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RESEARCH ARTICLE

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Between the Living and the Dead: Trauma Medicine and Forensic Medicine in the Mid-Qing

Abstract This paper analyzes the influence of forensic medicine on therapeutic medicine through a case study of Qian Xiuchang and Hu Tingguang, two Chinese doctors who specialized in treating traumatic injuries. During the early nineteenth century, both men compiled medical treatises that sought to improve on a scholarly model of "rectifying bones" articulated in 1742 by the *Imperially-Compiled Golden Mirror of the Medical Lineage*. Both texts also incorporated information from forensic medicine, including official inquest diagrams and checklists promulgated by the Qing government. I show that they drew on these forensic materials to help address two interlinked medical issues: understanding the effects of injury on different parts of the body, and clarifying the location and form of the body's bones. Overall, I suggest that the exchange of ideas between the realm of therapeutic medicine and forensic medicine was an important epistemological strategy that doctors and officials alike employed to improve their knowledge of the material body.

Keywords forensics, trauma medicine, Qing medicine, bone-setting, Qian Xiuchang, Hu Tingguang, *Yuzuan Yizong jinjian*, *Xi yuan jilu*

Introduction

How do you assess an injury when you cannot directly see the affected body part? This was a concern for the doctor Qian Xiuchang 錢秀昌, an expert in treating injuries. In his 1808 text *Supplemented Essentials of Medicine for Injuries* (*Shangke bu yao* 傷科補要), Qian pointed out that "when someone has a dislocated or fractured bone, the bone and joint are wrapped in flesh. Looking at it from the exterior, it is hard to get a clear understanding, and there is the danger of making an error."[1] In China, as elsewhere in the world, there were historically

[1] Qian Xiuchang, *Shangke bu yao*, *fanli*.

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many healers like Qian who treated wounds and traumatic injuries: bashed skulls and snapped legs, contused and lacerated flesh, torn ears and protruding intestines. Such injuries required the doctor to restore the body's structural integrity as well as its healthy functioning. In assessing injuries obscured by skin and flesh, furthermore, Qian and his global counterparts in the pre-X-ray age relied on their expert reading of externally discoverable signs, collated with their knowledge about the forms and functions of the body's normal structure. But where did this bodily knowledge came from?

In the history of Western European medicine, an important source of information came from dissecting dead bodies and extrapolating these findings to the bodies of the living. Prior to the mid-nineteenth century, much of this knowledge had little direct impact on improving general therapeutics; despite some advances in surgery, the limited ability to control pain and infection circumscribed what the surgeon could do. However, many other cultural forces also motivated anatomical study in Europe, and people used knowledge derived from dissection to serve a wide range of artistic, religious, philosophical, scientific, or political ends. In the medical realm, furthermore, access to anatomical training constituted a form of professional capital that different groups of physicians and surgeons used to claim superiority over their competitors.[2]

Chinese chronicles also recorded episodes of human dissection for medical purposes, and some descriptions of the internal organs found in the medical classics were clearly based on dissection.[3] But these were isolated instances, and Chinese practitioners and thinkers did not pursue dissection-based anatomical study for its own sake. As a result, European commentators on Chinese medicine from the seventeenth century onwards opined that although the Chinese had a general sense of the body's components, their ideas of anatomy were inaccurate and confused. Such tropes also became central in Chinese medical modernization movements starting in the late-nineteenth century, when critics of Chinese medicine characterized it as grossly ignorant of anatomy, and defenders countered by arguing that Chinese medicine was fundamentally concerned with

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[2] Recent studies of these dynamics include Andrew Cunningham, *The Anatomist Anatomis'd: An Experimental Discipline in Enlightenment Europe*, and Katharine Park, *Secrets of Women: Gender, Generation, and the Origins of Human Dissection*. Toby Gelfand's case study of French surgeons shows that their pursuit of anatomical study owed much to their desire to transform the identity of surgery from a set of practical skills wielded by expert artisans into a full-fledged medical "science" rooted in liberal studies. Gelfand, *Professionalizing Modern Medicine: Paris Surgeons and Medical Science and Institutions in the 18th Century*.

[3] See for example, Catherine Despeux, "The Body Revealed: The Contribution of Forensic Medicine to Knowledge and Representations of the Skeleton in China"; Li Jianmin, *Si sheng zhi yu: Zhou Qin Han maixue zhi yuanliu*; and Saburo Miyasita, "A Link in the Westward Transmission of Chinese Anatomy in the Later Middle Ages."

physiological function, not anatomical structure.[4] Today, the belief that Chinese doctors did not historically care about bodily structure continues to shape understandings of "traditional Chinese medicine" as a form of alternative and complementary medicine.[5]

However, recent scholarship has deconstructed these stereotypes to show that Chinese doctors were in fact historically interested in questions pertaining to body structure, and that perceptions of structure colored their understandings of healthy and pathological function.[6] Here I will build on earlier work by asking: what non-dissection based strategies did Chinese doctors use to acquire therapeutically relevant information about bodily anatomy, how did they do this, and why? Much has been written about the physician Wang Qingren 王清任 (1768–1831), the author of *Correcting the Errors of Doctors* (*Yi lin gai cuo* 醫林改錯, 1830) who made meticulous observations of exposed corpses.[7] In this paper, I examine how doctors drew on another mode of knowledge production that inferred the living body from the dead, namely that of forensic inquests into human remains. My key sources are two nineteenth-century texts on trauma medicine (*shangke*, lit. "medicine for injuries"), one authored by Qian Xiuchang and another by his contemporary Hu Tingguang 胡廷光. Both men claimed to be expanding and supplementing a treatise compiled in 1742 by the Imperial Medical Academy (*Tai yi yuan*), namely the *Fundamental Meaning of the Essential Teachings on Rectifying Bones* (*Zheng gu xinfa yao zhi* 正骨心法要旨), which was part of the *Imperially-Compiled Golden Mirror of the Medical Lineage* (*Yuzuan yizong jinjian* 御纂醫宗金鑑). The sources that Qian and Hu drew on included the official corpse and skeleton inspection charts and checklists that the Qing government had promulgated to standardize and improve inquest procedure throughout the empire (Figs. 1 and 2). The treatises by Qian and Hu were thus shaped by distinctive developments in Qing medicine and law, and their history also provides insights into the intellectual exchanges between these two arenas in late-imperial China.

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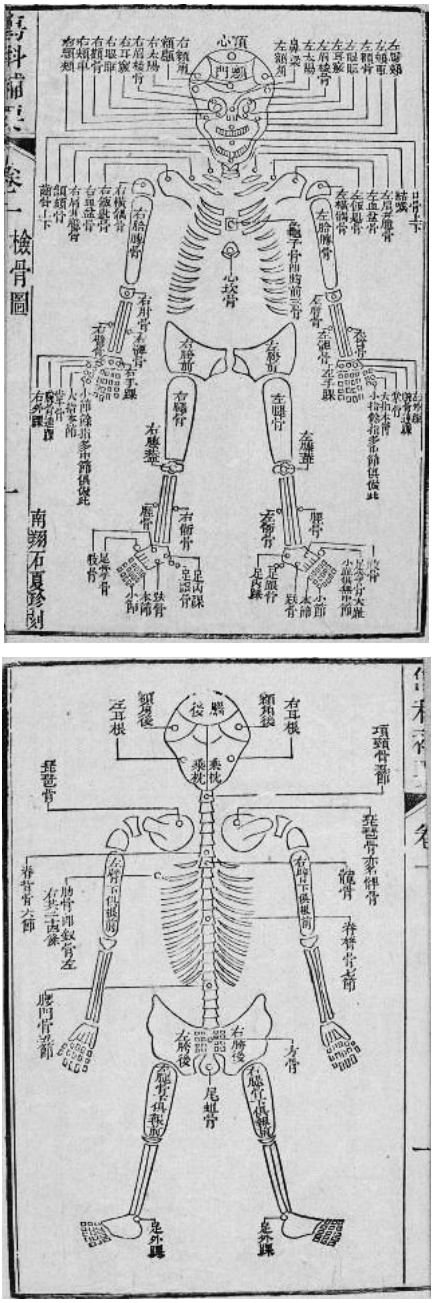
[4] Sean Hsiang-lin Lei, *Neither Donkey nor Horse: Medicine in the Struggle over China's Modernity*.

[5] For example, this is a standard feature of books on Chinese medicine written for Westerners interested in alternative medicine, whether as practitioners or potential patients. One widely circulating book that exemplifies this approach is Ted Kaptchuk, *The Web That Has No Weaver: Understanding Chines Medicine.*

[6] See for example Pi Guoli, *Jindai zhongyi de shenti guan yu sixiang zhuanxing: Tang Zonghai yu zhong xi yi huitong*; Volker Scheid, "Transmitting Chinese Medicine: Changing Perceptions of Body, Pathology, and Treatment in Late Imperial China"; and Yi-Li Wu, "Bodily Knowledge and Western Learning in Late Imperial China: The Case of Wang Shixiong (1808–68)."

[7] See, for example, Qian Chaochen and Wen Changlu, eds., *Wang Qingren yanjiu jicheng* and the translators' commentaries in Wang Qingren, *Yilin gaicuo.*



Figs. 1 and 2 Forensic bone inspection diagrams of front and back of skeleton, reproduced in Qian Xiuchang, *Supplemented Essentials of Medicine for Injuries*, (*Shangke bu yao*, 1818). Courtesy of the Wellcome Library, London.

