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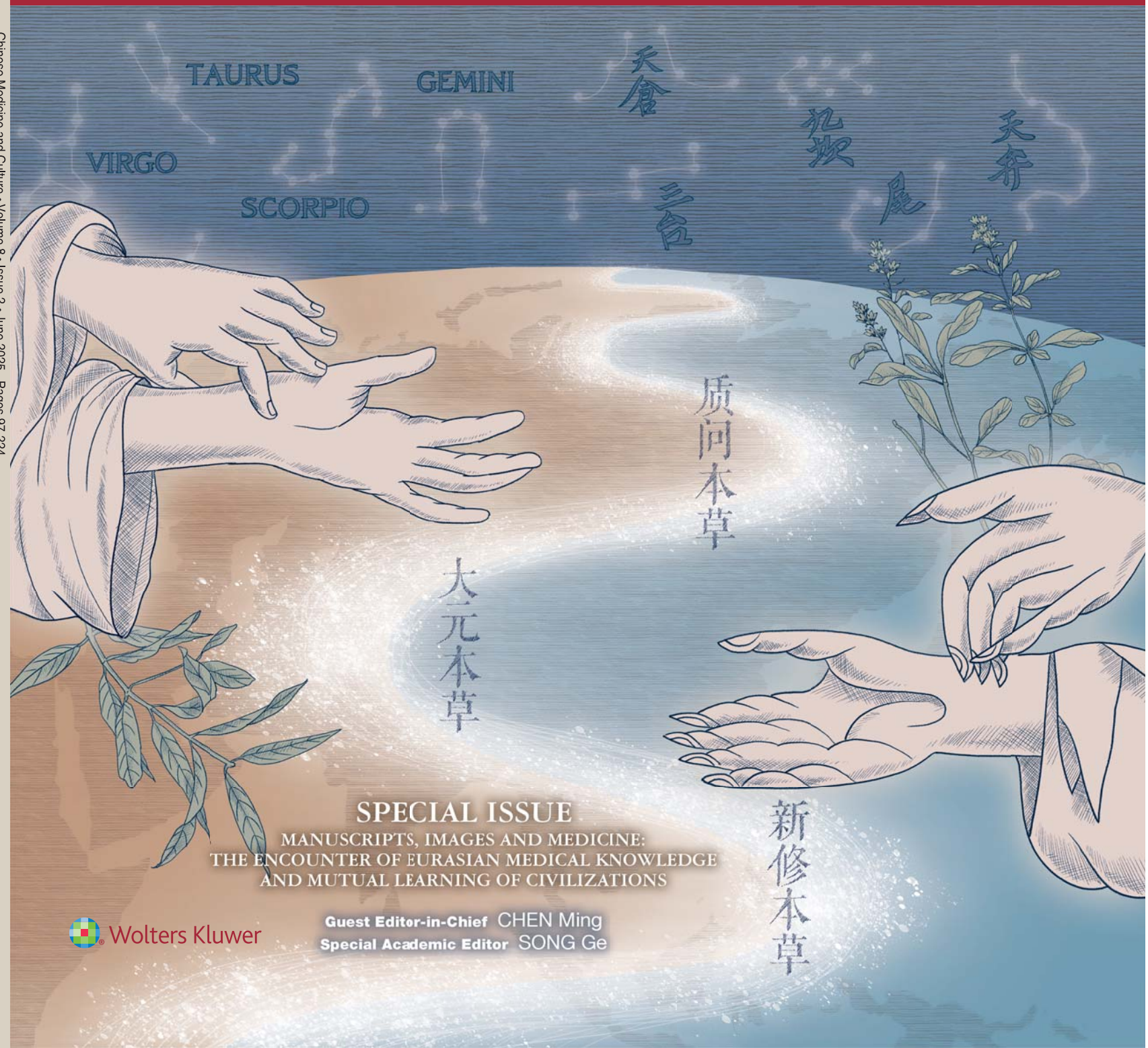
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SPECIAL ISSUE
MANUSCRIPTS, IMAGES AND MEDICINE:
THE ENCOUNTER OF EURASIAN MEDICAL KNOWLEDGE
AND MUTUAL LEARNING OF CIVILIZATIONS

Wolters Kluwer

Guest Editor-in-Chief CHEN Ming
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新修本草

Chinese Medicine and Culture

中医药文化（英文版）

Special Issue: Manuscripts, Images, and Medicine: The Encounter of Eurasian Medical Knowledge and Mutual Learning of Civilizations

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Chen Ming is a distinguished professor at the School of Foreign Languages, Peking University, as well as a visiting professor at University of Chicago and Wake Forest University. Currently, he serves as the dean of the School of Foreign Languages at Peking University and holds the position of director at the Research Center of Eastern Literature. His research interests encompass ancient Indian language and literature, Buddhist language and literature, history of Sino-Indian cultural exchange, history of medical culture, and images of ancient Eastern literature. He has authored numerous monographs including *The Terms in the Sanskrit and Chinese Texts of the Mūlasarvāstivāda Vinaya-vastus: A Comparative Study* (《梵汉本根本说一切有部律典词语研究》), *Indian Buddhist Mythology: Its Writing and Transmission* (《印度佛教神话：书写与流传》), and *Foreign Medicine and Culture in Medieval China* (《中古医疗与外来文化》). Additionally, he has published over 100 papers while leading more than 10 scientific research projects.

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Purpose of the Issue

This special issue “Manuscripts, Images, and Medicine: The Encounter of Eurasian Medical Knowledge and Mutual Learning of Civilizations” aims to focus on Eurasian traditional medical knowledge, and expects to further clarify the historical communication and exchange context of many kinds of traditional medical systems especially in different Asian regions through multi-dimensional mining of research and exploration in this field. Under the influence of research on new cultural history and global history, the Guest Editor-in-Chief and Special Academic Editor of the special issue think that the researcher of medical history should cross the construction and spread of medical knowledge in the local cultural system, explore the cross-linguistic, cross-media, and long-duration dissemination and academic collision outside the region in a broader context, uncover the internal connection of medical knowledge exchange under the perspective of mutual learning of civilizations, and communicate the roots of Eurasian civilization, so as to provide a new scene depicting the global history of medicine.

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General Information

AIMS AND SCOPE

Chinese Medicine and Culture is an interdisciplinary academic journal focusing on the study of Chinese medicine. It aims to promote communication and dialogue between researchers in the natural sciences and humanities of Chinese medicine. The objectives are to build an interactive platform for interdisciplinary research on Chinese medicine and to comprehensively reflect the high-level and latest research results of Chinese medicine in the fields of medical science research, cultural exchange and historical heritage conservation.

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Manuscripts, Images, and Medicine: The Encounter of Eurasian Medical Knowledge and Mutual Learning of Civilizations

CHEN Ming^{1,2,*}

For the history of medical culture in the world, the exchange and transmission of medical knowledge has formed an important part of mutual learning among different cultures, which has also increasingly shown unique academic value in the study of knowledge history. Traditional Eastern medicine (such as Chinese medicine, Indian ayurvedic medicine, Persian medicine, Arabic medicine), and other medical systems in the ancient Western world (including Greek medicine and Roman medicine) have left precious literature/texts, cultural relics (for example, pills, preparations, medical instruments), folklore and legends, which truly record the process of learning, transplantation, fusion and succession after the encounter of different medical systems at least for the past two thousand years.

This special issue “Manuscript, Image, and Medicine: The Encounter of Eurasian Medical Knowledge and Mutual Learning of Civilizations” aims to focus on Eurasian traditional medical knowledge, and expects to further clarify the historical communication and exchange context of many kinds of traditional medical systems especially in different Asian regions through multi-dimensional mining of research and exploration in this field. Under the influence of research on new cultural history and global history, the Guest Editor-in-Chief and Special Academic Editor of the special issue think that the researcher of medical history should cross the construction and spread of medical knowledge in the local cultural system, explore the cross-linguistic,

cross-media, and long-duration dissemination and academic collision outside the region in a broader context, uncover the internal connection of medical knowledge exchange under the perspective of mutual learning of civilizations, and communicate the roots of Eurasian civilization, so as to provide a new scene depicting the global history of medicine.

This special issue consists of ten articles and a book review. It focuses on the history of traditional Chinese medicine (TCM), with a particular emphasis on the exchange of Chinese and foreign medical cultures through a lot of textual and visual materials. This issue includes very interesting topics such as many kinds of materia medica manuscripts, medicinal garden bureau, Dingzhou eye ointment, *Yang Sheng* (养生 health preservation), pandemics and epidemics, pulse diagnosis diagrams (脉诊图), materia medica images, medical and folklore images, visual culture, and Daoist medicine.

For exchange of Chinese and foreign medical cultures, the materia medica books in TCM have occupied an extremely important historical position, involving the circulation of not only medicaments, clinical usage of medicines, manuscripts, but also images. Zhang Jingqiu (张净秋) has deeply studied the historical facts of Fu Yunlong's (傅云龙) reprint of the Japanese manuscript of *Xin Xiu Ben Cao* (《新修本草》 *Newly Revised Materia Medica*), which is the first Chinese national pharmacopoeia in early Tang dynasty. Shi Guang (时光) analyzes the compilation ways of Chinese scientific and technological books during the Ilkhanid dynasty and preliminarily points out that *Ben Cao* (《本草》 *Materia Medica*) in the preface of *Tānksūqnāmāh* (《伊利汗中国科技珍宝书》 *Ilkhanid Chinese Science and Technology Treasure Book*) was very likely to be the Persian version of *Da Yuan Ben Cao* (《大元本草》 *Materia Medica of the Great Yuan Dynasty*). Yu Yeli (于业礼) focuses on *Zhi Wen Ben Cao* (《质问本草》 *Inquiry of Materia Medica*) compiled by Wu Jizhi (吴继志) in Ryukyu Islands, and by comparing numerous handwritten and illustrated editions of this materia medica work, discusses its complex compilation process by different authors at different times. As a unique case in the history of the dissemination and interaction of medical knowledge in East Asia,

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both manuscripts and images of *Zhi Wen Ben Cao* have played a particularly important role.

Exploring the interrelationships within East Asian medicine is another focus of this issue. Zhou Min (周敏) and Hu Yingchong (胡颖翀) point out that Japanese herbalists, naturalists, and illustrators during the Edo period have recognized the importance of images in herbal literature, and gradually created a series of illustrated texts with different image styles to identify medical herbs after the transmission of *Ben Cao Gang Mu* (《本草纲目》 *The Grand Compendium of Materia Medica*) to Japan in the early 17th century. From the perspective of visual culture, Zeng Yi (曾毅) and Xiao Yongzhi (肖永芝) mainly analyze both medical and folklore images during epidemics in the Edo period. Xiang Jingjing (向静静) specifically aims to clarify the authentic meaning of “Ancient Learning (复古)” and to discuss the Japanese Kohō School (古方派) and medical knowledge exchange in early Modern East Asia. As a case of Zhu Quan’s (朱权) *Huo Ren Xin* (《活人心》 *Enlivening the Human Heart*) in the Ming dynasty, Liu Qing (刘青) elucidates the acceptance and diffusion of Zhu Quan’s *Yang Sheng* thinking across East Asia, which exerted an important influence on East Asian *Yang Sheng* culture.

When people are accustomed to discussing the influence of Western modern medicine on TCM, they should not ignore the Western transmission and influence of TCM culture. Only through the mutual communication and interaction between the two, a complete panorama of medical exchange between China and foreign countries can be formed. From a broader geographically perspective, Song Ge (宋歌) and He Yuting (贺雨婷) analyzes that composition and usage of Dingzhou eye ointment (定州眼药) align with that of similar treatments used in Greco-Roman, Arabic, and Persian medicine. Especially, the principles behind the composition of Dingzhou eye ointment from the late Ming dynasty are in accord with the concept of the four humours in Arabian medicine. It is possible that the Hui ethnic group was responsible for the introduction of Dingzhou eye ointment to China, indicating cultural exchange between Chinese and foreign medicine practices. Through a comparative analysis with Wang Honghan (王宏翰), Chen Tuo (陈拓) and Yu Xinzong (余新忠) point out that Zhu Shi (祝石) should hold a distinct position as the earliest known Chinese to receive Western medical training and extensively practice Western medicine in China, providing deeper insights into the integration of Chinese and Western medicine during the early Qing dynasty. As a

case of traditional Chinese pulse diagnosis diagrams, Ma Jie (马捷) also points out that the tangible pulse diagnosis diagrams have been collected in works such as *Tānksūqnāmāh* in Persia, *Specimen Medicinae Sinicae* (《中医指南》 *A Guide to Traditional Chinese Medicine*) in Europe, and *Die Chinesische Medizin* (《中华医学》 *Chinese Medicine*) in Germany, which have become important carriers and cultural symbols of pulse diagnostics, integrating into Eurasian medicine.

In addition, a book review written by Liu Shan (刘珊) and Duan Xiaohua (段晓华) focuses on the medical works recorded in *Dao Zang Tong Kao* (《道藏通考》 *The Taoist Canon: A Historical Companion to the Daozang*), mainly involving medicine and pharmacology, *Yang Sheng* and alchemy, and points out that the compilers of this book have made innovative contributions to the classification and some of its shortcomings.

Through selected examples in this special issue on “Manuscripts, Images, and Medicine: The Encounter of Eurasian Medical Knowledge and Mutual Learning of Civilizations”, we both want to offer different insights into materials and methods for the community of traditional medical history from an imagery perspective, and to provide new ideas for the study of global cultural communication history.

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Ethical approval

This article does not contain any studies with human or animal subjects performed by the author.

Author contributions

CHEN Ming drafted and revised the paper.

Conflicts of interest

CHEN Ming is the Guest Editor-in Chief of the special issue. The article was subject to the journal’s standard procedures, with peer review handled independently of this Guest Editor-in Chief and their research groups.

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A Study on the Historical Facts of Fu Yunlong's Reprint of the Japanese Manuscript of *Xin Xiu Ben Cao*

ZHANG Jingqiu^{1,*}

Abstract

Xin Xiu Ben Cao (《新修本草》 *Newly Revised Materia Medica*) is China's first national pharmacopoeia and holds significant importance in the history of Chinese herbal medicine. However, it was lost by the time of the Northern Song dynasty. Japanese envoys to the Tang dynasty brought this text back to Japan, where it was preserved in manuscript form at Ninna-ji Temple (仁和寺) in Kyoto, although it gradually fell into obscurity. In the 19th century, Japanese physicians and scholars such as the Fukui family (福井家), the Asai family (浅井家), the Kojima family (小島家), and Kariya Ekisai (狩谷棧斎) discovered fragments of *Xin Xiu Ben Cao*, transcribed them, and gradually disseminated them. During his travels to Japan from 1888 to 1889, the Chinese envoy Fu Yunlong (傅云龙), along with Chen Ju (陈桀), acquired and published this text. The reproduced edition shows that the text consists of eleven volumes, eight of which were originally from the Kojima family's collection. Volume 3 was transcribed by Kojima Naozane (小島尚真) based on his father's compiled edition. The Kojima family's manuscripts were later acquired by Arai Masatake (新井政毅), the owner of the Arai Bunko (新井文库), and after his passing, they were dispersed among booksellers. The seals printed in the book reveal that the Qing Legation in Japan and Chinese literati who traveled to Japan jointly appreciated and studied this text. By comparing it with other scroll and album-format manuscripts, it becomes evident that the layout of this fragment differs from the scroll format but is closer to the album format.

Keywords: *Xin Xiu Ben Cao* (《新修本草》 *Newly Revised Materia Medica*); Fu Yunlong (傅云龙); Chen Ju (陈桀); Ninna-ji Temple (仁和寺)

1 Introduction

In the second year of the Xianqing (显庆) era (657 AD) during the reign of Emperor Gaozong of Tang (唐高宗), Su Jing (苏敬), a senior official of the Right Gate Guard (右监门府), submitted a memorial stating: “*Ben Cao Jing Ji Zhu* (《本草经集注》 *Collected Annotations on the Materia Medica*) compiled by Tao Hongjing (陶弘景) contains numerous errors and inaccuracies, and I request permission to revise and supplement it”.¹ This proposal received the support of Emperor Gaozong, and by the fourth year of Xianqing (659 AD), *Xin Xiu Ben Cao* (《新修本草》 *Newly Revised Materia Medica*)

was completed. This work stands as the first officially commissioned pharmacopoeia in ancient China and holds a significant place in the history of herbal medicine development. *Kai Bao Ben Cao* (《开宝本草》 *Materia Medica of the Kaibao Era*), compiled in the early Song dynasty, was based on *Xin Xiu Ben Cao*, and subsequent works such as *Jia You Ben Cao* (《嘉祐本草》 *Materia Medica of the Jiayou Era*) and *Zheng Lei Ben Cao* (《证类本草》 *Materia Medica Arranged According to Pattern*) series also incorporated its content. As later herbal works often refined and surpassed earlier ones, *Xin Xiu Ben Cao* gradually fell into obscurity and was lost by the time of the Northern Song dynasty. Shortly after its publication, the text was taken to Japan, where it was preserved, though its existence remained unknown to Chinese scholars for a long time. After the establishment of the Qing dynasty's legation in Japan, Yang Shoujing (杨守敬) obtained a hand-copied version of the text during his visit to Japan, and the scholar Mori Tatsuyuki (森立之) recorded it in his *Jing Ji Fang Gu Zhi* (《经籍访古志》 *Records of Ancient Texts Visited*). However, the academic community in China had no access to it until the 15th year of the Guangxu (光绪) era (1889 AD), when Fu Yunlong (傅云龙) brought back and reprinted the ten-volume remnant of the Japanese-held manuscript along with a supplementary volume compiled by the Kojima family

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(小島家). It was only then that the true text of *Xin Xiu Ben Cao* was revealed to the world. This article focuses on the historical facts surrounding Fu's reprint of *Xin Xiu Ben Cao*, and also discusses the textual condition and lineage of the work.

2 Overview of Fu Yunlong's (傅云龙) life and his activities in Japan

Fu Yunlong (傅云龙, 1840–1901), originally named Yunfeng (云豐), courtesy name Louyuan (樓元), also known as Maoyuan (懋元), and style name Xingfu (醒夫), was born on the fourth day of the fourth lunar month in the 20th year of the Daoguang (道光) era (1840) in Shangbo (尚博), Deqing (德清), Zhejiang [now part of Zhongguan (钟管) town, Deqing county, Huzhou (湖州) city]]. He passed away on the 12th day of the fourth lunar month in the 27th year of the Guangxu era (1901). His father, Fu Gengmei (傅羹梅), was an upright and scholarly man with a passion for books, yet he repeatedly failed the imperial examinations. He later worked as a private advisor to officials, traveling between Sichuan and Yunnan provinces. Fu Gengmei was diligent in governance, compassionated the people, and hated corruption, earning him great respect from the locals. He resigned from his post due to illness and passed away in the fifth year of the Xianfeng (咸丰) era (1855). Fu Yunlong was born by Fu Gengmei's second wife, Madame Yao (姚), who was frugal and diligent in managing the household and devoted to educating her children, emphasizing the importance of literature and scholarship (Note 1). The upbringing and moral guidance from his parents profoundly influenced Fu Yunlong's academic pursuits and official career.

Fu Yunlong was born in Fengdu (豐都), Sichuan, when his father was serving as a private advisor (幕賓). As the eldest son, he began his education at the age of four, demonstrating diligence and academic excellence. At sixteen, he lost his father, and life became difficult. By nineteen, he followed his father's footsteps, working as a private advisor in Chengdu, Tongchuan (潼川), Xuzhou (叙州), Luzhou (泸州), and the Sichuan Provincial Judicial Commissioner's Office (四川按察使司). During this period, he studied military affairs, legal studies, and gained practical experience in administrative matters. In the fourth year of the Tongzhi (同治) era (1865), Fu Yunlong co-founded the "Nixian Pavilion Literary Society (霓仙館會文社)" with like-minded friends in Sichuan, among whom was the renowned modern bibliographer, bibliophile, and epigrapher Miao Quansun (繆荃孫, 1844–1919). The two maintained a close relationship thereafter.

In the seventh year of the Tongzhi era (1868), Fu Yunlong donated funds to secure the position of a ministry secretary. In the eighth year of Tongzhi (1869), at the age of thirty, Fu Yunlong left Sichuan. On the 19th day of the fifth lunar month, he arrived in Beijing and

subsequently took up a post in the capital. By the 11th year of Tongzhi (1872), after completing a three-year term, he passed the official evaluation. In the fifth year of the Guangxu era (1879), on the recommendation of Wan Qingli (萬青藜), the Minister of Personnel, Fu Yunlong participated in the revision of *Shun Tian Fu Zhi* (《順天府志》 *Shuntian Prefectural Gazetteer*). By the 12th year of Guangxu (1886), the compilation was completed, with Fu Yunlong single-handedly writing 43 volumes and co-authoring three others. The Guangxu Emperor commended his work and subsequently transferred him to the Military Regulations Bureau of the Ministry of War (兵部則例館) as a compiler.

While Fu Yunlong was engaged in the compilation of *Shun Tian Fu Zhi* and the military regulations, the Qing court began deliberating on sending officials abroad for study and observation. The Qing dynasty formally decided to station envoys overseas and establish embassies and consulates in the first year of Guangxu (1875), with the first group of envoys sent to Britain, the United States, and Japan.² In the 10th year of Guangxu (1884), "Censor Xie Zuyuan (謝祖源) petitioned to recruit talented individuals to travel abroad (御史謝祖源奏請收奇杰士游歷外洋)".³ This proposal received the emperor's approval, and in the 13th year of Guangxu (1887), Zong Li Ya Men (總理衙門 the Office for the Management of Foreign Affairs) submitted *Regulations for Personnel Traveling Abroad* (《出洋游歷人員章程》). Seventy-five candidates were recommended by the six ministries, including Fu Yunlong. In the intercalary fourth month, an examination was held for the candidates, and 28 were selected, with Fu Yunlong ranking first. The countries and regions he was to visit included Japan, the United States, Peru, Brazil, Canada, and Cuba.

On the 27th day of the ninth lunar month in the 13th year of Guangxu (1887), Fu Yunlong departed Shanghai for Japan aboard the Japanese ship Tokyo Maru (東京丸). Over the next six months, he traveled extensively throughout Japan. On the 20th day of the fourth lunar month in the 14th year of Guangxu (1888), he left Japan for the United States, returning to Japan on the 28th day of the fourth lunar month in the 15th year of Guangxu (1889). After another five months, on the 25th day of the ninth lunar month, he boarded the Saikyō Maru (西京丸) in Nagasaki and returned to China, arriving in Shanghai on the 27th day of the ninth lunar month (Fig. 1). Fu Yunlong's two trips to Japan spanned nearly a year. The first trip focused on travel, while the second emphasized documenting his experiences, resulting in works such as *You Li Ri Ben Tu Jing* (《游歷日本圖經》 *Illustrated Records of Travels in Japan*) and *You Li Tu Jing Yu Ji* (《游歷圖經余紀》 *Supplementary Records of Illustrated Travels*).

