupational mistakes are a central driver of the social drama of work.

Sociologist Everett C. Hughes observed that occupations with no choice but to run great risks with a high probability of fateful errors developed rituals. As long as the ritual—part of technique and code (regulations determined by the occupation itself)—was carried out properly, he argued, practitioners and their colleagues considered the job to have been done correctly; even if the outcome was not what the client wanted. Hughes noted, in particular, that "Pharmacists are said often to become ritualistic wipers and polishers, flicking infinitely small grains of dust from scales on

44. Bian, *Know Your Remedies*, 23–24.

which they are only going to weigh out two pounds of Paris green."[45] If the patient is not healed or is harmed, the pharmacist who can say, "My work area is organized and clean; I read the prescription twice; I checked the patient's identification; I checked that the materia were fresh and clean; I cleaned the scale; I followed the doctor's prescription to the letter, to the microgram" is off the hook—not merely in the eyes of the public but also in the eyes of his colleagues and in his own conscience, which might be the harsher judge.

Ming and Qing people both relied on pharmacists and distrusted them as potential poisoners. Contemporary jokes demonstrated that patients worried about the safety of pharmacists' concoctions:

> A pharmacist has a hard time selling his drugs, whether raw or cooked. As an alternative, he boils some herbal drinks for sale. From morning til night, no customer comes. In despair, he laments: "Why do I keep on living while there is absolutely no business?" He thereupon takes the herbal drink and gulps it down himself.[46]

As Bian shows, Qing pharmacists responded to this public distrust and to the risk of making mistakes at work with "code"—internal rules and procedures of the occupation—and "policy"—the public face of the occupation. First, catalogs of mid-eighteenth-century pharmacies, she argues, adopted a "rhetoric of piety and humanity."[47] Second, after drug preparation was divided from diagnosis and prescription, the pharmacy owner emphasized two factors that allowed him to "vouch for the efficacy of what he sold to the customers." If a drug failed, the reasoning went, "the problem must have been either the quality of ingredients or the process of compounding," so pharmacists promised clients:

> "[We] follow the *Recipes at Hand*, and distinguish the products' places of origin; complex as the pharmaceutical procedures are, we never spare our labor. Costly as the ingredients are, we never compromise on the material expenses. Gods and ghosts will judge us, and our products will respond to all sorts of illnesses."[48]

According to this code developed within the occupation, pharmacists fastidiously prepared authentic ingredients. By publicizing this code, they used it as policy—that is to represent themselves to others. To dramatize their sincerity, they called upon gods, ghosts, and, in another quotation, "Heaven," to bear witness. Another shop promised that authentic ingredients would be "expertly handled to perfection."[49] These promises were required not only because of the tough competition among shops (which Bian stresses) but also because the physician's expertise had been banished from the shops. This is code and policy that respond to public suspicions and the fear of mistakes at work.

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45. Hughes, "Mistakes at Work," 97.
46. Translated in Hsu Pi-ching, *Feng Menglong's* Treasury of Laughs *A Seventeenth-Century Anthology of Traditional Chinese Humour* (Leiden: Brill, 2015), p. 118, joke 128, https://doi.org/10.1163/9789004293236. This joke is discussed briefly in Yang Xiaoyue杨晓越 and Yu Xinzhong 余新忠, 医生也"疯狂":明清笑话中的庸医形象探析 [Unqualified Doctors of Traditional Chinese Medicine: Research on Quack Images from Jokes of the Ming and Qing Dynasties], *Historical Research in Anhui* 安徽史學 2017 (01): 63.
47. Bian, *Know Your Remedies*, 149.
48. Bian, *Know Your Remedies*, 148.
49. Bian, *Know Your Remedies*, 148.

Pharmacists explicitly disavowed knowledge of diagnosis and prescription as a third way to protect themselves. Mistakes in those areas, made by doctors, were not their responsibility. Pharmacists said explicitly that they did not practice medicine; they only promised "to ensure the authenticity of our *materia medica* and the appropriateness of pharmaceutical procedures."[50] On Bian's evidence, Qing pharmacists and physicians were not co-workers, were not members of the same institution in any sense, but rather were only loosely joined by the market. Just as physicians set themselves apart from pharmacists to manage social worries about profits, pharmacists set themselves apart from physicians to manage social worries about poisons.

Conclusion

He Bian's masterly *Know Your Remedies* traces the rise of the traditional Chinese pharmacy as a development in the history of knowledge. This article has complemented Bian's work with an analysis from the perspective of occupational sociology. Recounting her basic narrative, I underlined her point that civil officials from the mid-fifteenth century competed with doctors for control of medical knowledge. Using the sociologists' concepts of technique, object of technique, and client, I clarified the bifurcation of what had been a unified physician-pharmacist occupation. Based on a primary source illustration and Bian's description, I pointed out additional aspects of technique that suggests why a ramifying body of knowledge naturally led to a greater division of labor—independent of the shenanigans of civil officials. Distinguishing purpose from output in a careful re-reading of a Ming short story provided a more even-handed treatment of the commercial side of the medical business.

Understanding that, for a healer, charging money constitutes dirty work that wounds the ego provided another angle of vision on the Ming doctor Miao Xiyong's self-presentation as a master physician above financial concerns. License and mandate, which permit the possession and deployment of guilty knowledge, offer a more precise way to understand the occupational competition between civil officials and court physicians. The social-psychological dynamics around guilty knowledge also explain some of the specific claims and disclaimers pharmacists made in their advertisements. They brought occupational code into the public as occupational policy. These valuable sociological concepts allow us to compare different occupations across time and space and to see specific historical developments as part of more general social patterns.

50. Bian, *Know Your Remedies*, 147–49; quotation p. 149.