In an earlier study, Catherine Despeux identified Qian Xiuchang's text as one of several medical works that revealed forensic influence.[8] This paper expands on Despeux's observations by examining the factors that made forensic knowledge seem therapeutically useful to Qian and Hu. I begin by analyzing the distinct features of their core reference text, the *Golden Mirror* and its chapters on trauma, showing how the imperial compilers created an innovative curriculum of bone-setting and sought to integrate it into the repertoire of scholarly medicine. Next, I discuss how the promulgation of Qing forensic standards stimulated the circulation of forensic literature, thus also facilitating exchanges between the legal and therapeutic realms. Finally, I examine how Qian and Hu drew on forensic materials to supplement the *Golden Mirror*'s perceived lacunae and thereby improve understanding of two interlinked topics in trauma medicine: the relative danger of injuries located at different places on the body, and the location and form of bones.

The *Golden Mirror* in the History of Chinese Trauma Medicine

Chinese written records pertaining to wound treatment date back to antiquity. The *Rites of Zhou* (*Zhou li*) included a category of government doctors who specialized in diseases of skin and flesh, with responsibility for treating swellings, ruptures, wounds from metal blades, and fractures.[9] Techniques for healing blade wounds also appear in medical texts excavated from the Mawangdui tombs sealed in 168 BCE.[10] By the Qing, doctors could refer to centuries of medical writings on the treatment of traumatic injuries, organized under rubrics such as "injuries from falling and beating" (*die pu shang sun* 跌撲傷損), "wounds from metal weapons and arrows" (*jin zu* 金鏃), and "breaking and snapping injuries" (*zhe shang* 折傷). These ranged over topics such as how to wash, dress, and bandage wounds; how to set simple and compound fractures; how to anesthetize patients before carrying out painful procedures; when to needle and when to cut through flesh; how to stanch bleeding and suture injured body parts; and how to promote healing and treat the sequelae of injuries, including what biomedicine would identify as shock and infection (including tetanus, discussed under the rubric of "broken wound wind" [*po shang feng*], a name rooted in Chinese medical beliefs that wind was a potentially pathogenic force that could enter the body and cause disease).

Although additional research is needed to plumb the origins of this medical

[8] Despeux, "The Body Revealed."
[9] See "Offices of Heaven," in *Zhou li*.
[10] Donald Harper, *Early Chinese Medical Literature*, 221–31.

knowledge, historical records reveal that a diverse range of practitioners wielded such expertise. One group consisted of the doctors trained and recruited by the official medical services of successive dynasties and assigned to divisions structured around therapeutic subspecialties, including the treatment of injuries. The Tang dynasty's Imperial Medical Office (*Tai yi shu*), for example, assigned fractures and injuries to the department of manual manipulations (*an mo*, lit. "pressing and rubbing").[11] Responsibility for injury care could also be distributed across two departments, such as during the Song dynasty's Yuanfeng reign (1078–85), when the medical service included a department of "lesions and swellings, injuries and fractures" (*chuang zhong jian shang zhe*) and another of "blade wounds and apotropaic medicine" (*jin chuang jian shu jin*). The Yuan dynasty's Imperial Medical Academy (*Tai yi yuan*) established a separate department of "rectifying bones and blade and arrow wounds" (*zheng gu jin zu*), which Ming rulers subsequently divided into departments of "bone setting" (*jie gu*) and "blade and arrow wounds." As for the Qing dynasty, its Imperial Medical Academy included a separate department of "rectifying bones" (*zheng gu*) through the early nineteenth century (more on this below).[12]

A government doctor could be assigned to military duty, and the long-standing concern with arrow and blade wounds also reflects the importance of trauma care in military medicine. Treatises on military strategy could include information on the treatment of wounds, indicating that information routinely circulated between the martial and medical realms.[13] Men were injured in training, as well as battle, and the biography of Qing-dynasty trauma doctor Lü Kaiyang noted that, "every time there were people who fell from their horses or received arrow wounds during the riding and archery [portions of the] military examinations, he would send medicine to them and they would immediately recover."[14] Unarmed combat likewise caused injury. Many healing techniques were developed by martial artists such as Shen Changhui (eighteenth century), attributed author of *Master Shen Yuanshan's Medicine for Injuries* (*Shen Yuanshan xiansheng shangke*), and medical works attributed to the fighting monks of the Shaolin Monastery also circulated widely in the Qing.[15] Mongol doctors were also known for their prowess in bone setting and trauma care, a necessary expertise for those who lived on horseback, whether herding livestock or riding into battle. The medical

[11] Joseph Needham, *Science and Civilisation in China*, vol. VI, part 6, 102–3.
[12] Gong Chun, *Zhongguo lidai weisheng zuzhi ji yixue*, 128.
[13] A useful survey of military medicine is Zhu Kewen, Gao Sixian, Gong Chun, eds. *Zhongguo junshi yixue shi*. I also thank Sarah Basham for sharing with me her insights into the medical chapters of Mao Yuanyi's *Wu bei zhi* (Treatise on military preparedness) of 1621.
[14] Chen Qiong, et al. comp., *Hangzhou fuzhi*, 150: 2a.
[15] For information on these texts, see Ding Jihua, ed. *Shangke jicheng,* 734–1099 and 1387–93.

biography section of the *Draft History of the Qing* (*Qing shigao*) celebrated the Mongol healer Chuo'erji (17th century), who saved the life of a banner commander hit by 30 arrows.[16]

At the upper end of the socio-economic scale were scholarly physicians like Xue Ji 薛己 (1487–1559), a former imperial doctor and influential advocate of the doctrine of "warm replenishing" (*wenbu*). Xue authored several widely-circulating medical works, including one on injuries, *The Categorized Essentials of Rectifying the Body* (*Zhengti leiyao* 正體類要).[17] Less historically prominent, but arguably more important as care-givers, were the numerous illiterate or semi-literate manual healers and bonesetters who treated ordinary people. These included Shanxi natives Han Shiyong and Lu Fuxiao (fl. mid 18th c.), who possessed proprietary techniques for healing knife wounds, and Yang Yucang, whose skills inspired Qian Xiuchang to study trauma medicine (all discussed below). Also typical were folk healers like Shen Fengxiang (1861–1940), a native of Yongkang county, who reportedly learned his craft from Buddhist and Daoist monks and became an expert in "heat-stroke acupuncture, bone-setting, bloodletting, and techniques for treating fractures and injuries."[18] Fengxiang passed his knowledge down to his grandson Jinrong, who later retrained as a barefoot doctor during the Mao years.

But although treating injuries was an important area of practice, learned doctors historically displayed little interest in developing it as a distinct subfield of literate medicine. When the scholar-official Lu Shidao (*jinshi* 1538) wrote a preface to Xue Ji's text on injuries, he claimed there were no specialized works on injury medicine, which he attributed to literati snobbery: "The success of joining and restoring resides in the ingenuity of manual methods, so that the labor of pressing and pulling is generally despised as the work of crude practitioners, and no one speaks of it."[19] An imperfect, yet suggestive, indication of this attitude also appears in modern bibliographic catalogs of extant Chinese medical literature.[20] Relatively few specialized works on trauma medicine were printed prior to the Qing, compared to works in other areas of medical specialization such as eye diseases or women's diseases. Furthermore, most of

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[16] *Qing shi gao*, 502:13880. For Mongol bone-setting generally, see also Wangqinzhabu, *Mengguzu zhenggu xue*.

[17] Xue Ji, *Zhengti leiyao*.

[18] Xiaoping Fang, *Barefoot Doctors and Western Medicine in China*, 21–22, 36, 57, and Shen Qingyang, ed., *Yuhangxian Jiangcunxiang xueyi de tulangzhong*, 93. I am grateful to Xiaoping Fang for providing me with a copy of relevant pages from Shen's work.

[19] Lu Shidao, preface to Xue, *Zhengti leiyao*, reprinted in Yan Shiyun, ed. *Yiji tongkao*, 4700–4701. Lu identifies himself as a secretary in the Board of Rites.

[20] My observations are based on the works listed in Xue Qinglu, ed. *Zhongguo zhongyi guji zongmu*.

the extant specialized works on trauma medicine produced prior to 1900 are handwritten manuscripts.[21] This suggests that although individuals were actively circulating written records on injury care, this knowledge was of less interest to the commercial publishers and scholarly compilers who produced pedagogical medical treatises or self-dosing handbooks. The relative paucity of specialized, published works on treating injury also owed much to the fact that this topic tended to be subsumed in texts on "external medicine" (*waike*), the field that dealt with ailments of skin and flesh.[22] It was in this context that the compilers of the *Golden Mirror* also claimed that there were no "complete books" (*cheng shu*) on the treatment of injuries. [23] They aimed to redress this gap by presenting a new, scholarly model of trauma medicine.

"Rectifying Bones" in the *Golden Mirror*

The *Golden Mirror* was the product of a multi-ethnic Qing state. As Marta Hanson has discussed, its compilation was part of the Qianlong emperor's effort to establish Manchu authority over Chinese culture by "defining orthodoxy [*zheng*] in all realms of Chinese knowledge."[24] Concurrently, however, the team of compilers was dominated by southern Chinese scholar-physicians who sought to promote the canonical authority of the Han dynasty physician Zhang Ji, and to advance the epistemological norms of "evidential scholarship" (*kaozheng*). While the *Golden Mirror* had no normative power outside the court, it circulated throughout the empire and constituted a highly visible benchmark of elite medical learning. The *Golden Mirror* contained 90 *juan* explicating medical cosmology, etiology, diagnosis, and the core principles of treatment for different categories of illness. The last four *juan* were collectively titled *The Fundamental Meaning of the Essential Teachings on Rectifying Bones*, and the audience for these chapters would have included the doctors and trainees of the Qing Imperial Medical Academy's department of "rectifying bones."[25]

The term *zheng gu* (literally, "rectifying bones") could be used as a synonym for *jie gu*, "reconnecting" and setting bones, but the imperial compilers endowed

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[21] For manuscripts on the treatment of injuries, see Paul Unschuld and Zheng Jinsheng, *Chinese Traditional Healing: The Berlin Collections of Manuscript Volumes from the 16th Through the Early 20th Century.*

[22] Influential texts that employ this organizational schema include Wang Kentang, *Zhengzhi zhunsheng*, and Shen Gongchun, *Waike qi xuan*.