During his time in Japan, Fu Yunlong extensively toured and visited various industries, gaining insights into Japan's natural environment, cultural landscapes, local customs, and social conditions. He interacted with

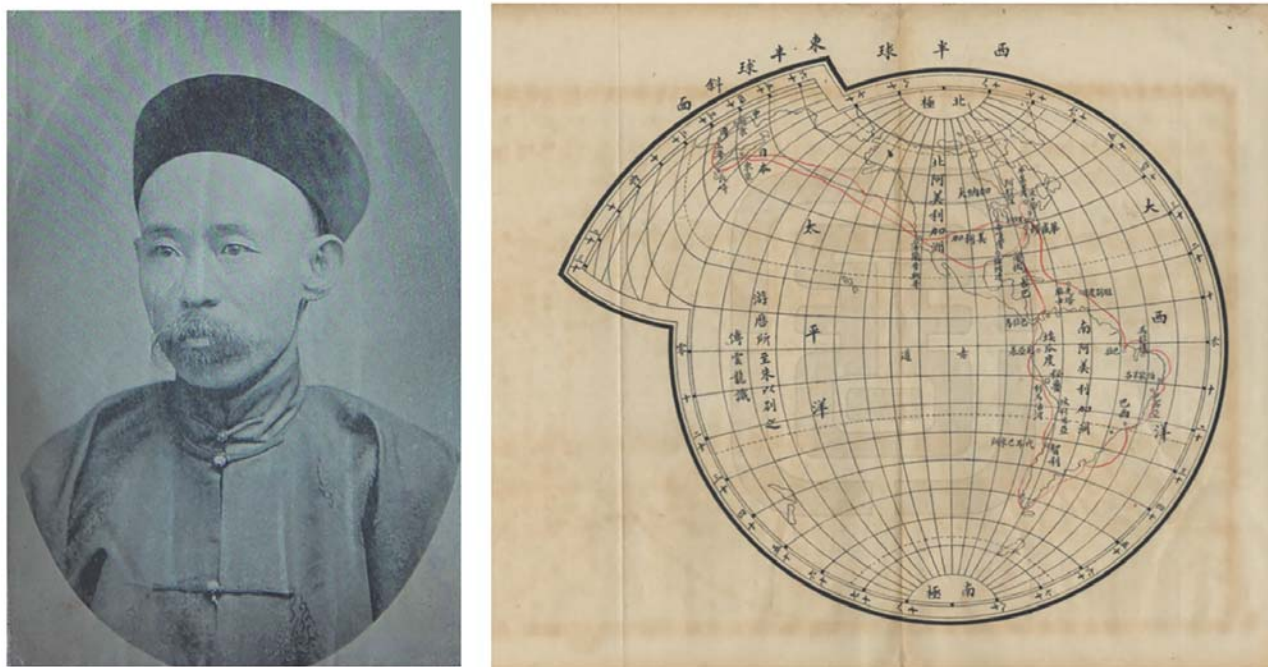


Figure 1 Portrait of Fu Yunlong (傅云龙) and his map of travels around the globe (source with permission from: Left: Tourism Museum of Zhejiang: https://mp.weixin.qq.com/s?__biz=MzUyMzc2MDk5OA==&mid=2247489786&idx=1&sn=40d1db538f8a2ae67f3b8677095b1f8e&chksm=fa36fc3cd4175e5ef79fc67b21178f7d80dea12e8de7f983044613d5aaf8d1db0937d38b6b8&scene=2; Right: National Library of China's Ancient Books Digital Collection: <http://read.nlc.cn/OutOpenBook/OpenObjectBook?aid=403&bid=20498.0>)

individuals from all walks of life in Japan, paying particular attention to Japan's industry, military, education, and legal systems. He also made a special effort to collect Chinese and Japanese printed and manuscript books, as well as epigraphic materials in Japan. He reproduced important Chinese texts and compiled them into *Zuan Xi Lu Cong Shu* (《饗喜庐丛书》 *Collected Works of the Zuanxi Studio*), which included the 11-volume manuscript of *Xin Xiu Ben Cao* that he had acquired. Additionally, he conducted related research during his stay.

After returning to China, Fu Yunlong was appointed to several significant positions, including compiler at the Huidian Institute (会典馆, a bureau responsible for compiling official documents), deputy director of the Tianjin Machinery Bureau (天津机器局会办), assistant director of the Naval Office (海军衙门), director of the Tianjin Machinery Bureau (天津机器局), and director of the Shenji Camp Machinery Bureau (神机营机器局). On the 12th day of the fourth lunar month in the 27th year of the Guangxu era (1901), Fu Yunlong passed away due to illness.

Throughout his life, Fu Yunlong produced a vast body of works, but his most celebrated contributions were his travelogues from abroad and his records of collecting and examining ancient texts and documents. These works provided the Qing dynasty with firsthand materials to understand the world and offered Chinese scholars insights into the preservation and distribution of Chinese texts and historical documents overseas. His writings are still of great historical value for contemporary research, shedding light on the global circulation of knowledge and cultural exchange during the late 19th century.

3 The transmission and rediscovery of *Xin Xiu Ben Cao* (《新修本草》 *Newly Revised Materia Medica*) in Japan

The history of the transmission and rediscovery of *Xin Xiu Ben Cao* in Japan has been examined by Japanese scholars such as Nakao Manzo (中尾万三),⁴ Mori Shikazo (森鹿三),⁵ and Mayanagi Makoto (真柳诚),^{6,7} and so on. The author's unpublished manuscript, "A study on the transmission and provenance of the ancient Japanese manuscript *Newly Revised Materia Medica* (《日藏古写本<新修本草>传抄递藏考》)", builds on their research and provides a detailed discussion. Below is a brief overview of its historical trajectory.

The earliest known record of *Xin Xiu Ben Cao* being transmitted to Japan is found in a colophon at the end of the fifteenth volume of the text, currently housed in the Kyo-U Library (杏雨书屋) in Japan. The colophon states: "Copied by the scribe Tanabe no Fubito on the 17th day of the seventh month of the third year of Tenpyō (731) (天平三年岁次辛未七月十七日书生田边史)". The third year of Tenpyō corresponds to the 19th year of the Kaiyuan (开元) era (731) during the reign of Emperor Xuanzong (玄宗) of the Tang dynasty, just 72 years after *Xin Xiu Ben Cao* was officially promulgated. Scholars generally agree that the text was likely brought to Japan by Japanese envoys to the Tang dynasty. Maruyama Yumiko (丸山裕美子) suggests that the original text was probably brought back to Japan by the envoys who returned in the second year of Yōrō (718).⁸ This remains a plausible theory. *Nihonkoku Genzaisho Mokuroku* (《日本國見在書目錄》 *Catalogue of Extant Books in*

Japan), compiled in the third year of the Kanpyō era (891) during the reign of Emperor Uda, is the earliest extant imperial catalog of Chinese texts in Japan. It records *Xin Xiu Ben Cao* in twenty volumes, attributed to Kong Xuanjun (孔玄均).⁹ Additionally, *Engishiki* (『延喜式』), a legal code completed in the fifth year of the Enchō (延長) era (927) during the Heian period, mentions in its eighteenth volume that “all medical students must study Su Jing’s *Xin Xiu Ben Cao*”.¹⁰ The 37th volume of the same text, under the section on the Bureau of Medicine, stipulates that “those who study medical texts must spend 310 days on *Xin Xiu Ben Cao*, equating its importance to that of mid-level canonical texts”.¹¹ These records underscore the significant role *Xin Xiu Ben Cao* played in Japanese medical education and clinical practice during this period. However, much like its fate in China, *Xin Xiu Ben Cao* gradually fell into obscurity in Japan following the introduction of *Zheng Lei Ben Cao* series during the Song dynasty. By the time Tanba Mototsugu (丹波元胤) wrote *Iseki Kō* (『医籍考』 *Investigations of Medical Works*) in 1819, *Xin Xiu Ben Cao* was listed as a lost text.¹² Nevertheless, fragments of ancient manuscript copies of the text survived, preserved at Ninna-ji Temple (仁和寺).

Ninna-ji Temple was established in the fourth year of the Ninna era (888) during the reign of Emperor Uda (宇多天皇). In the second year of the Shōtai era (899), after abdicating the throne and becoming a daijō Tennō (上皇), Emperor Uda took monastic vows and resided at Ninna-ji, earning the title of “Hōō (法皇)”. Emperor Uda was the first Hōō and the first abbot of Ninna-ji. He built monastic quarters within the temple, which were respectfully referred to as the “Omuro”, and thus, Ninna-ji also became known as the “Omuro Palace”. Subsequent abbots of the temple were consistently chosen from among the sons or grandsons of the reigning emperor, ensuring that Ninna-ji maintained its status as a royal temple and held the highest prestige from the Heian to the Kamakura periods. It is likely due to this close relationship between the imperial family and Ninna-ji that medical texts bearing colophons by the imperial physician, The Tanba (丹波) Clan were entrusted to the temple by the monk Chōnen (喬恰) of Shinren-in (心蓮院) in the late 16th century. *Xin Xiu Ben Cao* was also preserved at Ninna-ji through a similar process.

The Fukui family (福井家) of Kyoto, who served as court physicians, named their residence “Shōran-kan (崇蘭館)” and devoted themselves to collecting medical texts across generations. Fukui Yōtei (福井榕亭) and his son Fukui Teien (福井棣園) paid particular attention to the outflow of medical texts from Ninna-ji. Before the 12th year of the Bunka (文化) era (1815), the Fukui family had already acquired the scrolls of *Tai Su* (《太素》 *Grand Simplicity*) stored at Ninna-ji Temple. They also possessed volumes 13, 14, 15, 18, and 20 of *Xin Xiu Ben Cao*, totaling five volumes, which they were kept not disclosed to the public.

During the Edo (江戸) period, many physicians and scholars devoted to discovering and persevering of ancient texts. Among them were the Asai family (浅井家), descendants of the Asai clan who served as physicians to the Owari Domain (尾張藩), including Asai Teian (浅井贞庵) and his son Asai Shizan (浅井紫山); the Kojima family (小島家), physicians to the Tokugawa shogunate (徳川幕府), including Kojima Naokata (小島尚质) and his son Kojima Naozane (小島尚真); and the textual scholar Kariya Ekisai (狩谷棧斋). These individuals played significant roles in the discovery, transcription, and preservation of *Xin Xiu Ben Cao*. They maintained close connections, sharing information and exchanging manuscript copies.

In the third year of the Tenpō (天保) era (1832), Kariya Ekisai traveled to the Fukui family in Kyoto to transcribe the fifteenth volume of *Xin Xiu Ben Cao*. It is highly likely that he learned of this opportunity and was motivated to undertake the task through his connections with the Kojima family. Knowing that the Fukui family rarely lent out their books, Kariya Ekisai first brought a copy of a text compiled from *Zheng Lei Ben Cao* and requested permission to collate it. Surprisingly, the Fukui family agreed to lend him the original, allowing him to copy it overnight and return it the next day. On his way back to Edo, Kariya Ekisai visited the Owari Domain, where he informed Asai Shizan of the Fukui family’s collection. In the tenth month of the fourth year of Tenpō (1833), he also sent a second copy of the fifteenth volume to the Asai family and Kojima Naozane.

In the first month of the fifth year of Tenpō (1834), it spread that a new discovery of *Xin Xiu Ben Cao* at Ninna-ji. Asai Shizan of Owari dispatched Tsukahara Shūsetsu (塚原修节) to transcribe the newly found volumes, which included volumes 4, 5, 12, 17, and 19. The transcription was completed by the 10th day of the fifth month, and the original texts remain at Ninna-ji. That winter, Kojima Naokata also transcribed these five volumes based on the copies held in Asai Shizan’s Sankyōrō (三经楼) collection.

From the ninth to the 11th month of the thirteenth year of Tenpō (1842), Kojima Naokata accompanied Prince Shinnin Nyūdō (舜仁入道亲王) on a visit to Kyoto, where he personally examined the texts. On his way, he stopped by the Owari Domain to meet Asai Shizan and also visited the Fukui family’s Shōran-kan in Kyoto. On the twelfth day of the eleventh month, the Senzan Manirō (千山万井楼) collection displayed the Tenpyō-era manuscript of the 15th volume of *Xin Xiu Ben Cao*, along with volumes 13, 14, 18, and 20. Kojima Naokata was able to transcribe these four volumes during this time.

In summary, all known surviving manuscript fragments of *Xin Xiu Ben Cao* can be traced to three sources: (1) the 15th volume, transcribed by Kariya Ekisai; (2) volumes 4, 5, 12, 17, and 19, transcribed by Asai Shizan in the fifth year of Tenpō (1834); and (3) volumes 13, 14, 18, and 20, transcribed by Kojima Naokata in the 13th

year of Tenpō (1842). The specific transmission process is illustrated in the accompanying diagram (Fig. 2). From this, it is clear that Kojima Naokata played a pivotal role in bringing together the surviving fragments of *Xin Xiu Ben Cao* as we know them today.

Additionally, there are two points that need to be supplemented. The first point is that scholars believe that the preliminary compilation work based on *Zheng Lei Ben Cao* before Kariya Ekisai transcribed Volume 15 of *Xin Xiu Ben Cao* was likely completed by Kojima Naokata. Fu Yunlong's acquisition of the third volume of *Xin Xiu Ben Cao* compiled by Kojima Naokata, along with its colophon, seems to corroborate this. Furthermore, the textual form and content of the "Kōko-sai (考古斋) Collated Copy in the third year of Tenpō (1832)" of *Xin Xiu Ben Cao* (Call Number: Gu Guan 013120–013124), currently housed in the Palace Museum in Taipei, China, also provide evidence of Kojima Naokata's compilation process (Fig. 3). The second point is that some studies suggest that the Asai family had already learned about the early medical texts held by the Fukui family and Ninna-ji as early as the 10th year of the Bunsei (文政) era (1827). They reportedly sent someone to Ninna-ji to transcribe ancient medical texts, including *Xin Xiu Ben Cao*, and subsequently presented these transcriptions to the lord of the Owari Domain (藩主). However, this claim currently lacks sufficient evidence and remains subject to further verification.

4 Fu Yunlong's acquisition, reprinting, and related issues regarding *Xin Xiu Ben Cao*

When Fu Yunlong traveled to Japan, the Qing dynasty's envoy to Japan was Li Shuchang (黎庶昌), who was serving his second term in this role. Each Qing envoy

was responsible for selecting and recruiting their own staff, and Li Shuchang's team included Qian Depei (钱德培, 1843–1904) as a counselor and secretary, with Chen Ju (陈渠) serving as one of the attendants. Although the position of envoy to Japan did not place great emphasis on social status, it had developed a unique tradition: most envoys were cultured and fond of literature. Li Hongzhang (李鸿章) once advised Li Jingfang (李经方) on the nuances of serving as an envoy to Japan, stating, "Although the Japanese court may undervalue Chinese studies, many among the common people still appreciate poetry and classical prose. There may even be opportunities for social engagement through these interests". In the 21st year of the Guangxu era (1895), Zheng Xiaoxu (郑孝胥) recommended Li Shuchang for the position, noting that Li, though somewhat rigid in handling affairs, was highly respected. Initially, the Japanese looked down on him, but over time, many Japanese scholars sought his guidance, and even the government came to respect him. Zheng remarked, "Many Japanese scholars of Chinese studies still regard Li as their teacher, and Li is adept at building connections. The Japanese, being somewhat frivolous, greatly admire recognition. If Li were to return, he could certainly bring some stability".² This demonstrates that a cultured and literary disposition became a hallmark of the Qing envoys to Japan, with most members being skilled in writing, fond of rare texts, and sharing similar interests. This environment provided Fu Yunlong with the opportunity to collect and publish rare overseas texts. For further details, Professor Chen Jie's (陈捷) specialized work on this topic offers valuable insights.¹³

The specific process of Fu Yunlong's acquisition and reprinting of *Xin Xiu Ben Cao* is detailed in the colophon of the second volume of *Zuan Xi Lu Cong Shu*. The relevant excerpt is as follows:

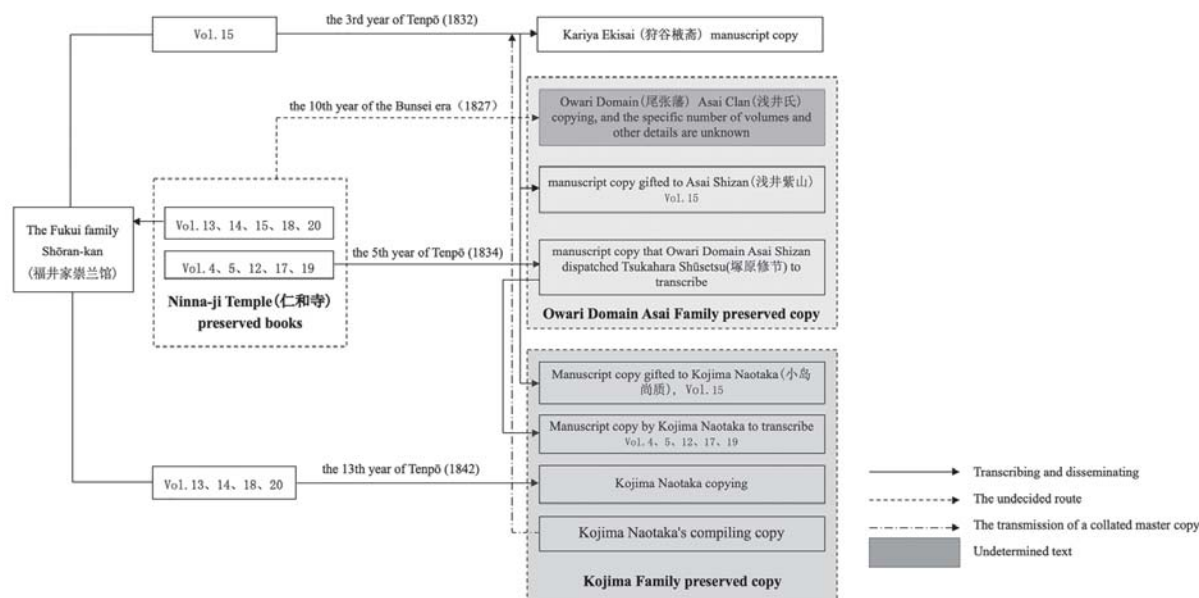


Figure 2 Transmission and transcription flowchart of *Xin Xiu Ben Cao* manuscripts preserved at Ninna-ji Temple (source with permission from: made by the author)

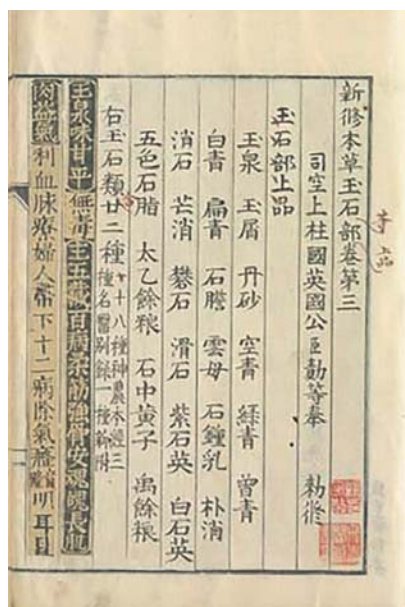


Figure 3 Image of the “Kōko-sai (考古齋) Collated Copy in the third year of Tenpō (1832)” of *Xin Xiu Ben Cao* (source with permission from: Taibei Palace Museum: <https://rarebooks-maps.npm.edu.tw/index.php?act=Display/image/134194P1MyiAn#83J>)

“*Xin Xiu Ben Cao* was lost in China after the Song dynasty. However, in the third year of the Tenpyō era (731), Japanese envoys to China made a handwritten copy of the text and brought it back to Japan. Over time, this copy also became obscure, and only five volumes were said to survive. Up to the present, only three volumes obtained: volumes 4, 5, and 15, which were preserved in the private collection of a scholar in Kyoto. ... Fu Yunlong, a scholar from Deqing, encountered these volumes during his travels in the United States and Canada, upon seeing them, was deeply impressed. I presented them to him, and he included them in his *Zuan Xi Lu Cong Shu*. Fu Yunlong, known for his rigorous scholarship and extensive writings, had yet to publish many of his works. However, as the saying goes, ‘Things gather where they are appreciated’, and this acquisition was a testament to that. — Written by Chen Ju from Guiyang.

《新修本草》，宋后遂佚。日本天平三年，使臣入中国曾影写《新修本草》以归，久亦湮晦，闻存者五卷耳。至于今，仅获其三：一，第四；一，第五；一，第十五。为日本西京士人家旧藏。……德清傅懋元驾部至自美利加，见而爱之，遂赠之，刊入《饕喜庐丛书》。驾部朴学有声，著述千卷有奇，所刊则犹有待。然物必聚于所好，此其一也。贵阳陈桱识

Xin Xiu Ben Cao in 20 volumes was compiled during the Tang dynasty under Li Ji (李勣) and others in the fourth year of the Xianqing era (659). Seventy-one years later, a handwritten copy was brought to Japan, while the original Tang version was lost in China after the Song dynasty. Over time, Japan also lost ten of its volumes. According to old catalogs of manuscripts, only five volumes survived, and Yunlong obtained three of them (volumes 4, 5, and 15) from Chenzi Hengshan (陈子衡山). These were the so-called scroll editions. ... Written by Fu Yunlong from Deqing, a senior official in the Ministry of War, during the summer of the 15th year of the Guangxu era (1889) in Tokyo, Japan.

《新修本草》二十卷，唐李勣等修于显庆四年，越七十一年传抄日本，而唐本宋后转佚。久之，日本亦遗其卷之十。今观旧抄本书目，存仅五卷，是本居五之三，云龙得自陈子衡山，即所谓卷子本也。……光绪十五年夏，游历日本等国兵部郎中德清傅云龙识于日本东京

After obtaining the three scroll editions of *Xin Xiu Ben Cao* (volumes 4, 5, and 15) from Mr. Chen, I had them typeset for printing. One day, a bookseller arrived at my door with a complete set of the ten volumes mentioned in *Jing Ji Fang Gu Zhi*, which were part of the old collection of the Kojima Tomotari (小島知足). In addition to these 10 volumes, there was also a supplementary handwritten copy of the third volume, meticulously transcribed in the style of the Tenpyō-era original. This copy had been carefully collated against *Zheng He Ben Cao* (《政和本草》 *Materia Medica of the Zhenghe Era*) and *Da Guan Ben Cao* (《大觀本草》 *Materia Medica of the Daguan Era*), making it a valuable edition. My colleagues and I had long sought these texts without success, but now we had acquired them without error. The reprinting of these long-lost Chinese texts, now restored, could be described as a fortunate coincidence. ... Having lost the text for over a thousand years, Yunlong was able to reprint *Xin Xiu Ben Cao* based on the fragile thread of preservation in Japan. By safeguarding these remnants, I enriched the cultural heritage, aligning with the spirit of 'repeated translations and reaching distant customs'. This was also a mission of my travels. The reprinting began on the 16th day of the fifth lunar month and was completed on the 13th day of the sixth lunar month. — Another colophon by Fu Yunlong.

云龙既从陈君得唐卷子本《新修本草》四与五与十五，凡三卷，付手民矣。一日书估踵门，则《经籍访古志》所云存凡十卷者罔弗具，是为小岛知足家藏旧抄本。不第惟是十卷而外，有第三卷补写本。行款一仿天平原抄，盖有尚真者就厥父辑本手录，而以《政和本草》《大观本草》一再校之，亦一善本也。同志求之久不获，今皆得之无误。剞劂中国佚书一旦归璧，可不谓会逢其适。……佚后一千余年而云龙乃以日本之不绝如线者刊之，藉彼守残聊增轶采，未始不与“重九译，致殊俗”相表里也，亦游历责也。……覆本开雕于夏五既望，迄六月十三日。傅云龙又跋”

The colophons above were written by Chen Ju and Fu Yunlong in sequence, and their content provides a detailed account of how Fu Yunlong acquired and reprinted *Xin Xiu Ben Cao*. Initially, Chen Ju obtained three volumes of the text (volumes 4, 5, and 15), which he described as originating from “an old collection of a scholar in Kyoto, Japan”. However, the reprinted editions of these volumes do not bear any seals or marks that could confirm their provenance. Later, when Fu Yunlong returned from his travels in the Americas, he saw the volumes and was so captivated by them that Chen Ju gifted them to him. Fu Yunlong decided to include these volumes in his *Zuan Xi Lu Cong Shu*. The reprinting process began on the 16th day of the fifth lunar month in the 15th year of the Guangxu era (1889), and both Chen Ju and Fu Yunlong wrote colophons to accompany the reprinted volumes.

Not long after, a bookseller approached Fu Yunlong with a complete set of the ten surviving volumes of *Xin Xiu Ben Cao*, which were part of the old collection of the Kojima Tomotari. In addition to these 10 volumes, there was also a supplementary handwritten copy of the third volume, meticulously transcribed in the style of the Tenpyō-era original. With all the surviving content of *Xin Xiu Ben Cao* now in his possession, Fu Yunlong proceeded to reprint the additional volumes, completing the task on the 13th day of the sixth lunar month. He then wrote another colophon to document this achievement.

The format and seals of the reprinted editions reveal some issues related to the transmission of *Xin Xiu Ben Cao* and the textual sources of the editions Fu Yunlong acquired. Below, the seals found in the reprinted editions are summarized in table 1 (Table 1).

The reprinted edition of *Xin Xiu Ben Cao* contains a total of 22 seals, appearing 65 times in various locations. The specific details and positions of these seals are summarized in the table above and will not be repeated here. Below, we analyze and examine several key issues related to these seals and the reprinting process.

4.1 Title inscription and colophon seals

The full title of the reprinted edition, *Tang Juan Zi Ben Xin Xiu Ben Cao Shi Juan Bu Ji Yi Juan* (《唐卷子本新修本草十卷补辑一卷》 *Tang Scroll Edition of Newly Revised Materia Medica in Ten Volumes with a Supplementary Volume*), was inscribed in seal script by Qian Depei. Qian Depei, courtesy name Qinzhai (琴斋) and literary name Runsheng (闰生), was native in Shanyin (山阴, now Shaoxing), Zhejiang, and was skilled in seal carving.¹⁴ Despite losing his father at a young age and growing up in poverty, he was intelligent and studious. In the third year of the Guangxu era (1877), he passed the examination for overseas assignments and served as an attendant in Germany. By the seventh year of Guangxu (1881), he was promoted to third-class counselor. He served in Europe for seven years. In the 13th year of Guangxu (1887), he was appointed as a counselor to the Qing legation in Japan, where he made significant contributions.¹⁵ The seals numbered 1, 2, and 22 in the table 1 are Qian Depei's personal seals.

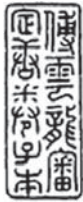
Chen Ju, as mentioned earlier, was an attendant in the legation and gifted Fu Yunlong the three volumes of *Xin Xiu Ben Cao* he had acquired. Scholars such as Chen Jie have provided detailed accounts of Chen Ju's life and activities in Japan,^{13,16} so we will not elaborate further here. The seals “*Gui Yang Chen Ju* (贵阳陈渠)” (seal 14), “*Jing Wen Ge* (景文阁)” (seal 15), and “*Heng Shan Mi Ji* (衡山秘笈 Hengshan Secret Collection)” (seal 8) at the beginning of the fourth volume are all Chen Ju's seals, reflecting his deep appreciation for this ancient text.

Two particularly noteworthy seals appear after the third colophon: “*Zheng Ze Jing Yan* (正则经眼)” (seal

21, *Jing Yan* in Chinese means having read) and “*Yun Hu Yan Fu* (云壶眼福)” (seal 18, *Yan Fu* in Chinese means visual joy). Based on available records, the owners of these seals were not directly involved in the collection or reprinting of the text but had the privilege of viewing it. *Zheng Ze* was the courtesy name of Li Changxun (李昌洵), an attendant in Li Shuchang's delegation. As for *Yun Hu*, this name does not appear in “The list of Qing envoys to Japan (中国驻日使臣表).”¹⁷ However, scholars have identified a figure named Gu Yun (顾云, 1835–1896),^{18,19} courtesy name Ruobo (若波) and literary name Yunhu (云壶), Huyin (壶隐), Huweng (壶翁), and Yunhu Waishi (云壶外史). Gu Yun, a native of Wu county (now Suzhou, Jiangsu), was a Qing dynasty painter influenced by the “Four Wangs (四王)”, Wu Li (吴历), and Yun Shouping (恽寿平). He specialized in landscape painting and was known for his elegant and classical style. In the 14th year of Guangxu reign (1888), he traveled to Japan, where he interacted with prominent Japanese artists of the Meiji (明治) period, such as Kanai Yukiyasu (金井之恭, 1833–1907).²⁰ Gu Yun's participation in the cultural exchanges at the time is evidenced by his poems in *Hong Ye Guan Xiu Xi Bian* (《红叶馆修禊编》 *The Red Leaf Pavilion Poetry Collection*), compiled by Sun Dian (孙点), an attendant in the delegation. These poems include “Yesterday, I saw the collection of harmonious verses by the envoy at the Kinmune family's gathering at the Red Leaf Pavilion, and learned that all the attendees had composed harmonious verses. Yun was among them, yet I had not even read the envoy's original work. How laughably oblivious I was! Thus, I composed a supplementary verse to present for critique (《昨从金洞家见和星使集红叶馆亲睦会韵, 知是集同人皆有和作, 云厕其间, 并星使原作犹未读及, 何其瞶瞶可笑也, 因补一律就政》)” and “Four quatrains composed at the Red Leaf Pavilion (《宴红叶馆偶题四绝》).”²¹ The two poems provide a general insight into the origin of the phrase “*Yun Hu Yan Fu*”.

Hong Ye Guan Xiu Xi Bian records that the Japanese scholar Gamō Shigeakira (蒲生重章) wrote in his “Preface to the banquet at the Red Leaf Pavilion (红叶馆宴集序)”: “On the 23rd day of the third lunar month in the 15th year of the Guangxu reign (1889), His Excellency Li, the Imperial Envoy of the Qing dynasty, hosted a spring gathering to foster goodwill, inviting scholars from our country to this pavilion. More than thirty people attended, and I also accompanied the event”. The Qing Legation in Japan was located near Shiba-kōen (芝公园), and the Red Leaf Pavilion was the venue for this gathering. At the time, prominent scholars from both Qing China and Japan often gathered here for banquets, and Li Shuchang's banquet at the Red Leaf Pavilion was a significant event in the history of Qing-Japan exchanges. Gu Yun was invited to attend the event. Later, when he visited the home of “Kintō (金洞, the pseudonym of Kanai Yasuyasu)”, he saw Kintō's

Table 1 Seals in *Zuan Xi Lu Cong Shu* (《纂喜庐丛书》 *Collected Works of the Zuanxi Studio*): *Xin Xiu Ben Cao* (《新修本草》 *Newly Revised Materia Medica*) reprinted edition

Item	Inscription	Seal	Location	Item	Inscription	Seal	Location
1	Seal of Qian Depei (钱德培印)		inside cover	12	Seal of Yunlong: Longevity (云龙印信长寿)		end of the 1st colophon
2	Qinzhai (琴斋)		inside cover	13	After the age of 27, known as Xingfu (二十七岁以后号 醒夫)		end of the 1st colophon
3	Arai Bunko (新井文库)		beginning of vol. 3、12、 13、14、17、 18、19	14	Guiyang Chen Ju (贵阳陈渠)		end of the 2nd colophon
4	Collection of <i>Zuanxi</i> Studio (纂喜庐藏)		beginning of vol.3、4、5、 12、13、14、 15、17、18、 19、20	15	<i>Jing Wen Ge</i> (景文阁)		end of the 2nd colophon
5	Book collection of the Kojima family (小岛氏图书记)		beginning of vol.3	16	Seal of Fu Yunlong from Deqing (德清傅云龙印)		end of the 3rd colophon
6	Seal of Fu Yunlong (傅云龙印)		end of vol. 3、4、 5、13、14、 15、17、18、 19、20	17	Maoyuan, styled Xingfu (懋元一字醒夫)		end of the 3rd colophon
7	Naozane collated and read (尚真校读)		end of vol. 3	18	Yunhu's visual joy (云壶眼福)		end of the 3rd colophon
8	Hengshan Secret Collection (衡山秘笈)		beginning of vol. 4	19	Seal of Fu Yunlong: Collector of ancient books and artifacts (德清傅云龙图籍 访古印)		end of the 3rd colophon
9	Official of Summer and Globe-trotter (环游地球夏官 大夫)		end of vol. 4、 13、14、 15、18、19、 the 3rd colophon	20	The printed edition from Deqing Fu family (德清傅氏刊本)		end of the 3rd colophon
10	Wrote books exceeding 20 million words (著书二千余万言)		end of vol.4、13、 14、15、18、 19、the 3rd colophon	21	<i>Zheng Ze Jing Yan</i> (正则经眼)		end of the 3rd colophon
11	Fu Yunlong's authenticated Tang scroll edition (傅云龙审定唐卷 子本)		end of vol. 12、 14、17、18、 19、20	22	Qinzhai's visual joy (琴斋眼福)		end of the 3rd colophon

poem for the gathering and realized that all attendees had composed poems. He then added a poem of his own. From this, it is clear that Gu Yun was not a member of the legation staff, as he would have otherwise been aware of the poetic exchanges. Additionally, in the poetry collection, the works of Japanese scholars were arranged first, followed by those of Jian Nianheng (蹇念恒), Gu Yun, and others. Jian Nianheng, a fellow townsman of Li Shuchang from Zunyi (遵义), titled his poem “Invited by my relative Li Chunzhai to a banquet with scholars of the Eastern Capital at the Red Leaf Pavilion, I happened to be visiting the capital and was honored to attend. Composed on the spot and humbly presented for the guests’ critique (《黎苑斋姻丈招宴东都文士于红叶馆，念恒适来游京，获陪末席，即席赋呈，兼乞诸公莞政》)”. This title indicates that he was not a member of the legation but was invited due to his familial relationship with Li Shuchang and his visit to Japan. Gu Yun’s situation was similar. Given his familiarity with the legation staff and his expertise in painting, Gu Yun frequently interacted with them, making it natural for him to have seen *Xin Xiu Ben Cao* purchased by Fu Yunlong. Thus, it was only fitting that his seal “Yunhu’s visual joy” was stamped and reproduced.

To sum up, the collection and reprinting of rare texts like *Xin Xiu Ben Cao* were often collaborative efforts among members of the Qing legation in Japan. These activities also attracted visiting scholars and artists, reflecting the “cultured and literary” ethos of the Qing envoys. Furthermore, the reprinting and repatriation of rare texts became a recognized responsibility of Qing diplomats during their overseas postings.

4.2 Textual sources

The volumes Fu Yunlong acquired from the bookseller during his second acquisition all bear the seal “Arai Bunko” (Arai Library, seal 3 in the table 1). According to Nagasawa Kikuya (长泽规矩也)’s *Preliminary Catalog of Japanese Library Seals* (《本邦藏书印表初稿》), the “Arai Bunko (新井文库)” seal belonged to Arai Masatake (新井政毅, 1827–1902),²² a native of Kawagoe (川越市), Saitama Prefecture (埼玉县), and the owner of a hemp shop. Arai came from a wealthy family and was closely associated with scholars such as Shimada Kōson (島田篁村) and institutions like the Asakusa Bunko (浅草文库). He had a passion for ancient books and was more interested in collecting than managing his family’s business. By the end of his life, his collection was largely dispersed, with some remnants preserved in the Kawagoe Library (川越图书馆).²³ As a bibliophile, where did Arai acquire his collection from? The third volume of *Xin Xiu Ben Cao* provides some clues.

The beginning of the third volume bears the seal “Book collection of the Kojima family” (seal 5 in the table 1), and the end of the volume carries the seal “Naozane

collated and read” (seal 7 in the table 1), along with the following colophon:

“On the 21st day of the fourth month of the second year of the Kaei era (1849), I transcribed this based on my father’s newly compiled edition, adhering to the format and style of the original Tenpyō-era manuscript. — Naozane.

嘉永二年岁次己酉四月廿一日，据家大人新辑本书写。如其行款、字样一仿天平原卷旧式云。尚真

On the 14th day of the eighth month of the same year, I completed collating it against *Zheng He Ben Cao*. On the 15th day of the eighth month, I collated it against *Da Guan Ben Cao*.

是岁八月十四日，照《政和本草》校读毕。八月十五日，据《大观本草》校读”

It is clear that the “father” mentioned by Kojima Naozane is Kojima Naotaka. This volume was transcribed and collated by Naozane based on his father’s newly compiled edition. The presence of the “Book Collection of the Kojima Family (小島氏图书记)” seal at the beginning of the volume confirms that it was part of the Kojima family’s collection. If the eleven volumes sold by the bookseller all originated from the Kojima family rather than being a miscellaneous assortment, then Arai Masatake’s collection must have also come from the Kojima family. However, it is worth noting that Fu Yunlong’s colophon refers to the text as the “old manuscript from the Kojima Tomotari collection (小島知足家藏旧抄本)”. As pointed out by scholar Mori Shikazo, this is a conflation of Kojima Naotaka and Kojima Tomotari,⁵ two individuals who lived during the same period. Whether the manuscript later passed into the hands of Kojima Tomotari remains unclear.

4.3 Scroll editions vs. Bound editions

The title of the reprinted edition, Fu Yunlong’s colophon, and the seal “Fu Yunlong’s authenticated Tang scroll edition (傅云龙审定唐卷子本)” (seal 11 in the table 1) all clearly indicate that the texts Fu Yunlong acquired were scroll editions, or at least the initial three volumes were scroll editions. However, the final reprinted edition was bound in the traditional thread-bound format (线装), a significant change in presentation. Did this transformation affect the layout and format of the text? Comparative studies of surviving manuscripts have revealed discrepancies. For example, the fourth volume of *Xin Xiu Ben Cao* held by the University of Tokyo is a scroll edition copied by Mori Tatsuyuki, while Luo Zhenyu (罗振玉)’s collection contains a bound edition,²⁴ also copied by Mori Tatsuyuki based on the Asai family’s manuscript. Despite both being transcribed by Mori, their layouts differ (Fig. 4).

A comparison of the fourth volume in the reprinted edition, the Ninna-ji manuscript, the University of Tokyo scroll edition, and Luo Zhenyu’s bound edition reveals the following: all scroll editions—the Ninna-ji manuscript and the University of Tokyo manuscript—are



Figure 4 Different versions of *Xin Xiu Ben Cao*: A: Ninna-ji Temple Manuscript (Scroll Format); B: University of Tokyo Manuscript (Scroll Format); C: Fu Yunlong's Printed Edition; D: Luo Zhenyu's Manuscript (Album Format) (source with permission from: Figure A, C, D taken by the author; Figure B from Library of Tokyo University: <https://da.dl.itc.u-tokyo.ac.jp/portal/assets/9c15e661-247d-43d4-41aa-aa2b16e313e2?pos=5>)

identical, while the reprinted edition and Luo Zhenyu's bound edition are also identical. This raises questions about Fu Yunlong's claim of acquiring "scroll editions". Why do these discrepancies exist? It is possible that Fu Yunlong did not actually obtain scroll editions but rather bound editions, and the term "scroll edition" was used to denote an ancient or authentic version. Alternatively, Fu Yunlong may have indeed acquired scroll editions, but their format differed from the Ninna-ji manuscript. If the latter is true, how did these differences arise? This question is beyond the scope of this paper and warrants further investigation in a separate study.

Finally, it is important to note that, based on Fu Yunlong's customary practices during his time in Japan and the date mentioned in the colophon for the completion of the reprinting, *Xin Xiu Ben Cao* was printed in Japan, contrary to some scholars' claims that it was printed in China.

5 Conclusion

From the acquisition of *Xin Xiu Ben Cao* to its publication, Fu Yunlong, Chen Ju, and other envoys who traveled to Japan made tremendous efforts. The entire printing process was completed in less than a month,

a remarkable efficiency likely driven by Fu Yunlong's demanding and the concurrent need to reproduce and typeset other books. After all, Fu's return to China was imminent, as evidenced by the detailed daily records of his tightly packed schedule in *You Li Tu Jing Yu Ji*. Fu Yunlong's reproduction of *Xin Xiu Ben Cao* became the most important source of information about the text for nearly a century in China. In 1955, Lianqun Publishing House reprinted a facsimile of Fu's edition,²⁵ which was privately held by Fan Xingzhun (范行准), further expanding the book's dissemination and accessibility. This edition became the most significant textual source for Chinese scholars to glimpse the true content of *Xin Xiu Ben Cao*. This underscores the profound significance of Fu Yunlong's work during that time.

Fu Yunlong's journey to Japan was highly fruitful, and his observations, thoughts, and reflections were meticulously recorded in his completed works. His humble and amiable personality, coupled with his pragmatic and accomplished actions, earned him widespread praise in both China and Japan. A decade after his return to China, Japanese journalist Kawasaki Shizan (川崎紫山) visited Tianjin and toured the Beiyang Arsenal, where he was received by Fu Yunlong. Later, Kawasaki wrote an article titled "The Beiyang Arsenal and Fu Yunlong

(『北洋機器局と傅雲龍氏』) (Note 2), which was published in the 11th issue of Volume 4 of the magazine *Tai Yang* (《太阳》 *The Sun*) on May 20th, 1898 (the 31st year of Meiji reign). In the article, he praised Fu Yunlong, describing him as “naturally gentle and amiable in his interactions, never showing any sharp edges. He is erudite in Chinese classics, profound and broad in his discussions, skilled in poetry, exquisite in calligraphy, and well-versed in contemporary affairs”. This account offers a glimpse into Fu Yunlong’s character and accomplishments (Fig. 5).



Figure 5 Accepted photographic reproduction of the article “The Beiyang arsenal and Fu Yunlong”, published in *The Sun* magazine, Volume 4, Issue 11.(source with permission from: taken by the author)

Notes

1. Fu ZX, Fu XC, Fu XC. *Biography of Fu Yunlong* (傅云龙传). Hangzhou: Zhejiang Ancient Books Publishing House; 2003. Subsequent references to Fu Yunlong’s life and contributions are based on this biography unless otherwise noted.
2. This information is sourced from: Yao JF, Fu Yunlong’s life and calligraphy, In: *Huzhou Literary and Historical Materials* (《湖州文史》), Vol. 36. Huzhou Municipal Committee of the Chinese People’s Political Consultative Conference (CPPCC), edited. Shanghai: Shanghai Calligraphy and Painting Publishing House, 2018, p. 205. However, the citation mistakenly records the article as being published in *The Sun*, Vol. 4, Issue 4. In fact, the article is not an interview but a news report.

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This article does not contain any studies with human or animal subjects performed by the author.

Author contributions

ZHANG Jingqiu did the research and drafted the manuscript.

Conflicts of interest

The author declares no financial or other conflicts of interest.

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Diagnostic Illustrations: Integration and Changes of Western Transmission of Traditional Chinese Medicine Pulse Diagnosis Diagrams

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Abstract

Throughout the long development of the Silk Road, traditional medical techniques from various countries have continued to intersect and integrate, and traditional Chinese medicine (TCM) has also been transmitted to Eurasia via the Silk Road. In the process of TCM knowledge dissemination, the tangible pulse diagnosis diagrams (脉诊图) have been collected in works such as *Tānksūqnāmāh* (《伊利汗中国科技珍宝书》 *Ilkhanate Chinese Science and Technology Treasure Book*), *Specimen Medicinae Sinicae* (《中医指南》 *A Guide to Traditional Chinese Medicine*), and *Die Chinesische Medizin* (《中华医学》 *Chinese Medicine*), and has become an important carrier and cultural symbol of pulse diagnostics, integrating into Eurasian medicine. The dissemination of TCM pulse diagnosis and the pulse diagnosis diagrams are closely related to *Nan Jing* (《难经》 *The Classic of Difficult Issues*) and the pulse studies of the Jin dynasty medical scholar, Wang Shuhe (王叔和). The study found that the pulse diagnosis diagrams had distinct characteristics in its transmission to the West in different eras, and they are analyzed from the perspectives of “communicators (translators)”, “translation characteristics”, “cultural background”, “inheritance system”, revealing multiple integrations and transformations of ancient TCM pulse diagnosis diagrams in the East-West exchange and mutual learning. The pulse diagnosis diagrams have gradually become a symbol of TCM diagnostic methods, forming an inseparable link between TCM and pulse diagnosis in the minds of scholars and the public in the East and West.

Keywords: Pulse diagnosis diagrams; Translation; Acculturation; Medical exchange; Traditional Chinese medicine

1 Introduction

Traditional Chinese medicine (TCM) diagnostic techniques are a key constituent of ancient Chinese technological advancements. In the teaching of complex technical operations, a common methodology involves breathing “new life” into textual descriptions by converting them into easy-to-recite poems and verbal mnemonics or combining lyrical mnemonics with presentable illustrations.¹ This text-image combination helps to better explain the techniques and principles described in the text. “Pulse diagnosis diagrams (脉诊图)” are distinct images found in ancient TCM pulse diagnosis literature.

These charts come in various forms, such as “pulse diagnosis charts (诊脉图 technical demonstrations)”, “pulse principle charts (脉理图 theoretical breakdown)”, and “pulse form charts (脉形图 morphological concepts)”. In the attempts to impart the knowledge of TCM pulse diagnosis to the West, some translated TCM texts also include these pulse diagnosis charts. Notable works containing such charts are *Tānksūqnāmāh* (《伊利汗中国科技珍宝书》 *Ilkhanate Chinese Science and Technology Treasure Book*), *Specimen Medicinae Sinicae* (《中医指南》 *A Guide to Traditional Chinese Medicine*), and *Die Chinesische Medizin* (《中华医学》 *Chinese Medicine*). These tangible pulse diagnosis diagrams serve both as technical demonstrations and cultural symbols, and they are distinctive features in the Western translations of pulse diagnosis literature. As a transmission medium for pulse diagnosis knowledge, these charts have gradually become important forms of scientific illustration in TCM, particularly with their integration into Eurasian medicine. During the process, Western scholars have reproduced these charts through “domestication” and “foreignization” in their translations, to accomplish the mission of acculturation within the course of medical exchange between the East and the West.

Currently, scholars are primarily focusing on objective research of the images in pulse diagnosis diagrams, with

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limited attention given to the thorough investigation of ancient pulse diagnosis diagrams. Specifically, most studies are reviews of ancient pulse diagnosis diagrams. For example, Hu Xiaofeng (胡晓峰) methodically categorized various kinds of 298 pulse diagnosis diagrams.² Yang Xinxin (杨欣欣) reviewed pulse diagnosis diagrams related to 26 pathological pulse manifestations and 16 special pulse manifestations, pointing to the practical significance of pulse manifestations in guiding clinical practices and promoting medical skills.³ Zhang Shujian (张树剑) conducted a categorization study of the three types of pulse examination diagrams in *San Cai Tu Hui* (《三才图会》 *A Collection of Illustrations on the Themes of Heaven, Earth, and Men*).⁴ In the meantime, scholars have also conducted studies to trace the origins and compare the ancient pulse diagnosis diagrams. For example, Shen Shunong (沈澍农) and Chen Qiao (陈峭) compared the literature on “strange pulse” diagrams in *Cha Bing Zhi Nan* (《察病指南》 *A Guide to Disease Examination*) and schematic diagrams in *Ren Yuan Mai Ying Gui Zhi Tu Shuo* (《人元脉影归指图说》 *Explanation of the Diagram of the Human Yuan Qi Pulse Shadows and Their Corresponding Finger Locations*) to explore the characteristics of strange pulse diagrams illustrated by ancient scholars.⁵ At the same time, foreign scholars have also explored pulse diagnosis to a certain extent. Orly Lewis from Hebrew University has conducted in-depth research on pulse diagnosis methods in ancient Greece and Rome. In her work *Praxagoras of Cos on Arteries, Pulse and Pneuma*, she discusses the application principles and methods of pulse diagnosis, but only presents them in textual descriptions, lacking visual representations of pulse diagnosis diagrams.⁶ Leon I. Hammer developed and gradually formed a system called the “Dragon Rises Pulse Method”. In his book *Chinese Pulse Diagnosis: A Contemporary Approach*, he outlines the characteristics of 31 pathological pulse conditions, and based on personal experience, illustrated a pulse diagnosis position charts (诊脉位置图) derived from the *Shen* model (which closely resembles traditional Chinese pulse diagnosis position charts). His work also demonstrates 26 pulse diagnosis methodology charts (诊脉方式图), making it easy for scholars to receive accurate training in pulse diagnosis methods.⁷ Therefore, the external transmission characteristics and historical phenomena of “pulse diagnosis” (and its diagrams) warrant in-depth exploration.

This study primarily focuses on the literature concerning pulse diagnosis and pulse diagnosis diagrams in Eurasian medical books from the 10th century onward. In light of these phenomena, this research intends to trace the transmission paths and the socio-cultural phenomena of pulse diagnosis diagrams in different works, with the view to analyzing the integration and transformation of TCM pulse diagnosis diagrams in the West.

2 TCM pulse diagnosis and pulse diagnosis diagrams in classical Western medical literature

Mai Zhen (脉诊 pulse diagnosis) is one of the core methods in *Si Zhen* [四诊 four diagnostic methods, namely inspection, auscultation and olfaction inquiry, interrogation, and palpation (望闻问切)] in TCM. Theoretically originating from *Huang Di Nei Jing* (《黄帝内经》 *The Yellow Emperor's Inner Classic*), *Mai Zhen* started to be standardized until 24 pulse manifestations were summarized for the first time by Wang Shuhe (王叔和) in *Mai Jing* (《脉经》 *The Pulse Classic*) during the Western Jin dynasty. Through graphical means such as pulse position distribution and waveform of pulse manifestations, pulse diagnosis diagrams transform abstract pulse manifestations into passable knowledge and have significantly promoted the inheritance and teaching of TCM diagnostics. The classical Western medical literature is important for the Western transmission of TCM pulse diagnosis and pulse diagnosis diagrams, which have influenced and promoted the Western transmission of pulse diagnosis knowledge.