[23] Wu Qian, ed., *Yuzuan yizong jinjian*, *fanli*, 5a (s.p.).

[24] Marta Hanson, "The *Golden Mirror* in the Imperial Court of the Qianlong Emperor."

[25] Hanson, "The *Golden Mirror*." For the *Golden Mirror* as a textbook, see Chang Che-chia, "The Therapeutic Tug of War: The Imperial Physician-Patient Relationship in the Era of Empress Dowager Cixi (1874–1908)."

it with a broad semantic scope. As they explained, "today's 'curriculum of rectifying bones' (*zheng gu ke*) comprises the ailments that in antiquity [were called] 'damage and injury from falling and striking' (*die da sun shang*)." [26] In other words, a wide range of injuries resulting from blunt trauma were now explicitly assigned to the bone-setter's purview. These included injuries caused by falling from a height, being struck by heavy objects, and being beaten. Although such injuries routinely involved injury to flesh, sinew, and even organs, the imperial compilers foregrounded bones as the main organizing principle for classifying, diagnosing and treating these injuries. They also made this bone-oriented "curriculum" a distinct area of specialization by textually separating it from other related areas of medicine. For example, while earlier works often subsumed the treatment of fractures under external ailments, the *Golden Mirror* made *Rectifying Bones* into an independent section (*juan* 87–90) placed well away from external ailments (*juan* 61–76). Similarly, although it was common to group "fractures" together with "weapon wounds," the compilers of the *Golden Mirror* separated them and placed weapon wounds in the chapters on external medicine.[27] In effect, the imperial compilers affirmed that bone-setting was an independent, specialized body of expertise that also properly belonged in a scholarly work designed to set medical standards for the empire.

It is probably no coincidence that this heightened attention to bone-setting emerged under Manchu rule. Scholars have already suggested that specifically Manchu fears of smallpox inspired the *Golden Mirror*'s unprecedentedly expansive chapters on "pox and rashes" (smallpox was endemic among the Chinese, but deadly to Manchus who contracted it as adults).[28] Similarly, the *Golden Mirror*'s attention to bone-setting likely owed much to the military origins of the Manchu state and Manchu cultural valorization of military prowess. As Evelyn Rawski notes, "Qing emperors singled out mounted archery as a vital feature of Manchu identity and exhorted their descendants never to abandon it."[29] But military exercises and mounted archery were injury-prone activities, thus necessitating good injury medicine. Such expertise was readily found among the Manchus' Mongol followers. The Qing Ministry of Imperial Stables, Herds and Carriages (*shang si yuan*), which was one of the largest offices within the Imperial Household Department (*nei wu fu*),[30] included a division of "Mongol

[26] Wu, ed., *Yuzuan yizong jinjian*, 90:1a–1b.
[27] Ibid., *juan* 75.
[28] For the original pox images, see Wu, ed., *Yuzuan yizong jinjian*, *juan* 56–60. For a discussion of their history and iconography, see Hanson, "*Golden Mirror*," and Yi-Li Wu, "The gendered medical iconography of *The Golden Mirror*."
[29] Evelyn S. Rawski, *The Last Emperors: A Social History of Qing Institutions*, 43–46.
[30] Preston M. Torbert, *The Ch'ing Imperial Household Department: A Study of Its Organization and Principal Functions, 1662–1796*.

doctors" (*menggu yisheng*), skilled in treating injuries of horse and human. At least during the eighteenth century, these healers were recruited directly from the Mongol banners, but the appellation "Mongol doctor" was a bureaucratic title denoting a certain type of healing, rather than a literal description of ethnic identity (note that these healers were called *coban* in Manchu, a term that evoked a herdsman's long staff).[31] Famous *coban* included Yisang'a of the Jueluo clan (*Gioro* in Manchu), whose healing skills allowed him to become extremely wealthy.[32]

In 1801, the department of rectifying bones in the Imperial Medical Academy was shuttered, and its duties were reassigned to the "Mongol doctors."[33] While the reasons are unclear, it seems to have been part of a broader reorganization of the medical service at the end of the 18th and early 19th centuries. It may also reflect a perception that the *coban* were more skilled than the doctors trained by the medical academy. Despite these institutional changes, *Rectifying Bones* continued to be an influential textual resource for practitioners like Qian Xiuchang and Hu Tingguang.

Bone Setting for Gentlemen

In delineating a discrete specialty of "rectifying bones," the imperial medical compilers also described this body of learning in terms that evoked scholarly norms of refined learning and the pursuit of improved knowledge. First, the compilers portrayed themselves as innovators who were supplementing and systematizing older writings in order to create a comprehensive curriculum on the treatment of injuries. They noted that while Wang Kentang's 王肯堂 (1549–1613) massive 120-*juan* compendium, *Guidelines for Treating Diseases* (*Zhengzhi zhunsheng* 證治準繩), presented a "somewhat complete" discussion of trauma medicine, it still lacked essential elements, for it discussed only "the syndromes and medicines, without ever speaking in detail about the positions of the circulation channels, the dimensions of the bones and their names, or the manual techniques."[34] To redress these shortcomings, the imperial compilers incorporated additional information from both ancient and contemporary medical

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[31] *Shang si yuan* is often rendered in English as "Palace Stud" but I borrow the more descriptive translation proposed by Sare Aricanli, in "Plurality in Qing Imperial Medicine: Examining Institutional Formations Beyond the Imperial Medical Bureau."

[32] *Qing shi gao*, 502:13880–81. The biography of Jueluo Yisang'a describes the activities of the "Mongol doctors," but it never directly describes him as belonging to their ranks. However, he was clearly practicing in the tradition of the *coban*. Aricanli, "Plurality in Qing Imperial Medicine."

[33] Ren Xigeng, *Taiyiyuan zhi*, 1:1a–b.

[34] Wu, ed., *Yuzuan yizong jinjian*, *fanli*, 5a (s.p.).

sources: "We have investigated the 'Treatise on Bone Measurements,' from the *Divine Pivot* [of the *Inner Classic*], the location of injuries on the twelve circulation channels, the medicines for treating the exterior and treating the interior, and the instruments used in manual techniques. In each case, we have drawn images, established teachings and collected these all into a complete book."[35]

It must be noted that despite the compilers' concerns with creating a "complete book," the discussions in *Rectifying Bones* were not necessarily more informative than those of its predecessors. For example, Wang Kentang's discussion of injury to the hand bones and how to treat them was far more detailed and extensive than the corresponding sections in *Rectifying Bones*.[36] I would thus argue that the *Golden Mirror's* compilers were not striving for an exhaustive, encyclopedic compendium of all existing information on injuries. Instead, their goal was to articulate a didactic model of proper trauma medicine, to define the kind of information it should include and what its epistemological orientations should be. In the quotation above, for example, the compilers affirmed that classical textual authority, pharmacology, and manual methods were all equally important. And when the compilers called for comprehensive texts, they were simultaneously criticizing scholarly texts that omitted manual techniques, and remedy-oriented works that omitted medical theory. By emphasizing the complexity of "rectifying bones," the compilers framed it as an important area of medical learning, one that was similarly rooted in the teachings of antiquity, as respectable as the other medical subfields, and that also required sustained, deliberate study to master. An important element of this project, furthermore, was to elevate the status of manual healing by portraying it as a subtle, skilled art.

Manual Techniques and Medical Perspicacity

Historically, the medical literature contained two main sets of techniques for treating fracture-related injuries, and their visibility differed according to text. One set consisted of "manual methods" (*shou fa*) to set bones and dislocations and to relax knotted flesh. These are described, for example, in the massive, 426-*juan* compendium, *Formulas for Universal Benefit* (*Puji fang* 普濟方) of 1390.[37] The other consisted of topically-applied and orally-ingested drugs to treat other injury-related afflictions: pain, contusions, inflamed or putrefying

[35] Ibid.
[36] Compare Wang Kentang, *Zhengzhi zhunsheng*, 118:14a–16b with Wu, ed., *Yuzuan yizong jinjian* 89:26a–28a.
[37] Zhu Su, ed. *Puji fang*, *juan* 309. Bone setting appears in the section on "breaking and snapping injuries," starting from 309:5a.

wounds, internal and external bleeding, damaged organs. Works on traumatic injuries could therefore concentrate on drugs and give little or no attention to bone-setting. This is exemplified by Xue Ji's *Categorized Essentials of Rectifying the Body*, which presented 84 of Xue's own cases, categorized under three rubrics: injuries from beating (*pu shang*); injuries from falls, trips, and metal blades (*zhui die jin shang*); and injuries from boiling liquids and fire (*tang huo shang*).[38] Xue's therapies were mainly pharmaceutical, including oral decoctions as well as externally applied medicines and poultices. In many cases, Xue also used the lancet (*bian*) or needle to drain accumulations of stagnant blood and pus or to remove corrupted flesh.[39] However, only three of Xue's cases mention a bone fracture or dislocation, and in each case the patient's bone injury was treated by another practitioner before Xue was consulted for some other related problem.[40] Xue Ji could thus become known as an expert in treating injuries even if he did not personally handle fractures and dislocations.