2.1 Avicenna's *The Canon of Medicine* (《医典》)

Avicenna's *The Canon of Medicine* (《医典》) written in the early 11th century is a vital medical classic in the history of world medicine (Note 1). From the perspective of medical contributions, Avicenna, along with Hippocrates from ancient Greece and Galen from ancient Rome, are considered as three milestones in Western history of medicine.⁸ The second volume of *The Canon of Medicine* included 17 kinds of herbs transmitted from China, suggesting that TCM had been disseminated to Europe during the Song dynasty.⁹ The second book included 17 medicinal herbs introduced from China, indicating that by the Song dynasty, TCM had already exerted a certain influence on European medicine.

The “Pulse Theory” section in the first part of the book bore certain similarities to TCM pulse diagnosis. Fan Xingzhun (范行准) mentioned in his article “History of exchanges between China and Arabian medicine (《中国与阿拉伯医学的交流史实》)” that “according to the pulse diagnosis in Avicenna's book, there are thirty-five out of forty-eight pulses that are the same as *Mai Jing*”.¹⁰ Chinese scholar Li Tao (李涛) also believes that the content of Avicenna's pulse studies should have originated from TCM pulse studies.¹¹ Zhu Ming (朱明), through comparing the characteristics of pulse studies in Chinese and Western medicine, found that “Avicenna's pulse studies are different from Galen's composite pulse of mechanical combination, and are closer to the TCM pulse study system”.⁸ Additionally, Japanese scholar Shigehisa Kuriyama (栗山茂久) believes that the difference between Greek medicine and TCM pulse studies mainly lies in the different perspectives of observing

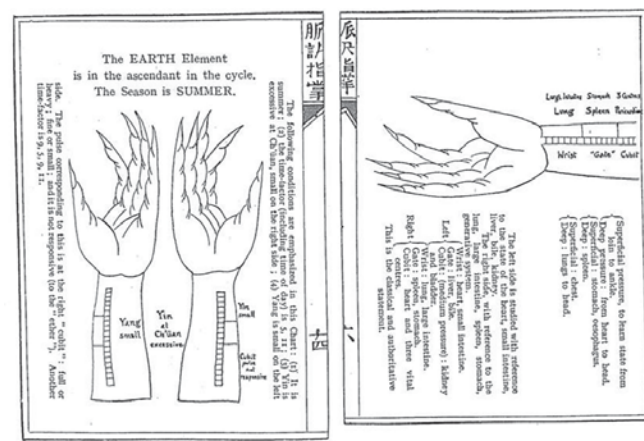
and understanding the body's language "pulse". TCM "pulse palpation" is not about feeling the contraction movement of blood vessels, but about touching the flow of blood and qi. Moreover, the pulse is not only related to the cardiovascular system, it is also connected with all the zang-fu (脏腑) organs through meridians.¹² Therefore, the academic origin of pulse diagnosis in *The Canon of Medicine* is still worth exploring.

However, the author found that pulse diagnosis has different graphic representations in different versions of *The Canon of Medicine*. In the older versions of the book, there were only "story-like illustrations" of pulse diagnosis, and no substantial pulse diagnosis diagram appeared, such as the illustration in the 1632 version of *The Canon of Medicine* showing Avicenna examining a sick prince (Note 2) (Fig. 1).

By 1973, an English translation of *The Canon of Medicine* included a pulse diagnosis diagram, which reprinted and translated the diagram from *Mai Jue Zhi Zhang* (《脉诀指掌》 *A Handbook on Pulse Diagnosis*) (Fig. 2). This phenomenon suggests that the annotators introduced the pulse diagnosis diagram to provide readers



Figure 1 Illustration in *The Canon of Medicine* (《医典》, 1632 edition) (source with permission from: *The Canon of Medicine*¹³)



FACSIMILE OF TWO PAGES IN THE CHINESE CLASSIC ON THE PULSE. WITH THE (TRANSLATED) TEXT ARRANGED AS IN THE ORIGINAL.

Figure 2 Treatise on the Canon of Medicine of Avicenna (English Version): the pulse (source with permission from: *The Canon of Medicine*¹⁴)

with a more intuitive understanding of traditional Chinese pulse diagnosis techniques.

2.2 یناغل ایامان قوسنت (Tānksūqnāmah 《伊利汗中国科技珍宝书》 *Ilkhanate Chinese Science and Technology Treasure Book*)

In the 14th century, the Ilkhanate of Iran absorbed the medical content from ancient Chinese medical classics such as *Huang Di Nei Jing*, *Nan Jing* (《难经》 *The Classic of Difficult Issues*), *Zhu Bing Yuan Hou Lun* (《诸病源候论》 *Treatise on the Origins and Manifestations of Various Diseases*), and *Wang Shu He Mai Jue* (《王叔和脉诀》 *Wang Shuhe's Verse on Pulse Diagnosis*), and compiled a Persian work یناغل ایامان قوسنت (*Tānksūqnāmah*). The Persian text was compiled by scholars under the supervision and organization of Rashid ad-Din, the vizier during the Mongol Khan era in Persia (today's Iran).

The book is divided into four parts, including a preface and illustrations written by Rashid al-Din. According to Rashid al-Din's preface, the content involved Chinese medicine regarding anatomy, embryology, gynecology, pulse studies, and pharmacology. Today, only the second part of the original book on TCM pulse studies is preserved, along with Rashid al-Din's preface and illustrations.¹⁵

The book preserved sections from the pulse studies works in the Song dynasty, and imitated the human anatomy diagrams in *Nei Jing Tu* (《内境图》 *The Inner Landscape*).¹⁶ Meanwhile, when tracing the source of the pulse diagnosis diagrams in the book, 8 illustrations in *Tansuq-nameh Ilkhani* were found to be imitations of the illustrations in Li Dong's (李昉) illustrated and explained diagrams of *Huang Di Ba Shi Yi Nan Jing Zuan Tu Ju Jie* (《黄帝八十一难经纂图句解》 *Illustrations and Explanations of The Yellow Emperor's Classic of Eighty-one Difficult Issues*) (Fig. 3).¹⁷ This phenomenon highlights the inherently intuitive nature of the pulse diagnosis diagram, which played a crucial bridging role in the westward transmission of pulse diagnosis. As a result,

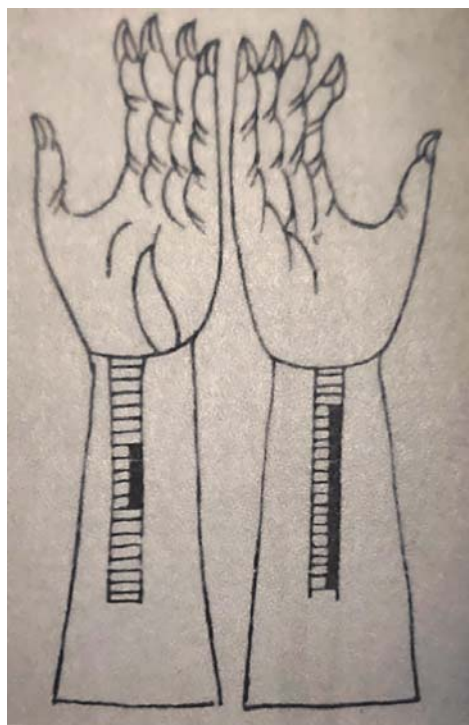


Figure 3 An imitative pulse diagram in *Tansuq-namehllkhani* (《伊利汗中国科技珍宝书》 *Ilkhanate Chinese Science and Technology Treasure Book*) (source with permission from: *Annotated Edition of Tānksūqnāmāh*¹⁶)

imitated versions of the pulse diagnosis diagram were preserved in Western translations of Chinese medical texts.

2.3 *Specimen Medicinae Sinicae* (《中医指南》 *A Guide to Traditional Chinese Medicine*)

Published in 1682 by Andreas Cleyer, a pharmacist of the Dutch East India Company, *A Guide to Traditional Chinese Medicine*, also known as *Examples of Chinese Medical Techniques* (*The Specimen Medicinae Sinicae, sive Opuscula Medica ad Mentem Sinensium*) included descriptions of TCM pulse diagnosis and herbal medicine. Many scholars believe that its contents were excerpts from the manuscripts of Michel Boym (卜弥格, 1612–1659). Edward Kajdański believed that this book and *Compendium of Chinese Medicine* (《中医大全》) published in 1686 were both part of *Medicus Sinicus* (《中国医学》 *Chinese Medicine*) mentioned in Boym's self-narrative. The book contained translations of *Mai Jue* and descriptions of Chinese herbal medicine,¹⁸ and included 30 diagrams (2 pulse diagnosis charts and 24 pulse principle charts) (Fig. 4).¹⁹ This work fully demonstrates the significance of the pulse diagnosis diagram in the dissemination of TCM, effectively showcasing this pulse diagnosis technique.

2.4 *Clavis Medica ad Chinarum Doctrinam de Pulsibus* (《医学的钥匙》 *Key to Medicine*)

Key to Medicine was published in 1686 in Rome, Europe in Latin. The original title was *A Medical*



Figure 4 Pulse diagnosis diagrams in *Specimen Medicinae Sinicae* (《中医指南》 *A Guide to Traditional Chinese Medicine*) (1682) (source with permission from: *Specimen Medicinae Sinicae*²⁰)

Key to Understanding Chinese Pulse Theory by Jesuit Michal Boym. Philippe Couplet compiled part of it for publication, and named it *Clavis Medica ad Chinarum Doctrinam de Pulsibus* (《医学的钥匙》 *Key to Medicine*). The book contained translations of Wang Shuhe's *Mai Jing* and related pulse diagnosis works,²¹ and depicted 3 pulse diagnosis diagrams (pulse diagnosis position charts, pulse diagnosis methodology charts, pulse diagnosis position and organ allocation charts) (Fig. 5). The pulse diagnosis diagrams in this work specify numerous professional terms related to pulse diagnosis locations and techniques, thereby facilitating the transmission of Chinese pulse diagnosis practices (Fig. 6).

2.5 *Boym Collection* (《卜弥格文集》)

The Polish missionary to China, Michel Boym served as a special envoy for Emperor Yongli (永历) on a diplomatic mission to the Vatican. This was the first official diplomatic activity between China and the Vatican. In addition, Boym authored *Medicus Sinicus* and *Compendium Receptarum Medicinalium Sinensium* (《中医处方大全》 *Complete Collection of Traditional Chinese Medicine Prescriptions*). In *Boym Collection: Sino-Western Cultural Exchange and Transmission of Traditional Chinese Medicine to the West* (《卜弥格文集: 中西文化交流与中医西传》), there are contents and chapters such as “Tractatus de pulsibus quo declaratur doctrina sinarum philosophica ex principiis ac placitis philosophiae ipsorum medicae, quae continetur codicestustissimo Nuy Kim dicto, quaeconstas t: capitibus 162 (论脉 On pulse)”, “Auctoris Vam Xo Ho pulsibus explanatis medendiregula (对作者王叔和脉诊医病的说明 Explanation on Wang Shuhe's pulse diagnosis and medical treatment)”, and “Clavis medica ad Chinarum doctrinam de pulsibus auctore R. P. Michael Boymo, e Soc. Jesu et in China Missionario (耶稣会卜弥格认识中国脉诊理论的一把医学的钥匙 A medical key to

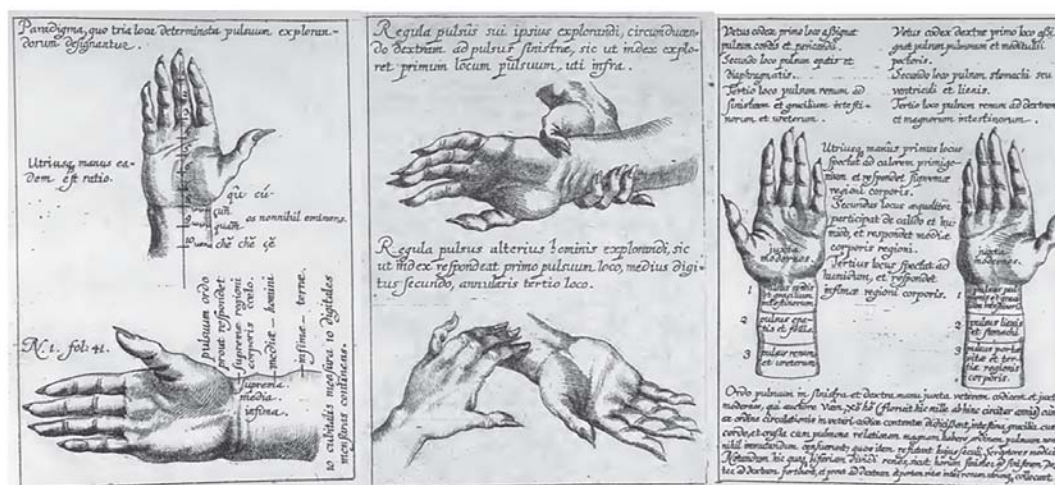


Figure 5 Pulse diagnosis position charts, pulse diagnosis methodology charts and pulse diagnosis position and organ allocation charts (source with permission from: *Clavis Medica ad Chinarum Doctrinam de Pulsibus*²²)

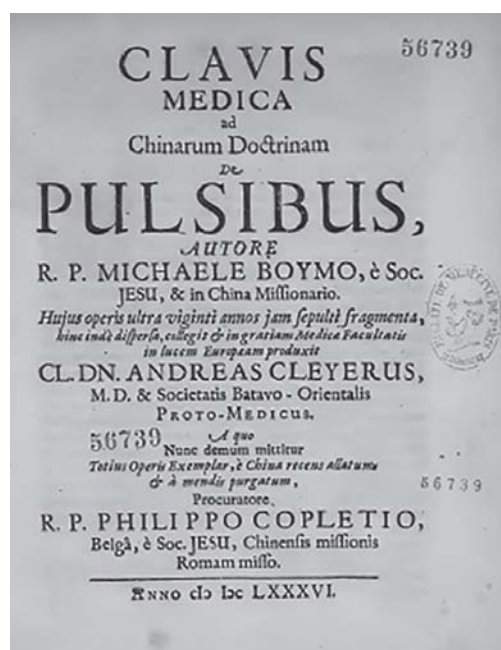


Figure 6 *Clavis Medica ad Chinarum Doctrinam de Pulsibus* 《医学的钥匙》Key to Medicine (1686) (source with permission from: *Clavis Medica ad Chinarum Doctrinam de Pulsibus*²²)

understanding Chinese pulse theory by Jesuit Michal Boym)”.
 In Chapters 6, 7, 11, and 18 of the book, there are respective diagrams of pulse diagnosis position charts, pulse diagnosis methodology charts, pulse diagnosis position and organ allocation charts (Note 3) (Fig. 7).

2.6 Description Géographique, Historique, Chronologique, Politique, et Physique de l'Empire de la Chine et de la Tartarie Chinoise (《中华帝国全志》Complete Records of the Chinese Empire)

The spread of Chinese pulse theory in France was largely attributed to *Description Géographique, Historique, Chronologique, Politique, et Physique de l'Empire de la Chine et de la Tartarie Chinoise* (《中华帝国全志》Complete Records of the Chinese Empire) edited by Jesuit Jean-Baptiste du Halde (杜赫德) (Fig. 8).²⁴ The third volume of the book included “Secret du pouls (《脉的奥秘》)”, translated by Julien Placide Hervieu (赫苍璧). Shan Lin and Han Qi studies the relationship between “Secret du pouls” and various versions of *Mai Jing*

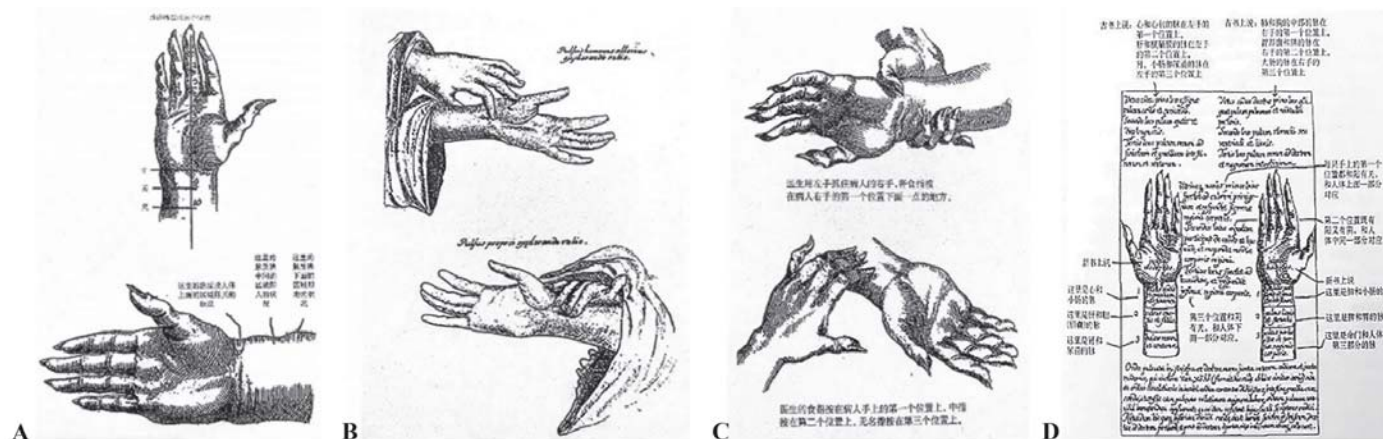


Figure 7 Pulse diagnosis diagrams by Michal Boym: A, B Pulse diagnosis position charts; C Pulse diagnosis methodology charts; D Pulse diagnosis position and organ allocation charts (source with permission from: *Boym Collection: Sino-Western Cultural Exchange and Transmission of Traditional Chinese Medicine to the West*²³)

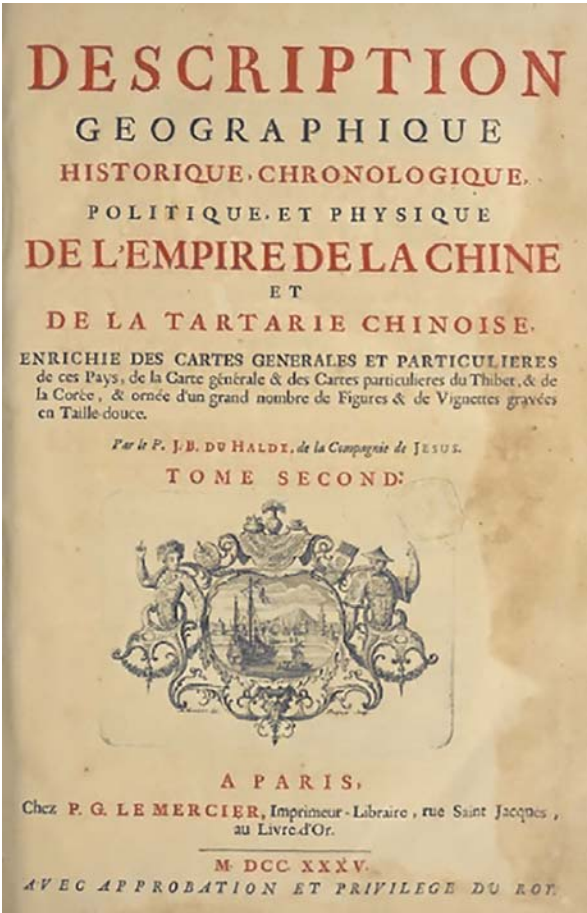


Figure 8 Front cover of *Description Géographique, Historique, Chronologique, Politique, et Physique de l'Empire de la Chine et de la Tartarie Chinoise* (《中华帝国全志》Complete Records of the Chinese Empire) (1735) (source with permission from: *Description Géographique, Historique, Chronologique, Politique, et Physique de l'Empire de la Chine et de la Tartarie Chinoise*²⁵)

and *Mai Jue*, and pointed out that the original Chinese text of “Secret du pouls” can be traced back to *Tu Zhu Mai Jue Bian Zhen* (《图注脉诀辨真》 *Illustrations and*

Annotations to Systematic Differentiation of Verse on Pulse Diagnosis) and *Shan Zhu Mai Jue Gui Zheng* (《删注脉诀规正》 *Corrections to the Deleted Annotations to Verse on Pulse Diagnosis*).²⁵ This book provided the French academic community with extensive information on pulse diagnosis diagrams.

2.7 Die Chinesische Medizin (《中华医学》Chinese Medicine)

The study of TCM pulse diagnosis had gradually spread to Germany in the 17th and the 18th centuries. Dr. Sebastian Scheffer, a member of the “Leopoldina Academy of Sciences”, was responsible for the publication of *Specimen Medicinae Sinicae*. Christian Mentzel, a German Sinologist and botanist, actively pushed for the publication of *Specimen Medicinae Sinicae* and *Clavis Medica ad Chinarum Doctrinam de Pulsibus*. From 1747 to 1749, the German translation of *Description Géographique, Historique, Chronologique, Politique, et Physique de l'Empire de la Chine et de la Tartarie Chinoise* was published. The sections on pulse diagnosis in these three books contributed to the dissemination of pulse diagnosis knowledge in Germany.

At the same time, military doctor Franz Hübötter (许宝德), who studied under three outstanding European Sinologists, Eduard Chavannes (沙畹), Wilhelm Grube (顾路柏), and August Conrady (孔好古), translated and compiled *Die Chinesische Medizin* (Note 4). The book mainly introduced the development of TCM from ancient times to the 1920s. It included sections on TCM diagnosis and treatment methods. The German translations of *Bin Hu Mai Xue* [《濒湖脉学》(Li) *Binhu's Teachings on Pulse Diagnosis*], *Nan Jing*, and *Mai Jue* were among the early European translations and included three pulse diagnosis diagrams (Fig. 9).

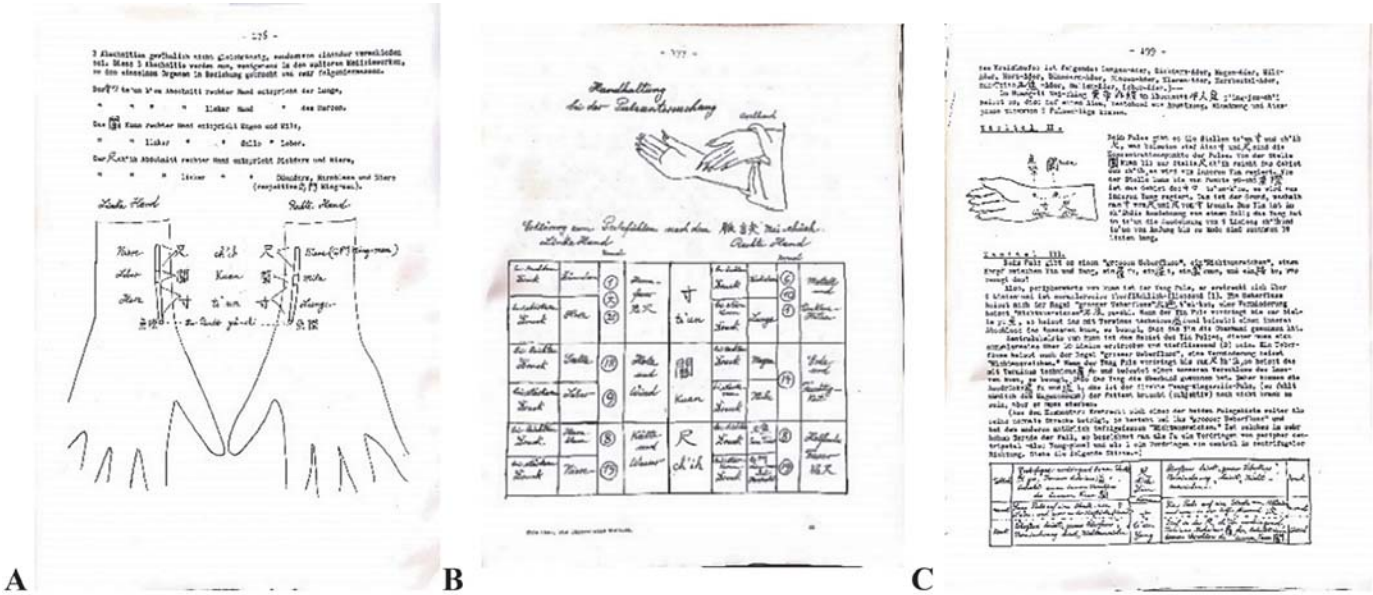


Figure 9 A Pulse diagnosis position and organ allocation charts; B Pulse diagnosis methodology charts; C Pulse diagnosis position charts (source with permission from: *Die Chinesische Medizin*²⁶)

The pulse diagnosis diagrams are divided into different chapters. Based on the characteristics of the pulse diagnosis diagrams and the content of the translations, the author found that the source of the Western transmission of pulse diagnosis knowledge mainly involves *Nan Jing* and Wang Shuhe's related works (*Mai Jing*, *Mai Jue*) (Note 5) (Table 1).

Moreover, the pulse diagnosis diagrams have had a certain influence on Western pulse diagnosis during their Western transmission, particularly related works of Wang Shuhe. Although there have been changes, many Western works are importantly connected in the transmission process, forming the dissemination systems of *Mai Jing* and *Mai Jue*, all integrated within *Boym Collection* (Fig. 10).

3 Acculturation: the concepts and embodiments of “domestication” and “foreignization” in the printmaking of pulse diagnosis diagrams

Acculturation mainly refers to the adaptation of culture to its environment. When crossing two or more cultures, it involves the process of understanding the belief systems, emotional frameworks, and communication structures of the new culture, ultimately leading to cultural integration or assimilation. During the Westward spread of pulse diagnosis diagrams in TCM, acculturation occurred in the translation of illustrative annotations and the printmaking of the illustrations, approaching “domestication” and “foreignization”, two strategies in

Table 1 Overview of related information on pulse diagnosis diagrams in translated works

Work	Chapters	Pulse Diagrams	Associations
<i>The Canon of Medicine</i> (English translation, 1973)	Part 1: Pulse Theory	<i>Zuo Shou Shi Chi Cun Nei Wai Tu Shuo</i> (《左手式尺寸内外图说》 <i>Left-hand Size Internal and External Diagram Explanation</i>)	<i>Mai Jue Zhi Zhang</i> (《脉诀指掌》 <i>A Handbook on Pulse Diagnosis</i>)
		<i>Tu Yun Nan Zheng Tu</i> (《土运南政图》 <i>Earthly Branches and Southern Administration Chart</i>)	<i>Mai Jue Zhi Zhang</i>
<i>Tansuq-namehllkhani</i> (1313)	Volume 2, Chapters 7–11	<i>Yin Yang Sheng Jiang Shi Zhong Tu</i> (《阴阳升降始终图》 <i>The Diagram of the Continuous Alternation of Yin and Yang</i>) (iv)	<i>Huang Di Ba Shi Yi Nan Jing Zuan Tu Ju Jie</i> (《黄帝八十一难经纂图句解》 <i>Illustrations and Explanations of The Yellow Emperor's Classic of Eighty-one Difficult Issues</i>)
		<i>Yin Yang Sheng Jiang Shi Zhong Tu</i> (xi)	<i>Huang Di Ba Shi Yi Nan Jing Zuan Tu Ju Jie</i>
		<i>Guan Qian Guan Hou Fen An Ren Ying Qi Kou Zuo You Shen Men Tu</i> (《关前关后分按人迎气口左右神门图》 <i>Diagram of the Front and Back of the Gate, Divided According to the Left and Right Shenmen and the Qi Gate and Renying</i>)	<i>Huang Di Ba Shi Yi Nan Jing Zuan Tu Ju Jie</i>
<i>Specimen Medicinæ Sinicæ</i> (Cleyer, Netherlands, Latin, 1682)	Chapter 2, Diagram section	2 pulse diagnosis charts 24 pulse principle charts	<i>Tu Zhu Wang Shu He Mai Jue</i> (《图注王叔和脉诀》 <i>Illustrations to Wang Shuhe's Verse on Pulse Diagnosis</i>)
<i>Clavis Medica ad Chinarum Doctrinam de Pulsibus</i> (Latin, Rome, 1686)	Preface, Chapter 16	3 pulse diagnosis charts (pulse diagnosis position charts, pulse diagnosis methodology charts, pulse diagnosis position and organ allocation charts)	<i>Nan Jing</i> (《难经》 <i>The Classic of Difficult Issues</i>), <i>Tu Zhu Mai Jue Bian Zhen</i> (《图注脉诀辨真》 <i>Illustrations and Annotations to Systematic Differentiation of Verse on Pulse Diagnosis</i>)
<i>Description Géographique, Historique, Chronologique, Politique, et Physique de l'Empire de la Chine et de la Tartarie Chinoise</i> (Harvard University Edition, 1736)	Volume 3: “ <i>Secret du pouls</i> ”	<i>Wu Xing Tu</i> (《五行图》 <i>Five Elements Diagram</i>) (No pulse diagnosis diagram)	<i>Tu Zhu Mai Jue Bian Zhen</i> , <i>Shan Zhu Mai Jue Gui Zheng</i> (《删注脉诀规正》 <i>Corrections to the Deleted Annotations to Verse on Pulse Diagnosis</i>)
<i>Die Chinesische Medizin</i> (Franz Hübotter, Verlag der Asia Major, 1929)	TCM diagnosis (No specific chapters)	3 pulse diagnosis charts (pulse diagnosis position charts, pulse diagnosis methodology charts, pulse diagnosis position and organ allocation charts)	The diagrams are similar to those in <i>Specimen Medicinæ Sinicæ</i>
<i>Boym Collection</i>	Chapter 6, 7, 11, 18	4 pulse diagnosis charts (pulse diagnosis position charts, pulse diagnosis methodology charts, pulse diagnosis position and organ allocation charts)	Wang Shuhe's works on pulse diagnosis

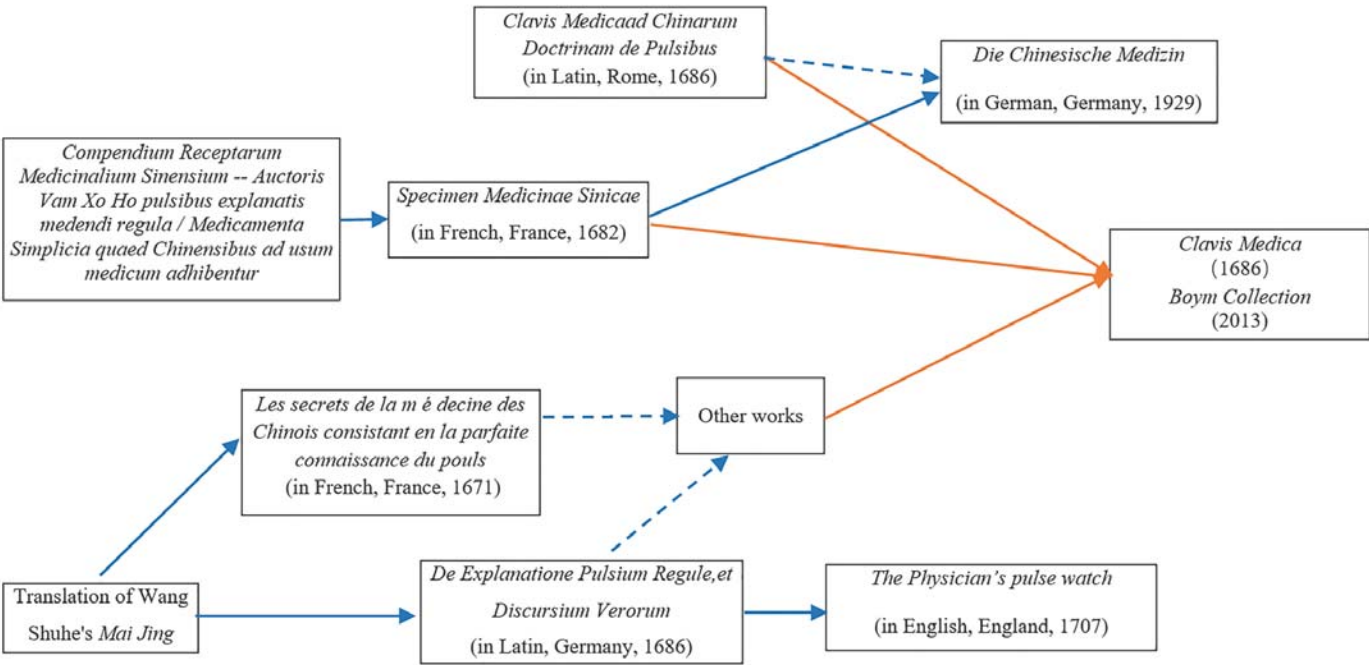


Figure 10 Transmission system of TCM pulse diagnosis diagrams in the West (source with permission from: made by the author)

linguistic translation. Both strategies are used to convey the content of the source text by adopting the relevant embodiment. Specifically, by considering the differences in national culture, “foreignization” acculturation strategy intends to preserve and mirror foreign national characteristics and linguistic styles. Simultaneously, “domestication” acculturation strategy aims to localize the source culture, with the target culture readers as the orientation, and to convey the source culture with specific methods that target culture readers are accustomed to.²⁷ Although the theories of “domestication” and “foreignization” originated in translation studies, their core logic lies in the “adaptive transformation” (domestication) and “retention of heterogeneity” (foreignization) of cultural symbols in cross-context communication. This logic is equally applicable to visual history research. As a dual medium that serves both as a “technical diagram” and a “cultural symbol”, pulse diagnosis diagrams undergo visual adjustments and annotation translations in the process of transmission to the West. In essence, this constitutes an act of “cultural translation”. Therefore, this study may apply the theories of domestication and foreignization to analyze the cultural phenomenon surrounding the transmission of pulse diagnosis diagrams. Both of the strategies have been applied in the translation of the annotations to pulse diagnosis diagrams. Moreover, “printmaking of the original edition”, “localization of images” and other phenomena of acculturation were also observed in the printmaking of pulse diagnosis diagrams, similar to the acculturation strategies of “domestication” and “foreignization”. Starting from the embodiment of the two strategies, this study explored the embodiment of

printmaking and translation of illustrative annotations in the westward spread of pulse diagnosis diagrams.

3.1 The concept and embodiment of “domestication” in the printmaking of pulse diagnosis diagrams

Obviously, a large number of pulse diagnosis diagrams spread to the West were copied on the basis of the original editions of ancient TCM pulse diagnosis books, embodied in works such as *Specimen Medicinae Sinicae*, *Clavis Medica ad Chinaram Doctrinam de Pulsibus* and *Die Chinesische Medizin*. In these European versions of translated TCM texts, the printmaking features of pulse diagnosis were found to be closer to the hand features of Westerners, which was more in line with Western aesthetic concepts. For instance, from the perspective of composition of the pulse diagnosis diagrams in *Specimen Medicinae Sinicae*, it was a printmaking of *Fu Zhen Yang Zhen Zhi Tu* (《覆诊仰诊之图》 *The Diagram of Pulse Taking from Above and Below*) in *Mai Jue*. In terms of the specific details of the printmaking, although *Specimen Medicinae Sinicae* copied the clothing of Eastern people, the hand shape and state were different from those of Eastern people. The external form of the hands depicted was similar to that of Westerners, and was closer to the Western realistic painting style (Fig. 11). It can be inferred that the illustrator took into account the embodiment of “domestication” in the aesthetic needs of Westerners in the composition of printmaking.

Nevertheless, under the guidance of “domestication” acculturation strategy, there are also false expressions of TCM pulse diagnosis techniques in printmaking. For example, the pulse taking technique for the *Cun* (寸)



Figure 11 Comparison of the printmaking methods of pulse diagnosis diagrams: A *Fu Zhen Yang Zhen Zhi Tu* (《覆診仰診之圖》 *The Diagram of Pulse Taking from Above and Below*) [source with permission from: *Tu Zhu Mai Jue Bian Zhen* (《圖注脈訣辨真》 *Illustrations and Annotations to Systematic Differentiation of the Pulse Diagnosis*)²⁰]; B Pulse diagnosis diagram in *Specimen Medicinae Sinicae* (source with permission from: *Specimen Medicinae Sinicae*)²⁰

pulse of the left hand in the pulse diagnosis diagrams of *Clavis Medica ad Chinarum Doctrinam de Pulsibus* was lower and deviated from the area of *Cun* in normal pulse diagnosis. The pulse diagnosis method in the pulse diagnosis diagrams of *Specimen Medicinae Sinicae* was also different from the “cross-positioning for pulse diagnosis” method in TCM. Therefore, it may highlight a problem that the illustrator simply copied the pulse diagnosis diagrams as a painting form that Westerners could accept, without accurately depicting its operation and details. Meanwhile, the pulse diagnosis diagrams in *Die Chinesische Medizin* was similar to that in *Specimen Medicinae Sinicae*. Thus, it can be found that Franz Hübötter, inspired by the concept of “domestication”, also drew on the experience of the pulse diagnosis diagrams from *Specimen Medicinae Sinicae* during compilation, but corrected the “left-right cross-positioning for pulse diagnosis” (Fig. 12).

From the analyses above, it is not difficult to identify a contradiction between scholarly fidelity and the needs of technical dissemination. In the process of spreading pulse diagnosis diagrams, some scholars, in order to meet the demands of technical communication, have

modified and illustrated the diagrams based on their understanding of TCM theories, along with translated descriptions. Meanwhile, other scholars, aiming to maintain the authority of knowledge, have reproduced the original versions of TCM pulse diagnosis diagrams. The tension between these two acculturation strategies precisely reflects the power dynamics inherent in the dissemination of knowledge. This also provides historically meaningful insights and references for the current global promotion of TCM.

3.2 The concept and embodiment of “foreignization” in the printmaking of pulse diagnosis diagrams

The stylistic features of TCM prints also appear in the printmaking. Although the depiction of hand shapes in *Clavis Medica ad Chinarum Doctrinam de Pulsibus* tends towards Western painting styles, the characteristics of hand shapes and states are still similar to those in ancient TCM books, such as “the length of fingertips”, “the cutaneous protuberance of the metacarpophalangeal joints and fingertips”, “the protuberance of the skin on the palms”, etc. Therefore, some disseminators still preserved and mirrored the local features of prints in TCM books, which embodies the concept of “foreignization” acculturation strategy (Fig. 13).

Moreover, the translation of illustrations and annotations in the English version (1973) of *The Canon of Medicine* also embodied the concept of “foreignization” acculturation strategy. First of all, the “pulse diagnosis position charts” was a photocopy of the original drawing of the TCM pulse diagnosis work *Mai Jue Zhi Zhang*. Second, the annotations to illustrations were translated word for word, such as the Chinese character “泉” being translated as “chüan”. Third, the original sentence order (from right to left) was retained, such as the specification of the diagram title as *Tu Yun Nan Zheng Tu* (《土運南政圖》 *Earthly Branches and Southern Administration Chart*) when translating the diagram title. However, in *Mai Jue Zhi Zhang*, the true title of the diagram was *You Jia Xu Jia Chen Nan Zheng Tai Yin Zai Quan Mai Tu* (《右甲戌甲辰南政太陰在泉脈圖》 *Right Jia Xu Jia Chen South Political Yin in the Spring Pulse Chart*), and the



Figure 12 Comparison of pulse taking techniques in pulse diagnosis diagrams: A Pulse taking technique illustration (source with permission from: *Clavis Medica ad Chinarum Doctrinam de Pulsibus*)²²; B Pulse taking technique illustration (source with permission from: *Specimen Medicinae Sinicae*)²⁰; C Pulse taking technique illustration (source with permission from: *Die Chinesische Medizin*)²⁰



Figure 13 Comparison of printmaking methods in pulse diagnosis diagrams: A *Fu Zhen Yang Zhen Zhi Tu* (source with permission from: *Tu Zhu Mai Jue Bian Zhen*²⁸); B Pulse diagnosis diagram (source with permission from: *Clavis Medica ad Chinarum Doctrinam de Pulsibus*²²)

translation of the illustrative annotations was directly listed on the left side of the text to retain the original feature, which embodies the concept of “foreignization” acculturation strategy in translation as well (Fig. 14).

In the aforementioned translations of different works, the translation of annotations related to ancient pulse diagnosis diagrams and the printmaking of illustrations have shown acculturation concepts and embodiment of “foreignization” and “domestication” to varying degrees. It is a mirror of cultural concepts, medical ideas, and other factors during the acculturation of pulse diagnostics between East and West. The theory of TCM stemmed from ancient Chinese philosophical thoughts. As a result, annotations to related pulse diagnosis diagrams also had impressed theoretical characteristics of TCM, such as *Tai Yin Zai Quan* (太阴在泉 qi of Taiying would affect in the second half of the year) and *Nan Zheng Tu Yun* [南政土运 the movement of earth in the years with heavenly stems *Jia* (甲) and *Ji* (己)]. Therefore, most scholars adopt methods such as literal (word-for-word) translation and positional preservation in translation. In contrast, as indicative technological drawings,



Figure 14 Comparison of the “pulse diagnosis position charts” (source with permission from: *The Canon of Medicine*¹⁴, *Mai Jue Zhi Zhang*²⁹)

the prints would be culturally adapted by the illustrator to align with Western aesthetics.

4 Dissemination of medical technologies: extension of pulse diagnosis diagrams from printmaking display to technological dissemination

The technological drawings (prints, hand-drawn paintings, etc.) in ancient books had diverse themes, and many ancient Chinese technological drawings depicted non-technical scenes, such as geography, cosmology, etc.³⁰ Lin Keji (林科吉) believed that physical image evidence has unparalleled advantages in terms of spatiotemporal stability, visual intuitiveness, etc. He pointed out that “the conceptual connection brought by the juxtaposition of illustrations, the enormous information contained in the patterns and composition characteristics of illustrations themselves can also be useful for us to gain a more intuitive understanding of the ancient wisdom of human survival in more ancient times, beyond general academic knowledge”.³¹ The pulse diagnosis diagrams the study discussed are a visual display of pulse diagnosis-related knowledge and skills, with both the attributes of “technology” and “knowledge” dissemination, which should be categorized into technology-themed technological graphics.

Meanwhile, China’s technology-themed technological graphics convey aesthetic, political, moral, and other information (Note 6). In contrast, medical images appear purer in terms of the embodiment of “technology” and “knowledge”. The TCM prints were aimed at facilitating a better mastery of the techniques by learners, and presenting textual information in a more intuitive manner, such as materia medica diagrams, acupoint diagrams, bone setting diagrams, and pulse diagnosis diagrams. Among them, pulse diagnosis diagrams are a depiction of pulse diagnosis techniques and operating processes, which can effectively display “pulse position identification”, “pulse taking methods”, etc. Thus, pulse diagnosis diagrams have gradually become an intuitive tool for the dissemination of pulse diagnosis and the westward spread of TCM pulse diagnosis. Therefore, in the dissemination of TCM pulse diagnostics, pulse diagnosis diagrams embody the dual effects of “printmaking symbols” and “technological display”.

In particular, the technological graphics related to pulse diagnosis have attracted great attention from Western medical practitioners and translators, and have been comprehensively preserved. For instance, the printmaking of *Fu Zhen Yang Zhen Zhi Tu* from *Mai Jue* in *Specimen Medicinae Sinicae* suggested that these illustrations had been valued by Western TCM practitioners as a tool for technological dissemination. Previously, Han Congyao (韩丛耀) proposed three research dimensions for the “field” of visual illustrations, namely the

productive, structural, and social fields of illustrations. The “social field of illustrations” reveals that the identification and rejection of illustration viewers are the destinations where the meaning and effects of illustrations are created, with their own observation methods and other types of knowledge to “view” illustrations.³² Therefore, it can be inferred that the recognition of TCM pulse diagnostics by Western medical practitioners constituted a prerequisite for the dissemination of the proposed technology, during which the pulse diagnosis diagrams, as a key “medium of dissemination”, eventually boosted the Western recognition and exchange of this technique. For instance, the printmaking of *Mai Jue Zhi Zhang*, in a basic state of the original book, was directly presented in *The Canon of Medicine (English Version)*, suggesting that TCM pulse diagnosis techniques have gradually been recognized and accepted by Western medical scholars. Therefore, the pulse diagnosis diagrams, surpassing their own printmaking attribute (i.e., a simple drawing), has gradually transformed to possess a technical attribute, enabling the display of TCM techniques.

5 Conclusion

Pulse diagnosis is one of the four diagnostic methods in TCM that requires physical contact with patients. In addition to traditional textual descriptions, its technical dissemination also depends on visual displays, which have been widely used in related classics of TCM pulse diagnosis. Therefore, pulse diagnosis diagrams have become one of the important branches of ancient medical book printmaking. In the process of exchanges between TCM and Western medicine in ancient times, pulse diagnostics, a TCM diagnostic method, has also been recognized by Western medical scholars, which promotes the westward spread of TCM pulse diagnosis works, and the concomitant pulse diagnosis diagrams are key players in the dissemination. These pulse diagnosis diagrams are a profile of the cultural integration and development changes between TCM pulse diagnostics and Western medicine.

Firstly, TCM pulse diagnosis techniques share certain similarities in aspects such as pulse rate and rhythm with Western pulse diagnosis methods. In pulse taking, however, differences exist in the diagnosis and treatment between the two methods, requiring the use of visual illustrations to demonstrate the specific operation methods. As mentioned earlier, in the translation of pulse diagnosis works, there were differences between pulse diagnosis diagrams and Western pulse diagnosis methods in terms of hand shapes, appearance, and technical display methods. Secondly, to maintain the original style of TCM pulse diagnosis and enable a better understanding by readers, some translators retained the local style of the pulse diagnosis diagrams, and even translated the illustrations and annotations literally [e.g., *The Canon of Medicine (English Version)*]. Thirdly, in the process

of printmaking, translators, for the purpose of reader-oriented acculturation, drew hand shapes closer to Western art styles. However, due to a lack of in-depth study of TCM pulse diagnosis by some translators, potential technical operating errors occurred in descriptions in certain books (e.g., *Specimen Medicinae Sinicae* and *Clavis Medica ad Chinarum Doctrinam de Pulsibus*). Fourthly, the basic connotation of TCM in printmaking mirrors practical techniques of “simulating” pulse diagnosis through intuitive feelings of pulse diagnosis diagram printmaking, endowing it with multiple attributes such as “knowledge”, “technology”, “aesthetics”, “humanity”, etc. Furthermore, it has become a medium for the dissemination of TCM pulse diagnosis techniques in Eastern and Western medical exchanges.

During the research process, literature on pulse diagnosis or pulse diagnosis diagrams found in non-medical books has yet to be collected and organized. Additionally, a detailed comparative analysis of the descriptions of pulse locations in different works containing pulse diagnosis diagrams remains to be conducted. Therefore, future research will focus on a broader range of Western works related to pulse diagnosis, conducting an in-depth comparison of the pulse locations depicted in both Chinese and Western pulse diagnosis diagrams and analyzing the underlying medical and social contexts influencing the transmission of pulse diagnosis.

In summary, along with the exchange of pulse diagnosis techniques between East and West in ancient and modern times, pulse diagnosis diagrams have gradually become a recognized technical symbol of TCM diagnosis by Eastern and Western scholars and doctors. As a critical type of illustrations in the history of TCM technological drawings, pulse diagnosis diagrams will continue to provide important references in the exchanges between TCM and Western medicine.

Notes

1. Avicenna is a Latinized name in the Western world, also known as Ibn Sina. He was not only an outstanding medical scientist but also one of the greatest Islamic philosophers in history, as well as a scientist and poet. Avicenna’s medical theory and philosophical insights enjoy a high reputation in the European scientific and philosophical community. He is revered as the “King of Scholars” and the “Crown of Physicians”.
2. The story depicted in the illustration is as follows: When the prince asked a question, Avicenna pressed his pulse with his hand and pointed out the cause of the pulsation, diagnosing the prince with lovesickness.
3. The first three illustrations are from Philippe Couplet’s *Specimen Medicinae Sinicae*, and the fourth illustration is from Cleyer’s *Clavis Medica ad Chinarum Doctrinam de Pulsibus*.
4. *Die Chinesische Medizin* was published in 1929 by the German journal *Asia Major* (《泰东》), which was

then renowned alongside the French journal *Comptes Rendus* (《通报》). It was included in the first volume of their *Chinese Library* (《中国文库》).