In contrast, the *Golden Mirror* used "rectifying bones" as the organizing principle for treating blunt trauma injuries, and it placed its description of manual healing techniques at the very beginning of its discussion. In *juan* 1 of *Rectifying Bones*, the compilers explained that "manual methods are truly the first order of business," and they argued that the patient's recovery fundamentally depended on the proper deployment of manual manipulations:

> "Manual methods" refers to using the two hands to arrange injured sinews and bones, thereby making them return to their original state. But injuries differ as to whether they are grave or minor, and each manual technique has its own appropriate use. Whether the person's recovery is tardy or swift, and whether there remains disability and disease, all is related to how manual methods are carried out, whether the appropriate [form] was used, or whether one erred as to appropriateness, or whether the method was not fully deployed.[41]

Rectifying Bones discussed "eight methods" (*ba fa*) at the heart of manual healing: "feeling" (*mo*) the injured spot to assess the injury, "joining" (*jie*) broken bones, "straightening out" (*duan*) fractures and dislocations, "lifting up"

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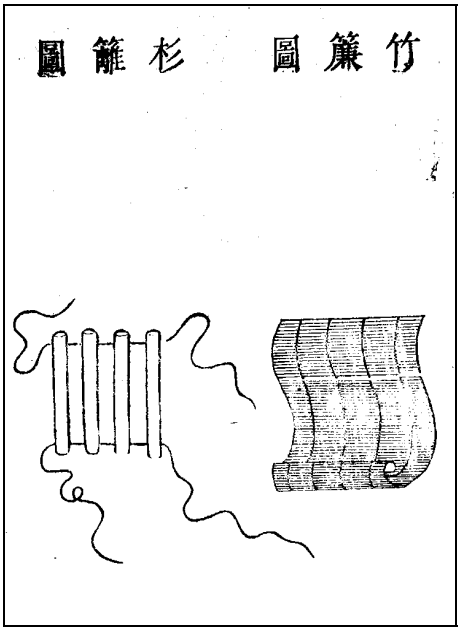
[38] Xue, *Zhengti leiyao*.

[39] For an illustrative case, see Xue, *Zhengti leiyao*, 11:12a. Although the term *bian* historically referred to a pointed stone, by Xue Ji's time it referred to a sharp-bladed implement. For Xue's description of how to make and use a *bian*, see his *Bao ying cui yao*, 5:50a–b and his *Bao ying jin jing lu*, 6:46b–47a.

[40] For these three cases, see Xue, *Zhengti leiyao*, 11:26b, 11:27a–b, and 11: 30b–31a.

[41] Wu, ed., *Yuzuan yizong jinjian*, 87: 1a–1b.

(*ti*) sunken parts, "pressing and rubbing" (*an mo*) to dissipate swellings and contusions, and "pushing and grasping" (*tui na*) to release seized up sinews or reposition dislodged body parts. This discussion was followed by textual descriptions and illustrations of the orthopedic instruments that could be used as an auxiliary to manual manipulations (Figs. 3 and 4).



Figs. 3 and 4 Two-piece apparatus for immobilizing set fractures of the limbs, from Wu Qian, ed. *Fundamental Meaning of the Essential Teachings on Rectifying Bones* (*Zheng gu xinfa yao zhi*, 1742). Courtesy of the Chinese Collection, Harvard-Yenching Library. Copyright President and Fellows of Harvard College.

Besides giving pride of place to manual techniques, *Rectifying Bones* described them with tropes that were routinely used to describe scholar-physicians' perspicacious use of drugs. In so doing, they tacitly rejected the perception (described by Lu Shidao), that injury doctors were simply "crude practitioners." The compilers pointed out that injuries varied, and people's bodies likewise varied, and thus the successful use of manual techniques depended on the healer being able to perceive these complexities and tailor his methods accordingly. "Manual" techniques, in other words, actually embodied mental cultivation: "the skills will be applied on the exterior, but their ingenuity comes from the interior; the movements of the hands follow the heart-mind (*xin*), and the methods come forth via the hands." In this way,

the compilers of *Rectifying Bones* rhetorically likened the effective use of manual techniques to the effective use of drugs, in that successful treatment depended entirely on the expert judgment of a skilled practitioner.[42] Citing a commentary to the *Classic of Changes* that described perspicacious action, the compilers noted that "To be aware of the numinous and bring it to light depends on the men involved."[43] When employed by insightful healers, these manual techniques could address a wide range of afflictions throughout the injured body:

> Truly, [manual techniques] consists of using the hand to govern the body of blood and flesh. The ingenuity by which its use can be adjusted according to altering circumstances means that by itself, it can address the contracted and the extended, the raised and the sunken, the urgent and the chronic, the slight and the grave, the opened and the closed. It can reach the patient's congealed and stagnated qi and blood, his swollen and painful skin and flesh, and his twisted up and broken sinews and bones, along with the suffering and desire of the emotions and will. *This is an extremely far cry from those who handle matters with rote application of apparatus and tools* [emphasis added].[44]

Following this discussion of manual techniques and orthopedic apparati, the remainder of the first *juan* of *Rectifying Bones* explicated passages from the *Yellow Emperor's Inner Classic*, thereby affirming the classical roots of injury medicine. The second and third *juan* then explained what combination of manual and pharmacological therapies could be used to treat injuries located in different sectors of the body. Finally, the fourth *juan* was devoted to pharmacological remedies for the non-structural complications that could accompany an injury, such as bleeding, internal stagnations of blood, pain, and coughing, all of which signaled a perturbation of bodily vitalities. By placing manual therapies first and drugs last, *Rectifying Bones* reversed the usual hierarchy of literati medicine.[45] This attention to manual therapies, furthermore, was accompanied by a vision of the body as a set of distinct regions where injuries might occur and where these manual techniques would be applied.

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[42] Ibid., 87:1b.

[43] The phrase comes from the *Xici* commentary to the *Classic of Changes*. I borrow the translation by Richard John Lynn, *Classic of Changes*, 68.

[44] Wu, ed., *Yuzuan yizong jinjian*, 87:2a.

[45] For the relative status of manual and pharmacological healing and their gendered dimensions, see Charlotte Furth, in *A Flourishing Yin: Gender in China's Medical History, 960–1665*.

Systemic and Regional Anatomy

One of the most famous works in Western medical history is Henry Gray's eponymous *Gray's Anatomy*, first published in 1861, and continuously reprinted since. But the editors of the 39th edition, published in 2005, decided to reorganize the text in a "radically different" way: whereas earlier editions presented anatomical information organized by systems (e.g., circulatory, nervous), the new edition would organize information according to bodily regions. The editors explained that they changed from a schema based on "systemic anatomy" to "regional anatomy" because "in the real world…a book that would be of greatest benefit to practicing clinicians should mirror their daily practice and describe anatomy in the way in which they used it, i.e., regionally."[46] The concepts of systemic and regional anatomy are also useful tools for describing the ways that Chinese medical thinkers historically organized information about the body.

Regional anatomy is commonplace, for example, in works on external medicine. These texts typically organized ailments according to the part of the body that was afflicted, starting with the head, and moving down through the torso and outwards through the limbs.[47] Some texts on trauma medicine also contained regionally-organized discussions. However *Rectifying Bones* is the earliest work that I have seen that employed regional anatomy as its main organizational schema for classifying injuries. This classification schema structures the middle two *juan* of *Rectifying Bones* which divided the body into three main sectors (*bu*) and eight subsectors: (a) the sector of the head, which was further subdivided into the top of the head, front of the face, side of the face, and back of the head; (b) the thorax, further subdivided into chest and back; and (c) the limbs, subdivided into the arms and legs. At the beginning of each subsection, the compilers presented a medical illustration depicting the relevant bodily subsector and its key bones (Figs. 5 and 6). The *Golden Mirror* as a whole contains many new medical images not seen in earlier works, and these images of the body's subsectors seem also to be unique to the *Golden Mirror*.[48] The bone names given in these images and the accompanying text did not necessarily correspond to individual bones in the biomedical sense, but could also denote bony locations and protrusions. For example, the section on the top of the head gave the following names to landmarks on what biomedicine would identify as the frontal and parietal bones of the skull: the

[46] Editors' preface, *Gray's Anatomy*, 39th edition, 9–10.
[47] For the regional organization of the *Golden Mirror*'s chapters on external ailments, see Wu, "Body, Gender, and Disease: The Female Breast in Late Imperial Chinese Medicine," 109–10.
[48] For the *Golden Mirror*'s new images, see Wu, "Gendered Medical Iconography."

"summit crown" bone (*dian ding gu*) constituting the top of the skull, the "fontanel" bone (*xin gu*) towards the front of the center of the crown, and two "mountain corner" bones (*shan jiao gu*) at the outer edges of the upper part of the head.

Figs. 5 and 6 Illustrations of the bones on the top of the head (l) and of the bones of the arm (r) from *Rectifying Bones.* Courtesy of the Chinese Collection, Harvard-Yenching Library. Copyright President and Fellows of Harvard College.

Attention to regional anatomy also appears in the way that *Rectifying Bones* cited "The Treatise on Bone Measurements" (*gu du* 骨度), a famous essay from the *Yellow Emperor's Inner Classic—Divine Pivot* (*Huangdi neijing lingshu*). Recall that when the imperial compilers explained why *Rectifying Bones* was more comprehensive—and thus superior—to earlier works, they specifically pointed out that they were adding information from "The Treatise on Bone Measurements." However, *Rectifying Bones* did not cite the received ancient version of this essay, but rather a redacted version organized in terms of bodily regions.