5. *Nan Jing* (《难经》 *The Classic of Difficult Issues*) is one of the most ancient classic TCM books, while *Mai Jing* (《脉经》 *The Pulse Classic*) and *Mai Jue* (《脉诀》 *Verse on Pulse Diagnosis*) are also widely circulated pulse diagnostics books for starters. Hence, these two books have drawn intense attention from Western scholars intending to learn pulse diagnostics.

6. Michael S. Mahoney, when describing the “practitioners” who drew machine diagrams during the Renaissance in Europe, compiled an interesting and useful list of motivations that drove them to draw. It is to promote craftsmanship, impress customers, communicate with each other, attain social and intellectual status for practical activities, analyze existing machines and design new ones, or explore the basic operating principles of machines from both perspectives of particularity and generality.

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Ethical approval

The study does not contain any studies with human or animal subjects performed by the author.

Author contributions

MA Jie drafted and revised the manuscript.

Conflicts of interest

The author declares no financial or other conflicts of interest.

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Medical and Folklore Images during Pandemics: A Study of Edo Period Epidemic Visual Culture

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Abstract

Edo-period historical records and documents preserved a substantial number of images, many of which are related to epidemic outbreaks. Through systematic collation and categorical analysis, this study uses the chronological and thematic characteristics of these images as a framework to examine the response mechanisms of the Japanese government and public during infectious disease pandemics in the Edo period, as well as the multidimensional impacts of epidemics on social economy, culture, and customs. Illustrations of smallpox in medical texts reveal the developmental trajectory of Japan's traditional medical knowledge system, while drawings in essays and diaries reflect public fear and non-medical cognitive patterns during cholera outbreaks. Epidemic-themed paintings not only document cholera treatment protocols by the government and medical professionals, as well as grassroots prevention and treatment practices for measles, but also vividly depict social dynamics during crises. Images related to epidemics in advertising reflect the prosperity of the pharmaceutical industry in the Edo period, while depictions in folding screens, ukiyozoushi and the occupational illustrations demonstrate societal customs for epidemic response. Collectively, the Edo-period epidemic crises profoundly shaped Japan's medical system, economic structure, cultural forms, folk traditions, and public psychology, prompting the government, medical professionals, and civilians to develop distinct era-specific social coping mechanisms.

Keywords: Edo period; Epidemic; Folklore images; Kampo medicine

1 Introduction

The Edo period (1603–1868) was the last period of Japan's feudal era. The Tokugawa shogunate, who ruled Japan used the shogunate system and the *Buke shohatto* (『武家諸法度』 *Various Points of Laws for Warrior Houses*) to restrain local daimyo (Japanese magnates or feudal lords), and controlled the *Kinchu narabini kuge shohatto* (『禁中並公家諸法度』 *Laws for the Imperial and Court Officials*). It used Confucianism to standardize the thoughts of the samurai class and the common people and implemented a closed country to the outside

world (sakoku policy), which enabled Japan to achieve social stability to a certain extent.^{1–3} With the unification and stability of the country, Japan's population increased significantly, and Edo, Kyoto, and Osaka gradually developed into metropolises. Among them, Edo was the most prosperous, with a population exceeding one million in the 19th century.⁴ During the Edo period, Japan's sea and land transportation gradually developed. The “Circum-East Sea Route” connects Edo and the Tohoku region, and the “Circum-West Sea Route” connects Osaka to the Tohoku region and the Sea of Japan coast. On land, the shogunate built a land road starting from Edo and running through various places—the “Edo Five Routes”.^{5–6} With the increase in population density and the improvement of transportation networks, Japanese cities and commerce thrived; concurrently, these transformations created an ideal transmission environment for epidemics such as cholera and smallpox.

With the development of economy and transportation, society's culture and art are also becoming more and more prosperous. In terms of education, institutions such as schools directly under the shogunate, han school, and terakoya emerged. The literacy rate of samurai and even the public continued to increase. Various groups of people wrote essays or diaries to record the social life at that time.⁷ The development of education has given rise to people's demand for reading books. Popular education books, novels, playbooks, medical books and other books flooded the market. Since the readers of these

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works were mainly samurai and the general public, the content was close to society. In the field of painting, ukiyo-e (浮世絵 pictures of the floating world) emerged to serve the common people. Different from Japanese paintings in the past, the objects depicted in ukiyo-e have shifted from mythology and religion to various aspects of society.⁸⁻⁹ The various cultural and artistic materials mentioned above contain many images related to the epidemic. These images have diverse themes and rich records. The perspective of their creators is also quite different from the common historical materials such as historical records and shogunate documents used in the study of epidemic history in the past. Due to the diversity of creators' social identities (encompassing groups such as samurai, physicians, painters, and townspeople), their social observation perspectives not only encompass macro dimensions like medical practices and urban life but also construct a more multi-dimensional social landscape compared to official narratives through micro-scenarios such as the dissemination of folk medical knowledge, household care practices, the construction of collective memory among the public, and the spread of urban rumors. Therefore, we can carry out in-depth research on the medical history and social history of the Edo period from different perspectives, which has important historical values.

Important works on the history of Japanese medicine and epidemic history include *Records of Japanese Calamities and Anomalies* (『日本災異志』) by Okajima Hatasu (小鹿島果), *History of Japanese Medicine* (『日本醫學史』) by Fujikawa Yu (富士川游), *History of Japanese Epidemics and Epidemic Prevention* (『日本疫史及防疫史』) by Yamazaki Saku (山崎佐), *Research on the History of Medicine in the Edo Period* (『奈良時代医学の研究』) by Hattori Toshiyoshi (服部敏良), *History of Cholera in Japan* (『日本コレラ史』) by Yamamoto Shunichi (山本俊一), *History of Japanese Medicine* (『日本医療史』) by Shinmura Taku (新村拓). In recent years, some scholars' works, such as *Epidemics and Japanese History* (『疫病と日本史』) by Kojida Yasunao (小路田泰直), *Ancient History of Epidemics: Natural Disasters, Manmade Disasters* (『疫病の古代史—天災、人災、そして—』) by Honjo Soko (本庄总子), *Disasters, Famines, and Epidemics in the Edo Period* (『江戸時代の災害・飢饉・疫病』) by Kikuchi Isao (菊池勇夫),¹⁰⁻¹⁸ all touch upon the types of epidemics prevalent in the Edo period, their transmission routes, harm, and how the public responded. However, they rarely use visual materials.

In recent years, some Japanese scholars have conducted research on epidemic images in the Edo period. Hartmut O. Rothermund collected Edo period “herpes-e (疱瘡絵 ukiyo-e with smallpox as the theme)” and analyzed the images and historical origins of various herpes gods.¹⁹ Hatanaka Akihiro collected and analyzed Edo period epidemic god paintings and epidemic warding runes, and examined the epidemic god belief and related folk art in the Edo period.²⁰ Yamamoto Sou

used four “hashika-e (はしか絵 ukiyo-e with measles as the theme)” collected by Nihon University School of Medicine as examples to analyze the role of these measles paintings as a platform for the public to share social information during epidemics from the perspective of book history.²¹ As can be seen from the above, the current research of Japanese scholars mostly examines a certain type of epidemic images from the perspective of religion, art, and book publishing. The materials used in the research have not yet involved medical books, novels, crafts, and sculptures. In terms of research objects, the medical content in epidemic images, especially Kampo medicine, has not been sufficiently examined. In view of this, this article collects and analyzes various epidemic-related images to examine the epidemics, medicine, and social culture prevalent in the Edo period, while paying attention to the status and role of Kampo medicine and even Chinese culture in Japanese society.

2 Illustrations of smallpox in medical texts and the evolution of prevention and treatment concepts

During the Edo period, the trend of medical education and research flourished. Medical schools and groups were active in Edo, Kyoto and Nagasaki. A large number of medical books were introduced from China and the West. Japanese physicians were also keen on creating and compiling medical books. In addition, the public was concerned about medicine, and a large number of medical books were published.²²⁻²⁴

In books related to infectious diseases in Japan during the Edo period, those concerning smallpox are the most numerous. By examining and analyzing the illustrations of smallpox in these medical texts, one can observe the evolutions in how Japanese medical practitioners and the general public understood, prevented, and treated smallpox. Smallpox is a severe infectious disease caused by the variola virus, mainly transmitted through droplets, and it is also possible to get infected by contacting items contaminated with the virus. Smallpox is accompanied by obvious skin manifestations. Patients develop rashes that later turn into blisters, so it is called “pustular sore” or “smallpox sore”. The fatality rate of smallpox can reach about 30%, and survivors often suffer from disfiguring skin scars and even blindness.

Smallpox spread to Japan in the 6th century, causing great harm to the population and social production.²⁵ Until the early 17th century, there was still no specific treatment for smallpox in Japan. At that time, Japanese physicians only had dietary regulation plans for smallpox patients, and the public pinned their hopes of recovery on the gods. The images in medical books reflect this social culture. For example, in the book *Housou kokoroegusa* (『疱瘡心得草』 *Thoughts on Smallpox*, 1633) by the physician Shimizu-ken Shuran, there is the

Illustration of the Sacrifice to the Smallpox God (Fig. 1). According to the texts, the wooden frame suspended from the ceiling in the upper right of the illustration is identified as a pox shrine (疱疮棚). The lattice platform at its front was inserted with gohei (御幣 sacred paper streamers) and enshrined a smallpox god figurine. When children contracted smallpox, parents would conduct rituals to the smallpox god using this apparatus. Upon the child's recovery, the figurine was disposed of in a river or placed at the village boundary.²⁶

Dai Li (戴笠), a physician and scholar in the Ming dynasty, was proficient in treating smallpox. In 1653, he traveled east to Japan and became a monk, and taught his medical skills to Ikeda Masanao. Thus, Japanese physicians also mastered the methods of diagnosing and treating smallpox.²⁷ *Tousoumenjouzu* (『痘瘡面上図』 *Pictures of Smallpox on the Face*), compiled in the late 17th century, is a monograph in the Edo period that explains the facial manifestations and disease prognosis of children with smallpox. The author is unknown, and the existing hand-copied version is stored in the National Diet Library of Japan. *Diagram of the Four Corners and Eight Positions on the Face* (『面部四隅八位図』) introduced at the beginning of this book was derived from Dai Li.²⁸ *Tousoumenjouzu* depicts various facial manifestations of children with smallpox and uses them as the basis for judging the prognosis of the disease. For example, the facial manifestations of dying children with smallpox include “as if beaten with a stick (如被杖)”, “as if painted with cinnabar (如涂朱丹者)” (Fig. 2), as well as “a bluish aura on the face (面上浮青气者)” and “a yellow-reddish complexion on the face (面上黄红者)”.²⁹ The accompanying pictures of the book clearly show the location and number of pox in children, as well as the color of the pus and the edges of the pox areas.

Housounozu (『痘瘡之図』 *Pictures of Pox*), by an anonymous author, was compiled in the 18th century and has extremely detailed illustrations. There is an existing version of *Housounozu*, which is stored in Kyushu University Library. The author and publisher are



Figure 1 Illustration of the *Housou kokoroegusa* (『痘瘡心得草』 *Thoughts on Smallpox*) (source with permission from: Kyoto University Library)



Figure 2 Accompanying pictures of *Tousoumenjouzu* (『痘瘡面上図』 *Pictures of Smallpox on the Face*) (source with permission from: National Diet Library, Japan)

unknown. The book has 10 leaves in total, and each leaf contains two facial portraits of children suffering from smallpox, with no text.³⁰ The accompanying pictures of *Housounozu* occupy almost the entire page, as shown in figure 3 (Fig. 3). The illustrations in this book clearly display the locations and quantities of the pox on the child patient, as well as the color of the pustule fluid and the edges of the pox-affected areas. This indicates that the practitioners of traditional Chinese medicine (TCM) at that time were extremely familiar with the skin lesions of smallpox. It reflects the understanding of smallpox by medical practitioners of that era, the techniques of the painters, and the block-printing level of the booksellers. Moreover, it embodies the development of the understanding of smallpox in TCM during this period.

With the accumulation of experience in treating smallpox by Japanese physicians, the illustrations in medical books gradually highlighted the characteristics of Japanese native Kampo medicine. For example, in the hand-copied medical book *Gojippukuzusetsu* (『五十腹図説』 *The Fifty Abdominal Diagrams*), from the Edo period, which is housed in the Library of Kyoto



Figure 3 Accompanying pictures of *Housounozu* (『痘瘡之図』 *Pictures of Pox*) (source with permission from: Kyushu University Library)

University, abdominal diagnosis is one of the characteristics of Japanese Kampo medicine in diagnostic methods.³¹ *Gojippukuzusetsu* records the abdominal diagnosis method for smallpox in the form of drawings (Fig. 4). On the right-hand side of the picture in this book, the text records that the abdomen of a child with smallpox shows “distension and pulsation under the heart”; on the left-hand side, there is a drawing, in which the diseased parts and shapes are marked in red.³²

3 Illustrations in essays and diaries and public perceptions of cholera

During the Edo period, there were numerous essays that covered a wide range of themes. In terms of types, they included not only literary works but also essays focused on scholarly research and anecdotal records. For example, the travelogue *Oritaku Shiba no Ki* (『折たく柴の記』 *Notes on Chopped Firewood*) by Nakai Shosai (新井白石) falls into the category of anecdotal records, while Motoori Norinaga's (本居宣長) *Tamazakura* (『玉勝間』 *Jade Cherry Blossoms*) represents works centered on textual scholarly inquiry.³³ And Edo-period diaries can be broadly divided into two main types. The first is the record-type diary, written by individuals ranging from shogunal officials to village administrators. These diaries served as official records maintained as part of their duties, such as *Edo Bakufu Nikki* (『江戸幕府日記』 *Diary of the Edo Shogunate*). The second type is the literary diary, composed by scholars, thinkers, and officials around specific themes, aiming to express the author's personal thoughts and spirit. A classic example is *Tosa Diary* (『土佐日記』) by Ki no Tsurayuki (紀貫之), which epitomizes this genre.³⁴ Based on the author's research, some essays and diaries not only documented details of the 1858 cholera epidemic in Japan but also included numerous illustrations related to the outbreak.

They visually captured its severity while vividly illustrating public perceptions, collective memories, and

societal interpretations of the crisis. The illustration *Yakiba Konzatsunozu* (『茶毘室混雑の図』 *A Picture of Chaos at the Crematorium*) in Kana Gaki Robun's (假名垣魯文) book *Ansei Korori Ryukoki* (『安政頃痢流行記』 *Account of the Ansei Cholera Epidemic*) records the tragic situation of crematoriums during the Edo cholera epidemic (Fig. 5). In July 1858, cholera spread rapidly in Edo, and those infected “died immediately after the disease”. Funerals were frequent in Edo, with coffins traveling on the road day and night, and temples crowded with dead people, with coffins piled up like mountains. Corpses were piled up in layers at the crematorium in Edo, with hundreds of bodies cremated every day. *Yakiba Konzatsunozu* depicted a scene where the crematorium could only put the deceased into wooden barrels for cremation because there were not enough coffins. In the later stages of the epidemic, the stench of the bodies that could not be burned in time filled the city, and the shogunate had to order them to be buried in the ground or thrown into the sea.³⁵ *Yakiba Konzatsunozu* shows the atmosphere of fear and grief in Edo at that time, which can be vividly perceived.

Facing the tragic epidemic, emotions of fear and grief spread among people, and rumors emerged accordingly. The illustration of “tiger, wolf, and raccoon dog” attached to Sudo Yuzo's (須藤由藏) *Fujiokayanikki* (『藤岡屋日記』 *Fujiokaya Diary*). The picture depicts a monster with a tiger body, a wolf face, and a raccoon dog belly (Fig. 6).³⁶ “Tiger, wolf and raccoon dog” is pronounced as Korori (ころり). Korori originally imitated the sound of someone suffering from cholera who would fall and die quickly. The official documents of the shogunate at that time continued to use this pronunciation. From a medical point of view, it was written as “頃痢”, but the people spread rumors and said that there was a kind of monster that was a combination of tiger, wolf and raccoon dog caused epidemics of cholera.³⁷

Coincidentally, the illustration *Himeuozu* (『姫魚図』 *Fish-girl Picture*) in Mizuno Kosuzan's (水野孝庵) *Yibenkai Essay* (『以文会随筆』 *Random Notes from the*



Figure 4 An accompanying picture of *Gojippukuzusetsu* (『五十腹図説』 *The Fifty Abdominal Diagrams*) (source with permission from: Kyoto University Library)



Figure 5 *Yakiba Konzatsunozu* (『茶毘室混雑の図』 *A Picture of Chaos at the Crematorium*) (source with permission from: Kyoto University Library)



Figure 6 Illustration of *Fujiokayanikki* (『藤岡屋日記』 *Fujiokaya Diary*) (source with permission from: Tokyo Metropolitan Archive)

Ibun Kai Gathering) recorded a rumor about how to avoid being infected with cholera. This picture depicted a kind of plague-removing mascot with a female head and a fish body, which was found in the river (Fig. 7).³⁸ The text in the picture reads: The fish-girl appeared on the seashore of Hizen Domain. She was five or six shaku long and her face was three shaku long. She claimed to be the messenger of the dragon god and said that cholera would spread everywhere this year and many people would die, but those people who posted her picture at home would not be infected with cholera.

Until the end of this epidemic, it was difficult for both the public and medical professionals to view this epidemic solely from a medical perspective. The illustrations of *Chimatanoyume* (『街廻夢』 *Miscellaneous Stories about Epidemics*) by the feudal physician Hata Tokiyomi (畑時倚) were created by the painter Katanishi Kiiseki (片西喜石). One of the illustrations depicted a rainbow that appeared in the sky on June 17th, 1858 (Fig. 8). The written records on the painting indicated that when people recalled, they associated the rainbow with the cholera pandemic that occurred in the following autumn, believing that this rainbow was an ominous omen of the epidemic.³⁹ People believed that this huge disaster was part of the “changes in the world”, and like the arrival of the Perry Expedition in 1854 and the “Ansei Great Earthquake” in 1855–1856, they were all signs of the age of decline.



Figure 7 *Himeuozu* (『姫魚図』 *Fish-girl Picture*) (source with permission from: Iwase Bunko Library)

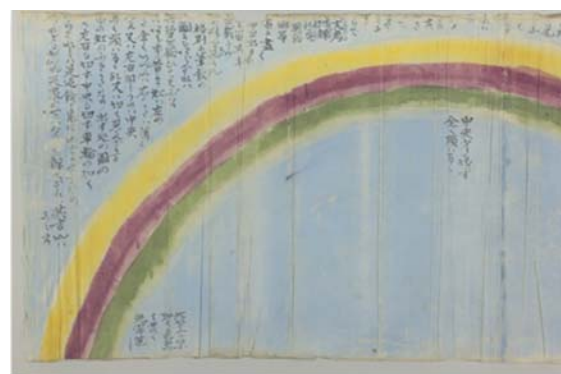


Figure 8 Illustration of *Chimatanoyume* (『街廻夢』 *Miscellaneous Stories about Epidemics*) (source with permission from: National Diet Library, Japan)

4 Medical and social responses depicted in paintings

During the Edo period, the types of paintings related to epidemic diseases were mainly ukiyo-e and dokyo-e. Ukiyo-e is a genre of paintings or woodblock prints that were popular in the Edo period. They were created through a process where painters first drew sketches, then engravers carved the sketches onto wooden blocks, and finally printers applied colors to the blocks for printing.⁴⁰ Due to differences in painters' styles, master-disciple relationships, and creative themes, there were many schools of ukiyo-e. Most of the ukiyo-e with epidemic-related themes seen in this research were created by painters of the Utagawa school. The Utagawa school was founded by Utagawa Toyoharu, and its most accomplished artists were Utagawa Hiroshige (歌川広重) and Utagawa Kuniyoshi (歌川国芳). The paintings of Utagawa school painters often depicted various groups of people, satirized society, or reported on social events.⁴¹ Their artistic output provides critical resources for analyzing both historical pandemics and contemporary societal structures. “Dokyo-e” refers to satirical paintings, in which the artists voice their criticism and satire of society through their works.⁴²

4.1 Bakufu and medical practitioners' cholera treatment methods

In July 1858, Japan experienced a nationwide cholera outbreak, the most devastating epidemic of the Edo period.⁴³ Cholera is an acute and severe intestinal infectious disease caused by *Vibrio cholerae*, mainly transmitted through contaminated water and food. Cholera can cause patients to experience severe diarrhea and vomiting, leading to rapid dehydration within just a few hours and death from circulatory failure.⁴⁴ On August 23rd of that year, the Tokugawa shogunate issued the *Bakushabyo Ryohou gotachi* (『暴瀉病療法御達』 *Instructions on Sudden Diarrhea*) as a guide for treating cholera.⁴⁵ “Boushakubyo” refers to cholera, and “gotachi” are decrees or instructions issued by superior government

offices to subordinate ones. In the *Bakushabyo Ryohou gotachi*, the shogunate recommended Houkou San (芳香散 aromatic powder), a prescription composed of *Gui Zhi* (桂枝 *Ramulus Cinnamomi*), *Yi Zhi Ren* (益智仁 *Fructus Alpiniae Oxyphyllae*), and *Gan Jiang* (干姜 *Rhizoma Zingiberis*), as a treatment for cholera. Utagawa Kuniyoshi joined the ranks of promoting this prescription. During the cholera epidemic in Japan in 1858, he painted *Ryukobyo Myoyaku Kigen* (『流行病妙薬奇験』 *The Miracle of the Miraculous Medicine for Epidemics*) (Fig. 9).

This ukiyo-e is now in the collection of the Edo-Tokyo Museum and the University of Tokyo Library. This article shows one of the pieces in the Edo-Tokyo Museum. This painting is 37.4 cm long and 99.6 cm wide. On the left side of the picture are patients infected with cholera and their families. After the family members asked the cholera patient to take medicine, a black gas floated out and transformed into a tiger-wolf animal (a symbol of cholera) in the upper right part of the screen; the text in the upper part of the screen read the so-called “miraculous medicine”. *The Miracle of the Miraculous Medicine for Epidemics* is intended to promote that it was the “miraculous medicine” recorded in writing that cured patients of cholera. The recommended “miraculous medicine” in the picture includes the aromatic powder of Kampo medicine and the mustard mud method of Dutch medicine. The original text and translation of Houkou San are as in table 1 (Table 1).

There is no record of aromatic powder in Chinese medical books, suggesting that this formula was likely developed by Japanese physicians. Modern medicine holds that dehydration can cause insufficient blood flow to organs in the body, leading to organ dysfunction. The massive loss of body fluids is accompanied by the loss of electrolytes, triggering arrhythmias. Diarrhea results in the loss of a large amount of alkaline intestinal fluid, and combined with dehydration-induced insufficient tissue perfusion,



Figure 9 *Ryukobyo Myoyaku Kigen* (『流行病妙薬奇験』 *The Miracle of the Miraculous Medicine for Epidemics*) (source with permission from: Tokyo Museum Collection)

Table 1 Parallel text and translation of “Aromatic Powder” from *Ryukobyo Myoyaku Kigen* (『流行病妙薬奇験』 *The Miracle of the Miraculous Medicine for Epidemics*)

Original Text	Translation
芳香散	Houkou San
上品桂枝細末 益智同 乾姜	top grade cassia twig powder sharp-leaf glangal fruit same as before dried ginger
右調合いたし、壹貳分ツヽ、時々用ゆへし	Mix the medicine on the right side thoroughly, Take one-tenth or two each time and use it from time to time

the body will develop metabolic acidosis. Therefore, the key to treating cholera lies in fluid replacement therapy, that is, using oral and intravenous fluid supplementation to correct dehydration, electrolyte disorders, and acid-base imbalance. From a TCM perspective, cholera requires treatment based on syndrome differentiation. During the cholera diarrhea-vomiting stage, the common syndromes are damp-heat in the middle jiao and cold-dampness encumbering the spleen. During the dehydration stage, the common syndromes are yin exhaustion and yang exhaustion.⁴⁶ The Houkou San recommended by the shogunate has nothing to do with fluid replacement therapy. The herbs in it can be used as food and spices, which are indeed safe. However, it is difficult for them to be effective in the face of the severe condition of cholera. Moreover, cholera does not only present cold-type syndromes. The shogunate only recommended Houkou San, and the treatment plan was not based on the principle of syndrome-differentiation and treatment, which is likely to lack effectiveness. Japanese scholars have also pointed out that Houkou San indeed did not achieve good treatment results.⁴⁷

Bai Eki Saikyuhou (『バイ疫済急法』 *Plague Emergency Remedy*) collected by the Tokyo National Museum is different from *Ryukobyo Myoyaku Kigen* which conveyed the shogunate’s treatment methods. It publicized and promoted the treatment methods of folk doctors. It is 24.2 cm long and 17.2 cm wide. It records the treatment method for “tiger and wolf dysentery (虎狼痢 cholera)” tried by a physician in Echizen Province (Fukui Prefecture, Japan) at that time. The text on the painting records that in the past, there was an epidemic of “tiger and wolf dysentery” in Fukui Castle (located in today’s Fukui City) in Echizen Province, and more than 300 people died violently. A local physician found a method while treating patients, which was the “Tiger-Wolf Dysentery Treatment Formula (虎狼痢療治方)” in *Plague Emergency Remedy* (Fig. 10).

Its external treatment text is as follows (Table 2). The method of bloodletting to treat epidemic diseases recorded in *Bai Eki Saikyuhou* can also be seen in the works of the Qing dynasty, but the method and location of the operation are different. Physicians in the



Figure 10 *Bai Eki Saikyuhou* (『バイ疫済急法』 *Plague Emergency Remedy*) (source with permission from: UCSF Japanese Woodblock Print Collection)

Table 2 Comparison of original text and translation for the external treatment section of the “Tiger-Wolf Dysentery Treatment Formula”

Original Text	Translation
此淡墨にて染候處、病者未た氣分もかはらず、吐瀉等も無之内、先一番厥冷たいに及而後吐瀉を催候、素人にては右厥冷及處も不知候ゆへ、白大豆を三粒ばかり嚙候、腥を覚候而は吐瀉之有候てもコロリにては無之、氣分外相変無之候にも、腥を不覺の者は早速に下膚を法の如く切り、血をしぼり出せば直に治す。	In the light ink-stained part of the painting, the patient’s appearance has not changed, and there is no vomiting or diarrhea. (Those suffering from plague) will first feel cold and then vomit and diarrhea. If a non-doctor does not know symptoms such as coldness on the right side, (you can) first give him three white soybeans to chew. If he smells fishy, he just has ordinary vomiting and diarrhea, but not plague. When there is no change in appearance, and if you do not smell fishy, quickly cut the skin of the lower lip according to the method shown in the picture, and let the bleeding heal.
男は右より切り、女は左より切り、右を切れて、よく血を絞る、また左を切るべし、但し髪をそりにて切方よろし。この皮にかゝらぬ□□きるべし。	Cut the right side of the men and the left side of the women. After the right side is cut, try your best to make the incision bleed, then cut the left side.
左とのところ一分五厘。	Half a centimeter on the left.
任脈通り大事之處除ル。	Divide with the Ren meridian as the midline.
右同断。	Same on the right.
立長さ一分五厘、深さ一厘。	Half a centimeter long and one third of a millimeter deep.

Qing dynasty mainly used acupuncture, and there were generally two methods for selecting the site. One was the treatment of *Sha* (痧) and epidemic diseases recommended by Guo Zhisui’s (郭志邃) *Sha Zhang Yu Heng* (《痧胀玉衡》 *Comprehensive Treatise on Acute Filthy Disease*) and Liu Kui’s (刘奎) *Song Feng Shuo Yi* (《松峰说疫》 *A Treatise on Pestilence by Songfeng*). Ten places for *Sha* include Baihui (DU20), Yintang

(EX-HN3), Taiyang (EX-HN5), both sides of the throat, both sides of the tendons under the tongue, both breasts, the thin flesh between the ten fingertips on the back of both hands, the forearm of both arms, and the ten fingertips on the back of both feet. Among them, there is thin flesh near the armor, two legs bay. Guo Zhisui and other physicians selected the aforementioned areas to look for *Sha* tendons (thin dark blue, purple, or crimson tendons on the skin) to release poisonous blood.^{48–49} The other one is Suliao (DU25), Fengfu (DU16), Fengchi (GB20), Shangwan (RN13), Xiawan (RN10), Zhongwan (RN12), Shangyang (LI1), Lidui (ST45), Chengjin (BL56), Chengshan (BL57), Renying (ST9) recorded in Wang Shixiong’s (王士雄) *Sui Xi Ju Chong Ding Huo Luan Lun* (《随息居重订霍乱论》 *Suixiju Revisited Treatise on Cholera*) and used to treat cholera or *Sha* syndrome. The aforementioned acupoints selected by Wang are respectively designed to deal with different symptoms of cholera, such as “hand fistula” and “foot diaphragm” caused by cholera (the patient’s electrolytes are lost along with body fluids due to vomiting and diarrhea, and muscle excitability changes or decreases, muscle spasm caused by blood potassium and hyponatremia). It is necessary to prick the Shangyang on the hands and the Lidui on the feet to bleed.⁵⁰ The selected parts of *Bai Eki Saikyuhou* are very different from the Chinese physicians mentioned above. In order to facilitate the public’s use, there is no restriction on tools, and the selection of the operating parts is also very simple. *Bai Eki Saikyuhou* showcases the endeavors of Japanese medical practitioners in combating epidemics and the attributes of simplicity and user-friendliness in traditional Japanese medicine.

4.2 Public treatment and convalescence of measles

Measles was ranked among the most severe infectious diseases in the Edo period. Caused by the measles virus, it is more infectious than smallpox, and patients often suffer from long-term complications such as blindness.⁵¹ The public accorded significant attention to measles, accumulating extensive experience in its treatment and patient care. This is corroborated by ukiyo-e prints from 1862 documenting measles outbreaks. Since May 1862, a nationwide measles pandemic had broken out in Japan.⁵² During this epidemic, the publicity of ukiyo-e painters not only covered the treatment methods for measles, but also extended to the recuperation matters, dietary taboos, and the number of years of measles prevalence for measles patients, indicating that ukiyo-e had become an indispensable role in publicizing medical knowledge during the epidemic period.

The painting *Mashin Yousei Shintoku Hou* (『麻疹養生心得方』 *Measles Health Preservation Recipe*) was engraved and published in 1862 by the bookseller Sano Ya Tomigoro (佐野屋富五郎), but the name of the painter

remains unknown. This ukiyo-e is now in the Saitama Prefectural Archives, and the author is unknown. As shown in figure 11, the upper part of *Mashin Yousei Shintoku Hou* has the words “Cimicifuga pueraria decoction Good medicine for treating measles (升麻葛根湯 麻疹良薬法)” (Fig. 11).

Its content is as follows (Table 3).

The “Cimicifuga pueraria decoction Good medicine for treating measles” testifies to the profound influence of Chinese medicine. It was first recorded in the Southern Song dynasty’s *Tai Ping Hui Min He Ji Ju Fang* (《太平惠民和剂局方》 *Formulary of the Bureau of Peaceful Benevolent Dispensaries*, 1148). The text documents its

use for treating “seasonal infectious diseases in adults and children, presenting with symptoms such as headache, fever, generalized soreness, and both erupted and latent measles”. Since its introduction in the 12th century, this formula has been widely applied in clinical practice, with multiple Ming and Qing dynasty pediatric monographs designating it as a core prescription for measles treatment.⁵³ According to modern pharmacological studies, the methanol extract of *Cimicifuga foetida* and isofeulic acid can reduce body temperature, while extracts of *Cimicifuga foetida* can increase the pain threshold of the central nervous system. The alcohol extract of *Pueraria lobata* and puerarin can dilate cutaneous blood vessels to promote heat dissipation; they also enhance respiratory movement and increase water excretion, with rapid onset of action lasting approximately 4 hours. This might account for the formula’s nearly millennium-long continuous use and its popularity in Japan during the Edo era.⁵⁴

The terminology used in “Cimicifuga pueraria decoction Good medicine for treating measles” to describe measles symptoms reflects the influence of TCM in Japanese society. Terms such as “measles attacking inward (麻疹内攻)” and “measles invading the eyes (麻疹入眼)” are based on Chinese medicine theories explaining pathological changes in measles. According to Chinese medicine, measles is caused by “*Ma Du* (麻疹 measles toxin)” —if this toxin ascends to affect the eyes, it becomes “measles invading the eyes”; if it penetrates inward into the viscera, it becomes “measles attacking inward”.⁵⁵ Despite being a popular medical compendium for general readers, “Cimicifuga pueraria decoction Good medicine for treating measles” employs specialized pediatric Chinese medicine terminology, demonstrating the high level of acceptance that Chinese medicine enjoyed in 18th-century Japanese society.

The ukiyo-e painting *Mashin Kinki* (《麻疹禁忌》 *Measles Contraindications*) created by Utagawa Yoshifuji (歌川芳藤) in 1862 introduces the recuperation matters for measles patients (Fig. 12). This painting is now in the Tokyo



Figure 11 Measles Health Preservation Recipe (《麻疹養生心得方》 *Measles Health Preservation Recipe*) (source with permission from: Saitama Prefectural Library)

Table 3 Original and translation of “Cimicifuga pueraria decoction Good medicine for treating measles”

Original Text	Translation
(升麻葛根湯): 葛根三匁、升麻二匁、芍薬二匁、甘草二匁。右四味調合して生姜入有ば、いは入せんじ用ゆべし	(<i>Cimicifuga pueraria</i> decoction): Pueraria 3 Mace, cimicifuga 2 Mace, chinese peony root 2 Mace, liquorice root 2 Mace. Mix the above four ingredients and add ginger to mix well before use
内攻の大妙薬: 穿山甲、牡蠣、此二味火にてやき、紅花、川芎、大黃、甘草、右六味せんじ用ゆるべし	A wonderful medicine for measlesattacking inward: pangolin scales and oyster shell, these two ingredients are calcined, saffron, sichuan lovage rhizome, rhubarb root, and licorice root, mix the above six ingredients evenly and use
はしか目に入たる時の妙薬: せついんの虫を二ツにさきて、其汁を目の中へさして宜	A wonderful remedy for measles getting into the eyes: squeeze the juice from two snow worms (maggots) and drip the juice into the eyes
かゆみをとめる妙薬: 黒豆、陳皮、大麦、生姜。右五味せんじ用ゆ	A wonderful antipruritic medicine: black beans, tangerine peel, barley, and ginger. Mix the five ingredients well and use



Figure 12 *Mashin Kinki* (《麻疹禁忌》 *Measles Contraindications*) (source with permission from: Muneta Bunko)

Metropolitan Library. It is 36 cm long and 24 cm wide. On the upper left side of the screen is Zhong Kui (钟馗), who has been regarded as a god specializing in destroying epidemic ghosts in Japan since the Heian period. In Chinese folklore, he is the god who exorcises ghosts and evil spirits. In the center of the screen, a physician is unrolling a picture scroll. Several women and children watched and paid homage; the picture scroll unfolded by the doctor was drawn by Shennong (神农) who tasted the herbs. There was “Measles Contraindications (麻疹禁忌)” on the upper right side of the picture, which recorded the contraindications in the care of measles patients, mainly including “かぜさむさをさくる事第一なり (Taking shelter from wind and cold as the first priority)”, “さけ (wine)”, “ひえもの (cold things)”.

Utagawa Yoshitora (歌川芳虎) also created ukiyo-e paintings that introduce the recuperation guidelines, dietary dos and don'ts for measles patients titled *Mashin Yousho Noden* (『麻疹養生之傳』 *Measles Health Regimen*) (Fig. 13). This ukiyo-e painting was created in 1862 and is now in the collection of the International Research Center for Japanese Studies. It is 35.6 cm long and 24.5 cm wide and was published by the bookseller Daikokuya Yoshinosuke (大黒屋吉之助). On the lower left side of the painting, a mother and her child put their hands together and pray to the portrait of Zhong Kui. *Mashin Yousho Noden* records that the main regimens for measles require patients must abstain from sex, bathing, and drinking within 75 days, and avoid shaving their hair within 50 days. The main food contraindications include river fish, pickled plums, burdock, pumpkin, etc.

According to Japanese scholars, the health-preservation advice and prohibitions recorded in *Mashin Kinki* and *Legacy of Mashin Yousho Noden* also originated from Chinese medical texts. For instance, dietary restrictions such as umeboshi (pickled plum), river fish, and pumpkin listed in *Measles Contraindications* are derived from Wang Kentang's (王肯堂) *Zheng Zhi Zhun Sheng* (《证治准绳》 *Criterion for Pattern Identification and Treatment*), a Ming dynasty medical classic first

published in 1608, and its extant Japanese edition from Kanbun 10 (1670) remains preserved.⁵⁶

These prohibitions and suggestions are not entirely without scientific basis. Patients with measles have weakened immune systems, and cold environments may increase the risk of secondary bacterial infections (such as pneumonia). Alcohol consumption suppresses the immune system and exacerbates metabolic burden on the liver, potentially worsening dehydration and electrolyte imbalances—especially during fever. Cold foods can irritate the gastrointestinal tract, triggering diarrhea or indigestion and impairing nutrient absorption.

4.3 Social phenomena under epidemic conditions

Pandemic-related paintings also conveyed the social landscapes shaped by epidemics. Foremost among these were the distinctive spiritual practices of sex workers. During the Edo period, the pornographic and entertainment industries in big cities such as Edo and Kyoto were well-developed, with a large number of prostitutes. Prostitutes often needed ukiyo-e painters to create portraits for them to increase their popularity, and painters often created bijinga (paintings of beautiful women) with high-class prostitutes from the Yoshiwara area as their subjects. Thus, the two groups often had contact. The ukiyo-e *Ryukou Gorishoken* (『流行御利生けん』 *The Venerated Deities Who Bless All Beings*) created by Utagawa Yoshitora in 1847 reflects the spiritual sustenance of prostitutes, who were the group most frequently infected with syphilis at that time, after getting sick. The so-called “ryukou (流行)” refers to a fanatically worshipped belief; “gorishokenn (御利生けん)” comes from the Buddhist concept of Buddhas and Bodhisattvas “benefiting all sentient beings”.⁵⁷ In this painting, there are three deities: the old woman at the lower left is the goddess Togibaba, who specifically cures prostitutes of syphilis; the young woman in the upper middle is “Otake (Otake-Daibutsu Nyorai)”, an incarnation of the Vairocana who relieves the poor; and the old man at the lower right is Okina Inari, who expels filth and evil spirits. The three are playing Kitsune-ken, a game where they use the postures of a fox, a hunter, and a village headman to determine the winner (Fig. 14). Many prostitutes either lost their customers due to the skin manifestations of syphilis or died young from the disease. Therefore, the worship of Togibaba was quite popular among prostitutes during the Edo period.⁵⁸

Next came the role reversal between merchants' epidemic response and physicians' perceived role in protecting against plagues. *Shonin Hashika Taijinozu* (『諸人麻疹退治之図』 *Picture of People Subduing Measles*) painted by Utagawa Yoshimori in 1849 is now in the Edo-Tokyo Museum, 37.4 cm long and 26 cm wide (Fig. 15). This ukiyo-e depicts the world under the measles epidemic. The giant guy on the left side of the picture has a red rash on his skin, and he is the incarnation of



Figure 13 *Mashin Yousho Noden* (『麻疹養生之傳』 *Measles Health Regimen*) (source with permission from: Nichibunken Digital Archive)



Figure 14 *Ryukou Gorishoken* (『流行御利生けん』 *The Venerated Deities Who Bless All Beings*) (source with permission from: Edo-Tokyo Museum)



Figure 15 *Shonin Hashika Tajjinozu* (『諸人麻疹退治之図』 *Picture of People Subduing Measles*) (source with permission from: Tokyo Metropolitan Library)

measles. The man who rushed forward to grab measles and escort measles' arm is a merchant, and the woman is a kabuki actress. These two industries have been in a recession due to the measles epidemic, which has caused a sharp drop in customers. Merchants and kabuki are therefore eager for the measles situation to develop in a way that benefits them; the figures on the lower left side of the picture who are persuading everyone are doctors and "cage-carriers" who transport patients. The measles epidemic has brought them business, so they hope to let measles spread.

Lastly, there was the phenomenon of profiteering in the funeral industry, religious services, and pharmaceutical sector during the pandemic era. Dokyo-e *Tsukamitori* (『通神鳥』 *The Greed-Grabbing Bird*) which is now collected in the Tokyo Metropolitan Library, vividly illustrates this cultural phenomenon. The author is unknown, and the text on the picture is written by Master of Tousuidou (东水堂主人). This painting is 52.5 cm long and 37 cm wide. It was created during the cholera epidemic in Japan in 1858. As shown in the picture (Fig. 16), *Tsukamitori* depicts a bird-shaped monster that



Figure 16 *Tsukamitori* (『通神鳥』 *The Greed-Grabbing Bird*) (source with permission from: Tokyo Metropolitan Library)

is a combination of man and object. Its head is painted with a man working in a crematorium, waving a fire stick; its neck is painted with a monk holding a whisk who has become busy due to the increase in the number of deaths; its chest is painted with a businessman who specializes in purchasing the clothes of the dead from the homes of the sick and dead; its body reads “賽銭箱 (saisen box, a box people offer money to the gods or bodhisattvas by putting money into it)”, its tail is a medicine pestle and mortar, its tail feathers are “薬種 (medicine-store)”, and its claws are shovels for digging graves. The painting's title, “通神鳥” is pronounced “tsukami-tori” (it can also be read as “tsujinchou”) and is written as “掴み取り” meaning “grab, make a fortune”.

5 Pandemic images in advertisements and Edo's pharmaceutical industry

The prevalence of epidemics in the Edo period spurred the growth of specialized medical industries. Merchants developed innovative advertising strategies to promote their anti-epidemic products. For instance, Funakoshi Keisuke (船越敬祐), a self-proclaimed syphilis specialist, utilized serialized novels as marketing tools for his remedies. His work *Ehon Baiso Gunkan* (『絵本黴瘡軍談』 *Illustrated Military Chronicles of Syphilis*, 1838) addressed the societal stigma and medical challenges posed by syphilis—a chronic systemic sexually transmitted infection caused by *Treponema pallidum*. Left untreated, syphilis could lead to blindness, heart failure, cognitive impairment, and death. Introduced to Japan in the 16th century, the disease spread rapidly through major cities like Edo and Kyoto. By the 19th century, Dutch learning physicians (Rangaku) treated syphilis with mercury-based medications, which temporarily suppressed symptoms like chancres and rashes but caused severe side effects: oral ulceration, neurological tremors, convulsions, and kidney failure.⁵⁹

In *Ehon Baiso Gunkan*, Funakoshi recounted his personal trauma: his parents died of syphilis, and his

own treatment with mercury compounds at Nagasaki's Rangaku school exacerbated his suffering. He claimed to have cured himself using Kampo and later commercialized his remedies.⁶⁰ Employing the popular literary style of military chronicles (gunki monogatari), Funakoshi personified syphilis as the “Syphilis King” (Fig. 17) and his prescriptions—Kiryoto (奇良湯 Miracle Cooling Decoction) and Baikosan (黴効散 Syphilis-destroying Powder)—as “Medicine Generals”. On page 170 of the text, prices and purchase addresses were explicitly listed.⁶¹ This hybrid medical-literary genre reflected Edo's evolving advertising landscape. The efficacy of Funakoshi's remedies was partially rooted in tradition: Kiryoto contained *Reynoutria japonica* (Chinese yam), a herb promoted by Ming dynasty physicians Xue Lizhai (薛立斋) and Li Shizhen (李时珍) as an alternative to mercury. Its popularity led to *Reynoutria japonica* becoming a staple trade item on 17th to 19th century Japanese merchant ships.⁶²

To enhance visual appeal, the Osaka ukiyo-e artist Yanagisai Shigeharu (柳斎重春) illustrated the text with depictions of the “Syphilis King” —a grotesque,



Figure 17 Syphilis King (source with permission from: Kyoto University Library)

armor-clad figure with fangs and a cunning expression—and his “Medicine Generals”. The narrative framed syphilis treatment as a samurai-style battle, combining vivid imagery of symptoms and cures with popular samurai culture. The ukiyo-e painting *Shobyō Shoyaku no Tatakai* (『諸病諸薬の戦い』 *The Battle of Various Illnesses and Medicines*) by Utagawa Yoshitora (Fig. 18) is also a vivid medical advertisement. This painting was published by Jinshengtang. It is 75.6 cm long and 34.2 cm wide, and it is collected in the Sotoda Bunko.

In the form of personification, *The Battle of Various Illnesses and Medicines* uses monsters to represent diseases such as “ほうそう (smallpox)”, “めまひ (dizziness)”, and “はやり風 (epidemic cold)”, while various patent medicines and crude drugs are depicted as generals. The painting mainly praises the efficacy of the medicines through the heroic performances of the crude drugs and patent medicines. The old man sitting and standing on the right side of the painting is Shennong, who commands the patent medicines in battle. Shennong in the painting points in the direction of various diseases, signaling all kinds of medicines to launch a general offensive against the diseases. Under the attack of the medicines, the various diseases are routed and flee in all directions on the left side of the painting. The patent medicines around Shennong include Mankin Tan (萬金丹), Junki San (順気散), Chouri Gan (調痢丸), Kuroganshi (黒丸子), Shoudoku Gan (消毒丸), Hakka Gan (薄荷圓), etc. Many patent medicines are marked with the place names of the wholesale locations of the patent medicines. For example, Chouri Gan from “Honichi (本一 Honmachi 1-chome)”. There are even more medicines fighting against diseases in the middle and left parts of the painting. There are patent medicines such as Xiaoduwan, Kin'i Gan (錦衣圓), Kanryou Gan (肝涼圓), Gozou Gan (五臓圓), Ninjin Kou (人參膏), etc., and the crude drugs include bear bile and aged wormwood. *Shobyō Shoyaku no Tatakai* promotes the main indications of the sold medicines through the magnificent war scenes.



Figure 18 *Shobyō Shoyaku no Tatakai* (『諸病諸薬の戦い』 *The Battle of Various Illnesses and Medicines*) (source with permission from: Cultural Japan)

6 Epidemic-related images in screens and other types of publications

In addition to medical books, ukiyo-e, essays and diaries, there are also images related to epidemics in screens and other types of publications. These images are mostly related to the epidemic-related customs of the Edo period. *Gion Sairei Zu* (『祇園祭礼図』 *Illustration of the Gion Festival*) Folding Screen was made in the Edo period (Fig. 19). The picture on the screen depicts the scene of the Gion Festival in Kyoto at that time. The purpose of holding the Gion Festival was to pray for the epidemic to disappear. This ritual originated from the Goryokai (御霊会 Spirit Pacification Ceremony) that the palace fought against epidemics in the Heian period.⁶³ The Gion Festival screen displays Japan's long tradition of religious prayer to fight against epidemics.