The intent of the original "Bone Measurements" essay was to teach practitioners how to accurately identify the positions of the body's circulation conduits where therapy could be applied. It thus listed numerous bony landmarks and specified the distances between them on a standard body, thereby providing a set of reference points and proportional measurements that doctors could adjust

to locate the channels on patients of differing girths and heights. Acupuncture texts thus regularly cited "Bone Measurements." Its first three descriptions delineated the body's circumference at three key points: the head, the chest, and the waist. The next set of descriptions delineated the body's main vertical axis, starting at the nape of the neck, travelling forward over the skull and down through the center of the face, thorax, the umbilicus and pubic bone, and then running down along the inside of the leg to terminate at the sole of the foot. The essay then described several additional lines traversing the body, including one that ran down the side of the body from the armpit to the knee, and one running down the back from the nape to the tailbone. Thus, in this original essay, bones were integrated into a system-oriented approach to the body, one concerned with a network of circulatory conduits running through different body parts.

Rectifying Bones, however, used a regionally-organized version of "Bone Measurements," one most likely borrowed from the famous physician Zhang Jiebin 張介賓 (1563–1640). Zhang was the author of the *The Classic, Arranged by Category* (*Lei jing* 類經), an influential commentary on the *Yellow Emperor's Inner Classic*, where he quoted the received version of the ancient essay. However, in a companion work, the *Illustrated Wing of the "The Classic, Arranged by Category"* (*Lei jing tu yi* 類經圖翼), Zhang Jiebin reorganized "Bone Measurements" by taking the original reference measurements and regrouping them under five rubrics, each denoting a different sector of the body: the head, the chest and belly, the back, the flank, and the four limbs.[49] In this way, Zhang transformed a system-oriented list of bony landmarks into a list of body regions characterized by specific bony features.

In Zhang's *Illustrated Wing*, this revised version of "Bone Measurements" appeared in a lengthy section on the bones, following a "list of the names and positions of the bones of the entire body" (*zhoushen gu bu mingmu*). So whereas the original, system-oriented version of "Bone Measurements" was meant to teach readers about the conduits, Zhang's regionally-oriented version was meant to teach readers about the bones themselves. This regional perspective was visually reinforced by the iconographic style of Zhang's so-called "diagrams of bone measurements, sections, and positions," which depicted the front and back of a whole human body, with textual labels placed on the skin's surface to denote the position of bones underneath (Fig. 7). Such regional features also appeared in *Rectifying Bones*. It presented a version of "Bone Measurements" that largely followed Zhang's regionally-organized version, and it provided bone measurement diagrams that resembled Zhang's images. Although acupuncture texts had long employed such diagrams, *Rectifying Bones* is the earliest Chinese work on trauma medicine I have found to use them.

[49] Zhang Jiebin, *Leijing tu yi*, 3:8a–12a.

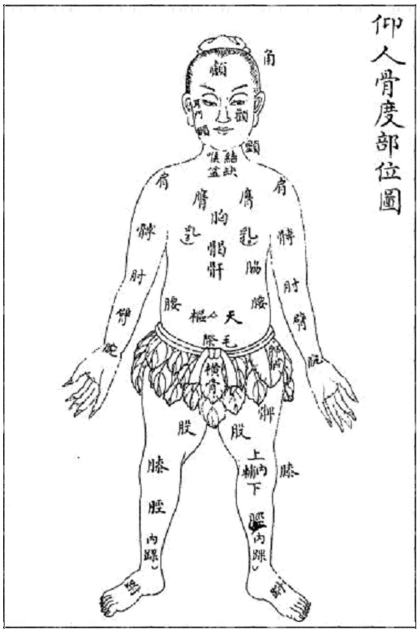

Fig. 7 "Diagram of bone measurements, sections, and positions, front of the body" from Zhang Jiebin, *Illustrated Wing of "The Classic, Arranged by Category"* (*Leijing tuyi*, 1624; as reprinted in the *Siku quanshu*). Digitized edition accessed at www.archive.org.

Text and Image

In the opening essay of *Rectifying Bones*, the compilers pointed out that, "when it comes to the bones of the body, their physical forms are not all the same, and way that the sinews of each of the twelve channels are arrayed and ordered is also different. Therefore it is essential to have prior knowledge of their forms and recognize their relative positions." Furthermore, bone injuries could take many different forms, each requiring different manual manipulations. But as long as one understood the form and position of the bones, "then, even if [the injury] is inside the flesh, one will be able to understand the circumstances simply by touching it with the hand."[50]

The diagrams of body subsectors in *Rectifying Bones* were meant to help the reader learn about the body's bones.[51] However, there was also a significant discrepancy between the textual and visual accounts of the bones in *Rectifying Bones*. Like the images of "bone measurements," the diagrams of bodily

[50] Wu, ed., *Yuzuan yizong jinjian*, 87:1a–b.
[51] For the mnemonic functions of the *Golden Mirror*'s diagrams, see Wu, "Gendered Iconography of the *Golden Mirror*."

subsectors did not show the actual bones, but instead labeled their assumed position on the body as viewed from the exterior. Furthermore, some of the bones named in the textual descriptions do not appear on the diagrams. For example, the diagram indicating the arm bones shows only one bone in the lower arm, the so-called *bi* 臂 bone (Fig. 6). The accompanying text, however, carefully describes the paired bones of the lower arm, which it calls the *bi* bone (biomedical ulna) and the "auxiliary bone" (biomedical radius):

> The *bi* bone. Going from the elbow and ending at the wrist, there are two long pieces [of bone], one main and one auxiliary. The one that lies beneath, which is long and large in shape, and connected to the point of the elbow, is the *bi* bone [ulna]. The one that lies above, which is short and thin in shape, is the auxiliary bone [radius]. Its common name is the "wrapping around bone." They sit evenly matched one upon the other and rely on each other, and both connect below to the wrist bone. Cases of injury to the *bi* bone often are the result of assaults that fracture it. In some cases, the *bi* bone and the auxiliary bone are both broken.[52]

If the compilers of *Rectifying Bones* had wanted to show the actual bones, they could have done so, perhaps even adapting the genre of acupuncture illustration known as "Bright Hall" (*mingtang*) or "bronze figure" (*tong ren*) charts.[53] These typically showed the outline of the body, major bones, and the pathways of channels that ran across or near the bones. While these were not anatomically accurate or complete (they do not portray the skull, for example, and they generally portray only a single bone in the forearm and lower leg), they constitute an iconographic style that *Rectifying Bones* might have adopted, but did not. Instead, what we find in *Rectifying Bones* is a division of epistemological labor between text and image, whereby the text verbally described the form of bones, and the image visually indicated their positions. I have suggested elsewhere that the *Golden Mirror*'s illustrations may have served primarily as mnemonic devices, and this was probably also the case here.[54] And yet, by opening each discussion of bodily subsectors with an illustration, *Rectifying Bones* tacitly promoted the idea that the good bone-setter should be able to accurately visualize the position of bones. It created an expectation of visual knowledge, but one that its images could not satisfy. Years later, Qian and Hu would try to address this issue with forensic materials.

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[52] Wu, ed., *Yuzuan yizong jinjian*, 89:25a.
[53] For examples, see Huang Longxiang, ed., *Zhongguo zhenjiu shi tu jian*, chap. 3.
[54] Wu, "Gendered Medical Iconography."

Intersections between Forensic Medicine and Trauma Medicine

In 1247, the judicial official Song Ci completed his famous *Collected Records on the Washing Away of Wrongs* (*Xi yuan jilu* 洗冤集錄), a comprehensive manual on conducting post-mortem inquests that subsequently became the de facto cornerstone of Chinese forensic practice.[55] One of the Qing government's innovations was to promulgate an expanded, revised version of Song Ci's text to serve as the official standard for carrying out death investigations. While historians disagree on the precise dates of compilation, this official Qing version, known as the *Records on the Washing Away of Wrongs, Edited by the Codification Office* (*Lüliguan jiaozheng Xi yuan lu*), was completed by 1741, just before the publication of the *Golden Mirror*.[56] Its important features included a set of "corpse inspection" (*jian shi*) checklists and diagrams that officials would use to record injuries found during inquests. In 1770, a set of skeleton diagrams and checklists was added to facilitate the reporting of injuries detected on skeletal remains. A key characteristic of these forms was that they distinguished between "mortal spots" (*zhi ming*) on the body and bones where an injury would prove fatal, and "non-mortal spots" (*bu zhi ming*). As Daniel Asen has shown, the Qing judicial system placed supreme importance on such distinctions, using them to determine which injuries were responsible for the person's death, as well as which assailant had delivered the fatal blow.[57] As Pierre-Étienne Will has discussed, however, the officials who had to use these charts criticized them as inadequate and inaccurate. Beginning in the late-eighteenth century, therefore, officials and legal experts compiled and published numerous commentaries to clarify and rectify the government manual.[58]

Inquests were carried out in public, and it would not have been difficult for Qian Xiuchang and Hu Tingguang to become aware of forensic practices. The increased circulation of forensic texts in the eighteenth century also would have

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[55] For the history and content of this text, see Needham, *Science and Civilisation in China*, and McKnight, *The Washing Away of Wrongs: Forensic Medicine in Thirteenth-Century China*.

[56] I have used the facsimile edition of the *Lüliguan jiaozheng Xi yuan lu* reproduced in the *Xuxiu Siku quanshu*. Scholars have conventionally dated the official version to 1694, but Chen Chong-fang has argued that the final version was not completed before 1741. Chen Chong-Fang, "Qing 'Lüliguan jiaozheng Xi yuan lu' xiangguan wenti kaozheng." The earliest extant edition of Song Ci's text is a Yuan edition preserved in Sun Xinyan's *Dainange congshu*. All references to Song Ci, *Xi yuan ji lu* will be to this Yuan edition.

[57] Daniel Asen, "Vital Spots, Mortal Wounds, and Forensic Practice: Finding Cause of Death in Nineteenth-century China." See also Asen, "Dead Bodies and Forensic Science: Cultures of Expertise in China, 1800–1940."

[58] Pierre-Étienne Will, "Developing Forensic Knowledge through Cases in the Qing Dynasty."

facilitated their access to such knowledge. Even during the Ming, when there were relatively fewer forensic texts in circulation, medical experts were already reading forensic literature. For example, the eminent physician Sun Yikui 孫一奎 (1522–1619) incorporated two essays from the *Washing Away of Wrongs* into his *Additional Discussions on the Meaning of Medicine* (*Yizhi xuyu* 醫旨緒餘) of 1573.[59] The *jinshi* scholar Wang Kentang was both a medical and legal expert, and he compiled the massive *Guidelines for Treating Disease* as well as the forensic commentary *A Commentary on the Washing Away of Wrongs* (*Xi yuan lu jian shi* 洗冤錄箋釋).[60] The historical socio-cultural overlaps between the medical and official realms nurtured such cross-fertilization. Many scholar-officials studied medicine as learned amateurs, even to the extent of compiling and publishing medical works. Especially in the late-imperial period, an increasing number of literate men also became doctors after failing to advance in the examinations.[61] As we shall see in the next section, doctors and officials could also share a specific interest in the effects of trauma on the body.

Good Medicine and Good Governance

A story that circulated in both medical and forensic literature described the healing activities of one Magistrate Bao of Leping county, where the people were described as fond of fighting. Fortunately, Magistrate Bao knew that a hot poultice of scallion whites would stop the pain and bleeding of wounds from metal weapons. "He saved numerous lives this way," the story said, and "the number of people who were executed for capital crimes (*da pi* 大辟) was thereby reduced, and the injured parties did not need to make other requests [for justice]."[62] In Song Ci's original treatise, Magistrate Bao's story appeared in a short section on emergency remedies, where it showed that knowing how to treat injuries could reduce an official's burdens and facilitate the governance of pugnacious populations. During the Qing, such rhetoric was even more salient.

The earliest extant version of Song Ci's book dates to the Yuan dynasty (1279–1368). If we compare this edition to the Codification Office's *Washing Away of Wrongs*, we find that the Qing section on emergency treatments is significantly more extensive, detailed, and ambitious than that of the earlier

[59] Sun Yikui, *Yixue xu yu*, 2:18a–19b.
[60] For Wang Kentang's forensic book, see Needham, *Science and Civilisation in China*, 200.
[61] For the overlaps between officialdom and medicine, see Furth, *Flourishing Yin*, chap. 5; Wu, *Reproducing Women*, chap. 3, and Wu, "Bodily Knowledge and Western Learning."
[62] The original *Washing Away of Wrongs* cites the story's source as Zhang Shengdao (fl. 11th c.), *Jingyan fang* (Remedies tested through experience). Song Ci, *Xi yuan ji lu*, 5:6b. Zhang's work is no longer extant. Medical works that cite this story include Zhu, *Puji fang*, 303:13b–14a.

edition. For example, the Codification Office version discusses remedies for many topics not mentioned in the Yuan edition, including burns, bites from snakes and mad dogs, and different types of poisoning. Its section on treating blade wounds is also more detailed than the corresponding section in the Yuan edition, adding information on wounds that do not stop bleeding, arrow wounds, and wounds where the intestines protrude from the abdomen.[63] Notably, these were standard topics in trauma medicine texts. While additional research is needed to understand why and how this material was added to the Qing version of the *Washing Away of Wrongs*, it is clear that Qing officials were expected to be familiar with this medical knowledge.

The eminent Manchu official Mingde even described the Codification Office's *Washing Away of Wrongs* as a model for his own medical publishing activities. Mingde was serving as the governor and provincial military commander of Shanxi province in 1756 when a local fight almost turned deadly.[64] A man named Zhang Chengxi knifed one Li Chengyun in the head and neck, apparently killing him. The local magistrate completed his examination of what he believed to be a corpse, and was about to leave. Suddenly, someone pointed out that Li's chest was still warm. Thereupon, the magistrate addressed the gathered crowd, calling out: "Who can treat and save this person for me?" A healer named Han Shiyong, who claimed to have an unusual, proprietary remedy for treating weapon wounds, accepted the challenge and restored the victim to health.

Impressed, Mingde summoned the purported originator of the remedy, a local doctor named Lu Fuxiao, and asked him to reveal the recipe. Lu Fuxiao pointed out that he depended on this secret technique for his living, but he agreed to share it after Mingde offered to pay him. Mingde subsequently published the formula in a text called *Iron Fan Powder for Treating Wounds from Metal Weapons* (*Jinchuang tie shan san* 金瘡鐵扇散). In his preface, Mingde pointed out that the emperor himself had taken an interest in emergency remedies, enumerating them in the official forensic guidelines. Conscientious officials like Mingde had a duty to follow suit, disseminating medical techniques that would prevent people from dying in disputes:

> Vicious fights that lead to cuts and stabbing injuries occur frequently among the common people. If they are treated with good medicines, then those who can be made whole again will truly be numerous. That is why the

[63] Compare Song, *Xi yuan ji lu* 5:4b–6b with *Lüliguan jiaozheng Xi yuan lu*, 4:6a–21b.

[64] This account is based on Mingde's preface dated 1756 to *Jinchuang tie shan san* as reprinted in Yan Shiyun, ed. *Zhongyi yiji tongkao*, 4704–5. For Mingde's career in the context of Qing politics, see R. Kent Guy, *Qing Governors and Their Provinces: The Evolution of Territorial Administration in China*, 158–59.

> imperially-promulgated *Washing Away of Wrongs* records numerous good prescriptions. I reverently observe the sympathy and consideration that our Emperor has for the lives of his people, such that not even the tiniest thing is neglected. I have received His appointment to government office, and my duty is to comfort and pacify the people. How can those of us who are able to promote the well-being of people dare to neglect the intent of His Sagely Benevolence, who has set forth so many ways to replenish and rescue?[65]

Injuries and Inquests

The lofty rhetoric of benevolent government co-existed with a hard reality: managing cases of people killed in affrays could be profoundly troublesome for the magistrate in charge. The inquest could be extremely taxing when there were multiple suspects and wounds, and the magistrate also had to craft his judgment so that it could withstand challenges by interested parties and stand up to judicial review.[66] Locals who were dissatisfied might also engage in retaliatory violence. Far better for all if the injured party could be cured.

But besides saving lives, medical knowledge played an official role in legal investigations, for judicial "inquests" (*jianyan*) encompassed investigations of the wounded as well as the dead.[67] This was institutionalized in the legal practice of setting "death limits" (*bao gu*, lit., "taking care of the crime [victim]") in cases of assault.[68] The magistrate would assess the victim's wounds and set a period of time during which the assailant's family was required to provide medical care for the wounded. If the victim died within this period, the assailant would be charged with murder, a capital offence. However, if the victim died after the limit expired, the assailant would be punished for a lesser crime. The logic was that the assailant's family would provide the best possible care, so that the accused could avoid the death penalty. When Shanghai magistrate Su Chang'a wrote a laudatory preface to Qian Xiuchang's *Supplemented Essentials of Medicine for Injuries*, he accordingly pointed out that efficacious trauma medicine could save the lives and families of victim and assailant alike, thus promoting social well-being in addition to physical recovery:

> The people are fond of fighting and litigating, and everywhere there are those who die from fighting. Every time I see someone who is on the point

[65] Yan, ed. *Zhongyi yiji tongkao*, 4704–5.
[66] Asen, "Vital Spots."
[67] *Lüliguan jiaozheng Xi yuan lu*, 1:1a–b.
[68] In the Qing Code, the discussion of *baogu* appears in article 303, in the section on "affrays and blows" (*dou ou*).

> of death carried prostrate to the foot of the [yamen] steps, bloody and barely breathing, I feel sorrowful and cannot bear to deal with them in the official manner, but hastily call for a doctor. Now if the injured party dies, then his assailant becomes a criminal. Then in both families alike the children are orphaned and the wives are widowed. If by good fortune he recovers, then the two families are benefitted. It is exactly at this time that the fate of the two families hinges on the doctor.[69]

The Qing inquest guidelines also highlighted the importance of assessing wounds. Again, if we compare the earlier Yuan edition of the *Washing Away of Wrongs* with the Qing Codification Office's version, we find that the Yuan edition devotes only a few lines to the death limit, but the Qing version spends several pages discussing it under the heading "investigating wounds and the death limit."[70] Moreover, the Codification Office emphasized that the death limit was a crucial mechanism for ensuring justice: "When investigating cases of people who have been killed, [we find that] few of these were premeditated, while many are because of affrays and blows (*dou ou*). So the regulations concerning affrays and blows place greatest importance on the setting of the death limit."[71] Such instructions would have carried particular resonance starting in the eighteenth century, when the threat posed by major episodes of lineage feuding (*xiedou*) in southeastern China turned the problem of local violence into a major preoccupation for Qing officials.[72] Such overlaps between legal and therapeutic concerns also found expression in medical works of Qian Xiuchang and Hu Tingguang.

Forensics in the Works of Qian and Hu

Qian Xiuchang and Hu Tingguang were both successful practitioners of trauma medicine, hailing from the cultural heartland of China in the lower Yangzi region. Qian was a native of Shanghai who became interested in trauma medicine when he suffered a broken leg in 1781.[73] After the doctor Yang Yucang (mentioned above) cured him, Qian became Yang's disciple. Qian attained a degree of local prominence, as shown by the fact that nine people helped him to prepare his text on injuries—his son, his son-in-law, and seven

[69] Qian, *Shangke bu yao*, preface by Su Chang'a dated 1809.
[70] Compare Song, *Xi yuan ji lu*. 1:9b–10a, with *Lüliguan jiaozheng Xi yuan lu*, 1:7a–9a.
[71] See *Lüliguan jiaozheng Xi yuan lu*, 1:7a.
[72] Harry J. Lamley, "Lineage Feuding in Southern Fujian and Eastern Guangdong under Qing rule."
[73] Qian, *Shangke bu yao*, author's preface.

disciples.[74] The *Shanghai County Gazetteer* also reported that Qian was fond of composing poetry, achieving enough skill in later life to trade verses with well-known scholars.[75] Qian completed his *Supplemented Essentials of Medicine for Injuries* in 1808, and the first printed edition appeared in 1818. Qian's ability to get his book printed indicates that he had access to financial resources, whether derived from his own practice or solicited via his social networks. One supporter was the official Su Chang'a, who became acquainted with Qian while serving as magistrate of Shanghai and subsequently wrote a preface for his book. Qian earned Su Chang'a's gratitude and admiration after saving the life of a prisoner who attempted to commit suicide.[76]

Hu Tingguang was a native of Xiaoshan county in Shaoxing prefecture. He came from a medical family that claimed a hereditary expertise in trauma medicine, and Hu himself was well-regarded enough to count members of the scholar-official elite among his patients.[77] It appears that the Hu family knowledge was not formally written down, but they did possess a specialized work called "Master Chen's book of joining bones," which Hu found both useful and limited.[78] Perceiving there to be a general dearth of specialized works on trauma medicine, Hu undertook to compile one himself. The resultant text, titled *A Compilation of Collected Teachings on Medicine for Injuries* (*Shangke huizuan* 傷科彙纂), took Hu three successive drafts and seven years to complete. While his authorial preface included formulaic protestations of modesty, Hu took obvious pride in the sheer scope of his compendium, pointing out that "it lists 44 classes of injuries, appends over a thousand one-ingredient formulas (*dan fang*), is divided into six classificatory categories (*lei*), and comprises twelve *juan*." His text also included a set of sixteen bone-setting images that show doctors (and assistants) pulling and pushing on patients' bodies. As far as I know, these are unique to Hu's work.[79] Although Hu's authorial preface of 1815 stated that he was paying the woodblock cutters to disseminate his work, the only known extant versions are two manuscript copies, held in libraries in Beijing and Guangzhou.[80] It thus seems that Hu wrote his preface in anticipation of publication, but that he was ultimately unable to obtain the needed funding.

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[74] The list of disciples appears immediately before the table of contents of *Shangke bu yao*. The names of Qian's son and son-in-law appear at the beginning of each *juan*.
[75] Wu Xin, et al., *Shanghai xian xu zhi*, 20:15a.
[76] Qian, *Shangke bu yao*, Su Chang'a preface; Wu, et al., *Shanghai xian xu zhi*, 20:15a.
[77] These medical cases appear in Hu, *Shangke huizuan*, 6:44a–61b.
[78] This background information comes from the author's preface in Hu, *Shangke huizuan*.
[79] For a useful comparison of the illustrations in the two extant copies of Hu Tingguang's work, see Yang Yizhou, "'*Shangke huizuan' shoufa fuwei tu chutan*."
[80] See Xue, ed., *Zhongguo zhongyi guji zongmu.*

Imperial Lacunae

Qian Xiuchang and Hu Tingguang both used *Rectifying Bones* as a scaffolding upon which they constructed their own treatises. The title of Qian's work signaled that he was "supplementing" this "essential" text, while Hu explained that he was using *Rectifying Bones* as the "warp" threads (*jing*) through which the teachings of others would be interwoven.[81] Besides borrowing heavily from the textual descriptions in *Rectifying Bones*, Qian and Hu also adopted most of its images, including the "bone measurement" diagrams and the diagrams of orthopedic implements. As mentioned earlier, the *Golden Mirror* separated out the issue of "rectifying bones" from other related topics, notably the category of wounds from metal blades. It seems that this medical model did not satisfy the practical needs of healers like Qian and Hu, for both men reintegrated the contents of *Rectifying Bones* back into a broader spectrum of injuries. For example, Qian's core chapters were titled "Thirty-six principles of treatment," and they opened with a discussion of injuries from metal weapons. Qian then presented entries on bleeding, drug therapies, and dangerous injuries that could not be treated. The region-based bone descriptions from *Rectifying Bones* did not appear until principle number six, and were much condensed. Likewise, the essay on "manual methods" that was originally placed at the beginning of *Rectifying Bones* was relegated to Qian's principle number thirteen. Thus, the way that Qian "supplemented the essentials" of *Rectifying Bones* actually upended the epistemological design of the original text.

The focus of *Rectifying Bones* on bony structures also meant that it did not discuss important forms of soft tissue injuries, and both Qian and Hu tried to address these lacunae. For example, when Hu reproduced the book's discussion of injuries to the hard palate, he added a long annotation about treating cut and severed tongues. Qian and Hu also both added sections on injuries to the throat and the abdomen. Qian included these among his "Thirty-six principles," while Hu inserted them into a chapter that otherwise followed the sector-by-sector format of *Rectifying Bones*, explaining that they would "supplement the inadequacies of the body diagrams."[82] Adding this information allowed Qian and Hu to discuss two types of injuries that *Rectifying Bones* omitted but that medical writers had long recognized as emergencies: cut throats, and abdominal wounds where the intestines protruded or had come out.[83] In some cases, the doctor could seal or suture the wound and save the patient, but his ability to do so

[81] Hu, *Shangke huizuan*, author's preface, 2a.
[82] Ibid., *fanli*.
[83] For the relevant passages, see Qian, *Shangke bu yao*, 2:14b–16b; and Hu, *Shangke huizuan*, 5:26a–29a, and 6:7b–10a.

required him to correctly assess the extent of damage and apply the appropriate methods with all speed.

As they expanded on *Rectifying Bones*, Qian and Hu drew on their own experiences as well as the writings of other doctors. For example, when Hu reproduced the section on "manual methods" from *Rectifying Bones*, he added almost ten pages of mnemonic rhymed verses designed to help the reader remember how to treat different fractures or dislocations.[84] Hu's treatise is also striking for the breadth and diversity of the sources that it cited, which ranged from popular texts attributed to the Shaolin monks to learned treatises by Korean court physicians.[85] It was in this context that Qian and Hu also incorporated forensic checklists and diagrams into their works, using this information to address two issues: understanding the relative danger of injuries to different parts of the body, and clarifying the names and types of human bones.

Acupoints, Injury Points, and Mortal Spots

Qian Xiuchang opened his "statement of compilation principles" (*fanli*) by emphasizing the need to understand the body's anatomo-topography. "In treating wounds," he said, "the primary necessity is to clearly recognize the positions of the apertures (*xue bu* 穴部) [of the body]. If one is not clear about the apertures, then during treatment one will make errors." For his readers' "ease of reference," Qian said, he was providing "diagrams of all the apertures on the human body" and "complete diagrams of bone measurements from the Divine Pivot." Furthermore, Qian stated that forensic information on mortal and non-mortal points could help clarify the identity of these points.

The way that Qian used the term *xue*, which I translate above as "aperture," rhetorically conflated three concepts—acupoints, bones, and mortal spots—to discuss points on the body that were more or less vulnerable to injury. The tone of his descriptions shows that he assumed that contemporary readers would understand his usage. To tease apart these different layers for modern readers, we can start by observing that the term *xue* literally means a hole or cavity, and it is often translated as "acupuncture point," i.e., locations on the circulation conduits where acupuncture needles (or burning moxa) can be applied to influence the flow of qi and blood. Qian uses the term *xue* in this acupunctural sense when he discusses four points on the body that should be needled to clear away internal

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[84] Hu, *Shangke huizuan*, *juan* 3.

[85] The Korean doctors were Yang Ye-su (1530–1600), *Ŭirim ch'waryo* (Selected essentials from the forest of medicine, 1579) and Heo Jun, *Dongŭi bogam* (Precious mirror of Eastern medicine, 1613). Hu, *Shangke huizuan*, 5:15b.

stagnations of blood.[86] At the same time, however, Qian's so-called "diagrams of the apertures" (*xue tu*) bear no relation whatsoever to acupuncture charts. Instead, they depict the position of bones. In fact, these are the same bones that *Rectifying Bones* enumerated in its diagrams of the body's sub-sections, and by comparing them we can see that Qian has essentially melded the subsector diagrams into three new images showing the full body from the front, back, and side. Similarly, Qian's "bone measurement" diagrams describe bones, not acupuncture points. [87]

Thus, the meaning of *xue* in this context can be understood as "spots on the body, associated with a bony feature, that are subject to injury." This usage was possible because bones were essential landmarks for locating acupoints and thus were physically and conceptually linked to them. Furthermore, Qian's usage of *xue* evoked a broader discourse about apertures of the body that were simultaneously sensitive to therapy and vulnerable to injury. This discourse was epitomized by the martial arts fighting technique of *dian xue*, literally "touching the apertures," in which adepts sought to disable or kill their opponents by striking certain points on the body's circulation conduits. These strike points were derived from acupuncture, and Meir Shahar sees the spread of such techniques beginning in the late Ming as part of a broader trend in which bare-hand fighting techniques were intertwined with spiritual and medical cultivation practices.[88] Strike point lore notably circulated in works on injury medicine attributed to martial arts experts.[89] However, different strains of acupuncture and martial arts also differed in the points that they recognized and the names that they assigned to them.[90] As Qian noted, it was common to find "one aperture but several names," which made it difficult to differentiate between these points. "Therefore," he explained, "I follow the diagrams from the *Washing Away of Wrongs*. There are mortal points and non-mortal points, and it will be easy to distinguish them."[91]

When Hu Tingguang reproduced the inquest diagrams from the *Washing Away of Wrongs*, he modified them to make it even easier to see the mortal points.[92]

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[86] For "the points that ought to be pierced" in Qian, *Shangke bu yao*, see the image inserted after 1:4a-b, and the discussion at 2:40a–41a.

[87] These charts appear between the table of contents and the main text in Qian, *Shangke bu yao*, *juan* 1.

[88] Meir Shahar, *The Shaolin Monastery: History, Religion, and the Chinese Martial Arts*, esp. 117–18.

[89] See, for example, Zhao Tinghai, *Secret Teachings on Saving People from Injuries* (*Jiu shang mi zhi*), first printed in 1852, as quoted in Ding Jihua, ed., *Shangke jicheng*, 585–87.

[90] The long history of such discrepancies is seen in Tang and Song dynasty attempts to standardize acupuncture points. See TJ Hinrichs and Linda Barnes, eds. *Chinese Medicine and Healing: An Illustrated History*, 93–95, 105.

[91] Qian, *Shangke bu yao*, *fanli*.

[92] Hu, *Shangke huizuan*, *fanli*.

The four original diagrams consisted of illustrations of the front and back of the corpse and illustrations of the front and back of the skeleton, with each illustration depicting both mortal and non-mortal points. Hu split these four originals into eight new diagrams, each of which showed only the mortal points or only the non-mortal points. Furthermore, in his annotations to *Rectifying Bones*, Hu added information about mortal points to help his readers better assess the potential danger of injuries on different spots on the body. For example, *Rectifying Bones*'s original description of injury to the "forehead bone" focused on the different symptoms that would accompany such injury. Hu Tingguang's commentary employed the language of forensics to additionally point out that that the center of the forehead and the corners of the forehead "are all mortal spots. If the injury is light and there is only broken skin and bleeding, then this can be treated. If the injury damages the bone while also moving the seams of the bones, then it is difficult to cure."[93] Hu's annotations to *Rectifying Bones*'s description of the "two hook bones" (*liang gou gu*), namely the hinge of the jaw, similarly cited forensic writings to describe the diagnostic issues that the doctor needed to consider. Hu pointed out that the hook bones per se were not located at a mortal spot. However, an injury here could also involve injury to the openings of the ear, a mortal spot nearby, and thus prove fatal: "If the injury is towards the front, near the cheeks, one can treat it, but if it is towards the rear, and is connected to the gates of the ears, then in cases of fracture one cannot rescue [the person]."[94] Such descriptions connected information about the body's vulnerable spots to information about the location of bones, melding forensic and medical observations to enhance the doctor's ability to diagnose and treat.

Visualizing and Clarifying the Bones

Rectifying Bones had stated that it was necessary for practitioners to understand the form of the bones. However, the bone images that it provided merely denoted the implied position of the bones as marked on the outside of a body. Qian Xiuchang suggested that this externalist approach was inadequate and even misleading. It was essential to know precisely what the bones themselves looked like, he affirmed, and therefore he presented his readers with reproductions of the forensic bone charts (see Fig. 1 and Fig. 2):

> In all cases when someone has a dislocated or fractured bone, the bone and joint are wrapped in flesh. Looking at it from the exterior, it is hard to get a clear understanding and there is the danger of making an error. Therefore, I

[93] Ibid., 5:8b.
[94] Ibid., 5:20a–b.

> have provided clear drawings based on the bone charts, so that one can differentiate the form of the joints and the appearance of the bones. Then when one goes to treat the ailment, even if [the bones are] wrapped in flesh, one can penetratingly and comprehensively understand their form and appearance. Learners will furthermore be able to make even finer distinctions between the parts of the skeleton.[95]

Unlike the diagrams from *Rectifying Bones*, these forensic images of the skeleton allowed doctors to visually penetrate the wrapper of flesh to see the form of the bones within. Even if these charts contained errors, they did at least provide information that had not previously appeared in medical works. Notably, the bone inspection diagrams depict the bones of the hands and feet, the bones of the skull, and the double bones of the forearm and lower leg. The *Washing Away of Wrongs* thus promised to give the medical practitioner more knowledge of the bones than he would get by reading the *Golden Mirror* alone.

Hu Tingguang even recommended that the two works be read in conjunction with each other as a way to resolve existing discrepancies. Hu noted that that contemporary bone knowledge could be confused and ambiguous, such that in some cases "one bone has two or three names, or three or four bones share a name."[96] In *juan* 5 and 6 of his text, where he reproduced the body region chapters of *Rectifying Bones*, Hu demonstrated for his readers how medical books and the *Washing Away of Wrongs* could be used to cross-check each other. Hu began with an introductory "general discussion of all the bones" in which he enumerated the bones listed given in the official forensic charts and correlated them to bones named in the *Golden Mirror*'s chapters on rectifying bones. The opening lines to this discussion, for example, discussed the different names given to the bone at the apex of the head: "The Board-Promulgated 'Chart for Inspecting the Bones' says: Front Side [of the body]: crown heart bone (*ding xin gu*). This is what the *Golden Mirror of the Medical Lineage* calls the summit crown bone (*dian ding gu*)."[97] After this section, which was essentially a commentary on forensic descriptions, Hu presented the body region chapters of *Rectifying Bones* into which he inserted explanatory information from the *Washing Away of Wrongs*, other medical works, and his own experiences.

Hu thus read back and forth between medical and forensic teachings about the bones, and he explained that this kind of intertextual comparison could reveal the single material reality that underlay the numerous descriptions:

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[95] Qian, *Shangke bu yao*, *fanli*, 1:1a–b (s.p.).
[96] Hu, *Shangke huizuan*, *fanli*.
[97] Ibid., 5:1a.

> The Board-Promulgated "Chart for Inspecting Bones" lists [the bones] by dividing them into the front and back of the body. The *Golden Mirror of the Medical Lineage* discusses them by dividing them according to the head and the body, [and then] the back, the belly, and the four limbs. Each has differences in the bone names. Because of this, those who want to study them are often confused. In *Collected Evidence on the "Washing Away of Wrongs"* the appended annotation that discusses the crown-heart bone quotes the language of the *Golden Mirror* to clarify it. But [when] the bone names in the *Golden Mirror* differ from each other, one cannot explain things by quoting it. Today, we will finely unravel the strands of these two books. If this one is not clear, then we will quote that one. If that one is not clear, we will quote this one. Consulting the two against each other, there will be an all-penetrating unity, so that those who study this will not be afflicted by divergences and errors.[98]

Interestingly, this quotation reveals that forensic authors were already engaging in the same kind of cross-reading. The work that Hu refers to above, the *Collected Evidence on the* "*Washing Away of Wrongs*" (*Xi yuan lu ji zheng*), was a well-known commentary on the Codification Office's inquest manual. It was initially compiled in 1796, repeatedly reprinted thereafter, and it would not have been difficult for Hu Tingguang to have seen a copy.[99] As Hu notes, this commentary drew on information from the *Golden Mirror* to explain forensic bone terms. In other words, one of the sources that informed Hu's cross-reading of forensic and medical texts was a forensic commentary that itself was citing medical texts. By carrying out his own textual research into these very same sources, Hu Tingguang was attempting to clarify a problem that also preoccupied other of his contemporaries.

Conclusion

In his comparative study of the pulse in ancient Chinese and Greek medicine, Shigehisa Kuriyama addresses a puzzle: where did the Greek urge to dissect come from? The question is important, he suggests, because, "Anatomy eventually became so basic to the Western conception of the body that it assumed an aura of inevitability. This is why historians have concentrated so much on the obstacles to its developments—as if without these impediments the desire to

[98] Ibid., 5:3a.
[99] For the history of *Xi yuan lu jizheng* and its numerous versions see Will, "Developing Forensic Knowledge," 71–72.

know would necessarily translate into the desire to dissect."[100] As Kuriyama points out, however, "There are innumerable ways to know the body."[101] The works by Qian Xiuchang and Hu Tingguang underscore Kuriyama's observation by showing that the absence of dissection in China did not mean the absence of a desire to understand the structure and topography of the body. Medical experts like Qian and Hu specialized in treating damage to the body's material form, and they believed that improved knowledge of the body's components could lead to improved therapeutics. The contemporaneous compilation of *Rectifying Bones* and the *Washing Away of Wrongs*, which sought to set empire-wide standards in medicine and forensics, provided new epistemological resources.

To improve their knowledge, and those of other practitioners, Hu and Qian melded text and images from medical and forensics works, synthesizing these with their own experiences. Forensic descriptions of mortal spots could help resolve ambiguities in medical descriptions of aperture points, and forensic bone charts could help clarify knowledge about bones. Concurrently, government officials seeking to improve forensic practice were also seeking better knowledge of the body's structures and better understandings of the treatment of trauma. All these men could now draw on an expanded, shared textual corpus of knowledge. Qian and Hu's combination of medicine and forensics was thus very much a product of their age. Deployed properly and intelligently, the healer's hand, scholar's brush, and the magistrate's eyes could all help generate new information about the hidden structures of the human form.

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[100] Shigehisa Kuriyama, *The Expressiveness of the Body and the Divergence of Greek and Chinese Medicine*, 118.
[101] Ibid.

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