The book *Miyakomeishozue* (『都名所図会』 *Picture Collection of Kyoto's Famous Scenic Spots and Historical Sites*) was written by the novelist and haiku artist Akisato Ritou (秋里籬島). The illustrations in the book were drawn by the painter Takehara Nobushige (竹原信繁) and were published twice in the ninth year of An'ei (1780) and the seventh year of Tenmei (1787). *Miyakomeishozue* is a topography that records famous places in the Kyoto area as well as related history, geography, and customs. *Miyakomeishozue* once included a picture of Plague God Shrine (Fig. 20), which was a place dedicated to worshipping the plague god at that time.⁶⁴

The *Ukiyozoushi* (a type of novel from Edo period) *Shoenookagami* (『諸艶大鑑』 *Great Mirror of All Desires*) and the occupational illustrations *Jinrinkinmouzui* (『人倫訓蒙図彙』 *Picture Collection to Teach Children and Beginners about Human Order Relationship*) record the epidemic-prevention customs specifically targeting influenza during the Edo period. During the Edo period, influenza was known as “はやり風”, “風邪”, “谷風”, or “お駒風”. Influenza is an acute respiratory infectious disease caused by the influenza virus, with typical symptoms such as high fever, headache, and joint pain. The elderly or those with weak constitutions may also

develop pneumonia, and quite a number of people die from it. Influenza is highly contagious and caused significant harm in densely populated areas such as Edo and Osaka. Therefore, the general public paid great attention to influenza.⁶⁵ *Shoenookagami* was written by the haiku and playwright Ihara Saikaku (井原西鶴) and published in 1684. Volume 7 of the novel depicts the scene of “風の神送り (sending off the wind god)” (Fig. 21). According to *Shoenookagami*, “風の神 (Wind God)” is an evil god who causes epidemics of influenza. People made puppets that symbolize the wind god, presented offerings, and prayed to send the wind god away. Then people began to parade, holding the puppets that symbolize the wind god in front of them. With the shouts of “sending off the wind god”, the parade continued to the riverside, and finally people threw the puppets into the river to finish the ritual.⁶⁶

Jinrinkinmouzui was published in 1690. The author was unknown, and the illustrations were created by the painter Makieshi Gensaburo. The seven volumes of the illustrated collection contain the position of “風神払 (expel the wind god)” and the corresponding illustrations (Fig. 22). *Jinrinkinmouzui* explains that the position of expelling the wind god is “世間に風気時行ぬれば、風の神をおひはらふとて、面をかつぎ太鼓を打て物をもろう (a beggar who wears a wind-driving god mask and beats a drum when the world is plagued by influenza)”.⁶⁷

7 Conclusion

The images related to epidemics in the Edo period delineate, through visual narratives, the diverse scenarios of Japan—an integral part of East Asian feudal civilization—responding to diseases during a period of stability and prosperity. From long-prevalent illnesses such as smallpox and measles, the images in screens and local chronicles not only provide direct records of epidemic existence but also reflect the dynamic process by which Edo society transformed foreign medical systems into local anti-epidemic practices through absorbing Chinese



Figure 19 Gion Festival picture folding screen (source with permission from: Kanazawa Nakamura Memorial Museum)



Figure 20 The picture of Plague God Shrine from *Miyakomeishozue* (『都名所図会』 *Picture Collection of Kyoto's Famous Scenic Spots and Historical Sites*) (source with permission from: Waseda University Library)



Figure 21 “Sending off the wind god” from *Shoenookagami* (『諸艶大鑑』 *Great Mirror of All Desires*) (source with permission from: Kobe University Library)



Figure 22 “Expel the wind god” from *Jinrinkinmouzui* (『人倫訓蒙図彙』 *Picture Collection to Teach Children and Beginners about Human Order Relationship*) (source with permission from: Kobe University Library)

medical knowledge—evidenced in the diagrammatic representations of symptoms in medical illustrations

and ukiyo-e art. The symbolic use of Chinese medicine formulas advertisements in *Ehon Baiso Gunkan* and the image of Shennong in *Shobyō Shoyaku no Tataikai* further confirm the deep penetration of the Chinese medical system into Edo society, spanning from intellectual adoption to cultural-psychological acceptance.

When the focus shifts to the newly introduced and highly dangerous cholera epidemic, the panicked depictions of the populace in essay and diary illustrations stand in stark contrast to the coordinated response mechanism among the bakufu, physicians, artists, and booksellers portrayed in the ukiyo-e works *Ryukobyo Myoyaku Kigen* and *Bai Eki Saikyuhou*. This interaction between top-down policy-making and bottom-up knowledge dissemination not only highlights the organizational resilience of traditional society in addressing public health emergencies but also reveals the social adaptation trajectory during the transition between old and new medical systems.

Collectively, these visual sources construct a visual spectrum of Edo-period anti-epidemic culture—through vertical comparisons with ancient epidemic-relief traditions and early modern medical transformations, they clearly demonstrate the functional replacement of religious rituals by medical prevention and treatment, as well as the transformative shift of civil society groups from passive recipients to active participants. More importantly, through their concrete historical scenes, these images reveal the multiple functions of visual media in epidemic response—recording, disseminating, and constructing—and offer a unique dimension beyond textual sources for understanding the generative logic of premodern medical culture and its interaction with social structures.

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This study does not contain any studies with human or animal subjects performed by any of the authors.

Author contributions

ZENG Yi was responsible for data collection, original draft preparation, and manuscript revision. XIAO Yongzhi provided supervision and contributed to the review and editing of the manuscript. All authors have read and agreed to the published version of the manuscript.

Conflicts of interest

The authors declare no financial or other conflicts of interest.

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A New Research on *Da Yuan Ben Cao*

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Abstract

Da Yuan Ben Cao (《大元本草》 *Materia Medica of the Great Yuan Dynasty*) is a materia medica book compiled during the Yuan dynasty. Because the book has not survived and the related Chinese historical resources are also very scarce, there have been always some controversies about whether the compilation of this book was ever completed or not. Based on a Chinese medical book named *Ben Cao* (《本草》 *Materia Medica*) which is mentioned in the preface of *Tānksūqnāmah* (《伊利汗中国科技珍宝书》 *Ilkhanid Chinese Science and Technology Treasure Book*), a Chinese medicine book in Persian, this article analyzes the compilation ways of Chinese scientific and technological books during the Ilkhanid dynasty and preliminarily points out that *Da Yuan Ben Cao* was introduced to Iran in the Yuan dynasty. *Ben Cao* in *Tānksūqnāmah* was very likely to be the Persian version of *Da Yuan Ben Cao*.

Keywords: *Da Yuan Ben Cao* (《大元本草》 *Materia Medica of the Great Yuan Dynasty*); China; Iran; *Tānksūqnāmah* (《伊利汗中国科技珍宝书》 *Ilkhanid Chinese Science and Technology Treasure Book*); Traditional Chinese medicine

1 *Da Yuan Ben Cao* (《大元本草》 *Materia Medica of the Great Yuan Dynasty*) in Chinese historical resources and the previous research achievements

According to Chinese historical resources, *Da Yuan Ben Cao* (《大元本草》 *Materia Medica of the Great Yuan Dynasty*) is an official materia medica book compiled by Xu Guozhen (许国祯, birth and death dates unknown), a famous physician in the Yuan dynasty (1271–1368) and his team under the order of Kublai Khan (忽必烈, 1215–1294), the founder of the Yuan dynasty. Because this book does not exist today, and its information is also very scarce, *Da Yuan Ben Cao* was forgotten after the fall of the Yuan dynasty.

In 1993, Gao Wei (高伟)¹ published the article titled “*Materia Medica of the Great Yuan Dynasty* and *Pharmacy of Cheng Tian Ren Hui Bureau* (《<大元本草>与<承天仁惠局药房>》)” and according to the records in *Yuan Shi* (《元史》 *History of the Yuan Dynasty*) Vol.10 and

Vol.15, which recorded that, “Kublai Khan ordered Saliman (萨里蛮), Xu Guozhen and the other famous physicians to compile *Da Yuan Ben Cao*, and in 1288, its compilation was completed by *Tai Yi Yuan* (太医院 Imperial Medicine Institute)”,² this article summarized that Xu Guozhen and other scholars began to compile *Da Yuan Ben Cao* in 1285 and finally completed it in 1288. In addition, *Mi Shu Jian Zhi* (《秘书监志》 *Records of Secretary Department*) Vol.4 contained a document of *Zhong Shu Sheng* (中书省 Central Secretariat) on June 25th, 1285, which excerpted a piece submitted by Zamaruddin (扎马鲁丁), a Muslim senior official of the Yuan dynasty: “*Tai Shi Yuan* (太史院 Imperial History Institute) has edited the calendar. *Da Yuan Ben Cao* is under editing” (Note 1).³ In 1995, Bo Shuren (薄树人) published an article titled “Historical materials on *Materia Medica of the Great Yuan Dynasty* (《关于<大元本草>的史料》)”, in which he considered that *Da Yuan Ben Cao* was not completely compiled.⁴ In 2011, Dong Jie (董杰) put forward new views on doubts in the previous articles and wrote the article “Notes on reading ‘The official compilation of *Materia Medica of the Great Yuan Dynasty* actually happened’ (《读<元代官修<大元本草>确有其事>札记》)”. He believed that *Da Yuan Ben Cao* should be compiled into a book eventually.⁵ In 2022, Gong Haifeng (宫海峰) and Bao Ying (包莹) referred a new point of view in the article “A textual research on the history of *Materia Medica* revised and added in Yuan dynasty (《元代增修<本草>史事考》)”, and concluded that the word of “*Da Yuan* (大元)” was actually the error writing of the word “*Tai Shi* (太史)”, because *Tai Shi Yuan* could not undertake the editing of a medical book. The actual meaning of Zamaruddin’s text should be: “*Tai Shi Yuan* is editing the calendar and

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Tai Yi Yuan is editing *Ben Cao*”.⁶ There is no book titled *Da Yuan Ben Cao* in history, and the name of the book compiled by Xu Guozhen’s team should be still *Ben Cao* (《本草》 *Materia Medica*).

The main views of Chinese historians and medical researchers on *Da Yuan Ben Cao* are roughly as follows: Kublai Khan, the founder of the Yuan dynasty ordered a new book of materia medica studies, and its compilation officially begun in 1285 under the charge of Xu Guozhen. There are still different views and controversies about whether the book was completed or not and the title of the book is still in question (Table 1).

2 Medical exchanges between the Yuan dynasty and the Ilkhanid dynasty

During the Yuan dynasty, along with the conquest and expansion of the Mongols in Eurasia, the cultural integration of Eastern and Western civilizations was also growing rapidly. In China, the influence of cultures from West Asia, especially Iran was greatly strengthened. From the second half of the 13th century to the beginning of the 14th century, the Yuan dynasty and the Ilkhanid dynasty (1256–1335) had frequent exchanges

Table 1 A brief overview of the compilation of *Da Yuan Ben Cao* (《大元本草》 *Materia Medica* of the Great Yuan Dynasty)

Brief overview	Specific information
Book Title	<i>Da Yuan Ben Cao</i> (《大元本草》 <i>Materia Medica</i> of the Great Yuan Dynasty) (Doubtful)
Period	Yuan dynasty (1271–1368)
Commissioned by	Kublai Khan (忽必烈, 1215–1294)
Major Members of the Compilation Team	Xu Guozhen (许国祯), Saliman (萨里蛮)
Institute Involved	<i>Tai Yi Yuan</i> (太医院)
Compilation Timeline	From 1285 to 1288 (Doubtful)
Historical Records	<i>Yuan History</i> (《元史》 <i>History of the Yuan Dynasty</i>), Vol.10 & 15 <i>Mi Shu Jian Zhi</i> (《秘书监志》 <i>Records of Secretary Department</i>), Vol.4
Current Status	Lost or never completed
Modern Research	Gao Wei (高伟) : the compilation began in 1285 and was completed in 1288. (1993) Bo Shuren (薄树人) : <i>Da Yuan Ben Cao</i> was not completely compiled.(1995) Dong Jie (董杰): <i>Da Yuan Ben Cao</i> was eventually compiled. (2011) Gong Haifeng and Bao Ying (宫海峰, 包莹): “ <i>Da Yuan</i> (大元)” is a miswriting of “ <i>Tai Shi</i> (太史)” and the book’s name is <i>Ben Cao</i> (《本草》 <i>Materia Medica</i>). (2022)
Controversies	Whether the compilation of was completed or not? Is its title <i>Da Yuan Ben Cao</i> or <i>Ben Cao</i> ?

in the field of science and technology, especially medicine. Kublai Khan, who advocated medicine, set up *Tai Yi Yuan* in Dadu (大都), the capital city of the Yuan dynasty in 1260, and then a large number of Muslim physicians from Central Asia, West Asia served in this institute. In 1263, Kublai Khan appointed Ai Xue (爱薛, 1227–1308), a Muslim physician and astronomer to be in charge of *Yi Yao Si* (医药司 Department of Medicine) and *Xi Yu Xing Li Si* (西域星历司 Department of Western Regions Ephemeris). In 1273, *Jing Shi Yi Yao Yuan* (京师医药院 Capital Medical Institute) established by Ai Xue was renamed as *Guang Hui Si* (广惠司 Department of Guanghui), which was mainly responsible for the development of medicines from Central and West Asia for the treatment of soldiers and civilians. In 1292, Kublai Khan set up *Hui Hui Yao Wu Yuan* (回回药物院 Muslim Medicine Institute), which was affiliated to *Tai Yi Yuan* in Dadu and Shangdu (上都) to study and develop the medicines from Central Asia and West Asia, specially prescribing Muslim medicines for the royals and dignitaries. *Nan Cun Chuo Geng Lu* (《南村辍耕录》 *Nancun’s Notes in the Intervals of Ploughing*), written by Tao Zongyi (陶宗仪, 1329–1412?), a famous writer and historian, introduced a variety of treatment methods of Muslim physicians.⁷ Hu Sihui (忽思慧, birth and death dates unknown), a physician and nutritionist, also introduced a various of herbal plants from Central Asia and West Asia.⁸ Furthermore, during this period, a large number of Persian and Arabic scientific and technological books were introduced into China. *Mi Shu Jian Zhi* compiled at the end of the Yuan dynasty recorded that *Si Tian Jian* (司天监 Department of Sky) collected 242 Muslim books, covering different disciplines such as mathematics, astronomy, geography, linguistics, literature, philosophy, religion, medicine, etc., including the thirteen-volumes book titled an Arabic name, *Teibi* (忒毕), which means medicine.

In West Asia, the Ilkhanid dynasty also attached importance to the culture of Chinese medicine from East Asia, and received the attention and support of rulers and senior officials in court. During this period, there were many Chinese people coming to the territory of the Ilkhanid dynasty. Their official positions and occupations were different, such as painters, musicians, secretaries, cooks, etc. There were also many medical experts from China who held important positions in the Ilkhanid court and the army, treating the members of the royal family, nobles, soldiers and civilians. It was recorded in *Jāmi’ ut-Tavārīkh* (《史集》 *Compendium of Chronicles*) that after suffering from an eye disease, Chinese physician used the way of bloodletting to treat Ghazān Khān’s (1271–1304, Note 2) eye disease. Rašīd ud-Dīn Faḡlullāh Hamidānī (1247–1318), a well-known *Vazīr* (Prime Minister) of the Ilkhanid dynasty funded the construction of a Rab’-i Rašīdī (拉施特镇 the Town of Rašīd) on his own fiefdom in the outskirts of Tabriz, where new cultural, educational, and public

service institutions such as schools, libraries, hospitals, pharmacies, and bathhouses were built. At the same time, the Ilkhanid dynasty recruited literati and scholars from other areas in the world, including China. The Library in Rab'-i Rašīdī collected a large number of foreign language books, including many Chinese classic works. It was also mentioned in *Tārīkh-i Chīn* (《中国史》 *History of China*) of Rašīd ud-Dīn's *Jāmi' ut-Tavārīkh* that L.bbāhī and M.ksūn, two Chinese scholars who served in the Ilkhanid dynasty at that time, brought several books about Chinese science and technology from China to Iran. Rašīd ud-Dīn attached great importance to these Chinese works and hoped to understand and learn the advanced culture and technology of China. He presided over the compilation of *Tānksūqnāmah-i Ilkhān dar funūn-i 'Ulūm-i Khatāy*, (《伊利汗中国科技珍宝书》 *Ilkhanid Chinese Science and Technology Treasure Book*) and said:

“We began to translate some of their (Chinese scholars') books, histories and writings by King's (Ghazān Khān) holy decree as mentioned earlier, and tried to obtain their books and train people to understand their language and know Chinese people. We translated the books of [.....], herbs, minerals, trees, animals, fishes and official positions.” (*Tānksūqnāmah*, Preface)^{9,10}

This important information shows that a Chinese materia medica book was translated into Persian in the early 14th century. At least three of the above-mentioned books in different fields of Chinese cultures have survived to this day and their names and dates of writing are as follows: (1) Historical book: *Tārīkh-i Chīn* (from *Jāmi' ut-Tavārīkh*), 1311; (2) Medical book: *Tānksūqnāmah-i Ilkhān dar funūn-i 'ulūm-i Khatāy*, 1313; (3) Agricultural and botanical book: *Āthār va Ahyā* (《迹象与生命》 *Signs and Lives*), should have been written between the beginning of the 14th century and 1313.

3 The possible records of *Da Yuan Ben Cao* in *Tānksūqnāmah* (《伊利汗中国科技珍宝书》 *Ilkhanid Chinese Science and Technology Treasure Book*)

Tānksūqnāmah was a book that introduced China's science and technology, and Rašīd ud-Dīn himself wrote a long preface over 80 pages, in which he elaborated on characters of Chinese language, astronomy, calendar, papermaking technology, printing technology, paper money, musical notation, medicine and other sciences and technologies in China. He highly praised China's developed scientific and technological civilization and pointed out the importance of translating Chinese books. At the end of the preface, Rašīd ud-Dīn said *Tānksūqnāmah* consisted of four parts. The first part was the theory of Chinese pulse, “a summary of Chinese knowledge of medicine, pulse diagnosis and explanation of human organs. Each line of the verses has been explained and the creator of

them is Wang Shuhe (王叔和, 201–280)”. Wang Shuhe was a famous physician of the Western Jin dynasty (266–317), and the name of that book was *Wang Shu He Mai Jue* (《王叔和脉诀》 *Wang Shuhe's Verse on Pulse Diagnosis*). But it was said that the real writer of this book was Gao Yangsheng (高阳生, birth and death year unknown) who lived in the Southern Dynasties (420–589) and wrote that book under the name of Wang Shuhe. The second part of *Tānksūqnāmah* was a book of acupuncture and moxibustion which was “on the twelve meridians and how to use hot burning and acupuncture therapy at the beginning of the blood circulation in human body and the onset of the disease”. This book named *Tong Ren* (《铜人》 *Bronze Figure*) was about acupuncture knowledge, and was written by Wang Weiyi (王惟一, 987–1067), a physician of the Northern Song dynasty (960–1127). The full name of the book is *Tong Ren Shu Xue Zhen Jiu Tu Jing* (《铜人腧穴针灸图经》 *Illustrated Classic of Acupoints on Bronze Figure*) and also simply known as *Tong Ren Jing* (《铜人经》 *Classic of the Bronze Figure*).¹¹ This book was wooden board published by Yi Guan Yuan (医官院 Department of Medical Officials) in 1027. The third part was on Chinese medicine and was translated from two Chinese medical books named *Yū Chū Tsang Shū* (《御处藏书》) and *Ben Tsāu* (《本草》). The fourth part consisted of two articles. The first article introduced “the disease treatment methods and the pulses' positions on left and right hands”. The second article was about “the rules and regulations of the state”, which is based on a book named *Tai He Lyu Ling* (《泰和律令》 *The Taihe Decree*), a statute book written during the Jin dynasty (1115–1234) and was not extant today. The only manuscript of *Tānksūqnāmah*, including the preface and “Wang Shu He Mai Jue” (first part) is now in Aya Sophia Library (No.3596), Istanbul, copied by Muḥammad bin Aḥmad Bin Maḥmūd dated in 713 A.H (1313 A.D).

The third part of *Tānksūqnāmah* mentioned in the preface appears on page 80 of the manuscript and reads as follows (Fig. 1):

“(Part 3) contains two kinds of technology knowledge, the first one is about the basic methods and explanations of the kings' statecraft and the questions and answers from their ministers, beside that there is also a book on medicinal herbs, the reasons for the improvements made in ancient times and which king issued the decree, this book is called *Yū Chū Tsang Shū*. The second technology knowledge is a separated list of medicinal herbs, which is divided into two volumes: the first volume is a translation of their (Chinese scholars) works on physical strengths, activities, constitutions, medicinal properties and how to obtain them from minerals, plants, human bodies and animals. This volume is called *Ben Tsāu*. The second volume is a list of medicines used by Greek and Chinese scholars added by us, with a detailed list of their types, properties and effects. Each list is divided into two parts or one part, including names, characteristics, efficacies and records the experiences of Chinese people. It

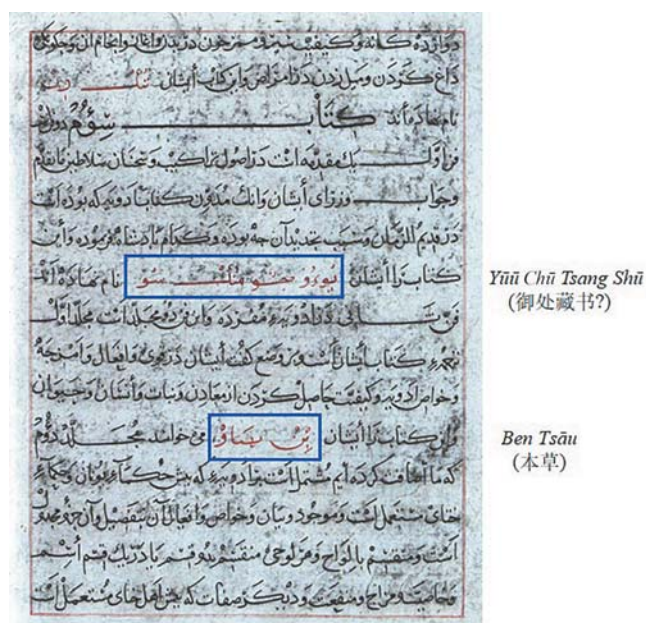


Figure 1 The preface of *Tānksūqnāmah* (source with permission from: photo taken by the author)

is also a list of medicines used by Greek scholars, which gives a clear idea of the names of the various medicines, their effects and how they were used.”

The Chinese medical book named “*Ben Tsāu*” which appears in this paragraph is very eye-catching and it is undoubtedly a Persian transcription of the Chinese pronunciation of the word “*Ben Cao* (本草 materia medica)”, but it is not easy to determine which Chinese book *Ben Tsāu* is compiled from and whether it is related to *Da Yuan Ben Cao* or not. In the text of the first part of *Tānksūqnāmah*, the compiler quoted the contents of many classical Chinese medicine books and the expositions of several medical scholars of the Northern Song dynasty and the Southern Song dynasty (1127–1279) to comment on the verses of *Wang Shu He Mai Jue*. In the section of *Zhong Feng Ge* (《中风歌》 Song of Stroke), the only comment of Chen Zangqi (陈藏器, 687–757), a famous pharmacist and the author of *Ben Cao Shi Yi* (《本草拾遗》 Supplement to “*The Grand Compendium of Materia Medica*”)¹² in *Tānksūqnāmah* appeared as follows: “The ending verse of *Zhong Feng Ge*: During the stroke the hair stands upright and foams at the mouth ... this means that when this disease occurs frequently, foaming at the mouth and standing upright of the hair are undesirable symptoms. Chen Zangqi said: Standing upright of the hair and profuse sweating are symptoms of heart and meridian disease”.

The original book of *Ben Cao Shi Yi* has been lost, but *Kai Bao Ben Cao* (《开宝本草》 *Materia Medica of the Kaibao Era*, 974)¹³, *Jia You Bu Zhu Ben Cao* (《嘉佑补注本草》 *Supplementary Annotation to “Shen Nong’s Classic of the Materia Medica”*, 1061),¹⁴ *Ben Cao Tu Jing* (《本草图经》 *Illustrated Classics of Materia Medica*, 1061)¹⁵ and *Jing Shi Zheng Lei Bei Ji Ben Cao* (《经史证类备急本草》 *Classified Materia Medica from Historical*

Classics for Emergency, 1108)¹⁶ all quote a lot of Chen Zangqi’s descriptions in *Ben Cao Shi Yi*. It should have been reasonable for the compilation team to select one or several of well-known works of the Song dynasty as reference books at that time. During its compilation, *Da Yuan Ben Cao* likely collected or referenced some Song dynasty’s Books of materia medica that contained some parts of *Ben Cao Shi Yi*, which also explains why Chen Zangqi’s contents were found in *Tānksūqnāmah*.

Another reason in support of this view comes from the book *Yūū Chū Tsang Shū*. The Chinese name of this book may be *Yu Chu Cang Shu* (《御处藏书》 *The Collection of Books in Imperial Department*). Endo Mitsuaki (远藤光晓), professor of Aoyama Gakuin University (青山学院大学) in Japan explained it as *Yu Chu Fang Shu* (《御处方书》 *The Book of Imperial Prescriptions*) and pointed out that it is likely to be another name for *Yu Yao Yuan Fang* (《御药院方》 *The Prescriptions of the Imperial Medicine Department*)¹⁷, which was compiled by Xu Guozhen.¹⁸ Whether the name is *Yu Chu Cang Shu* or *Yu Chu Fang Shu*, *Yu Yao Yuan Fang* is closely related to this book. Xu Guozhen’s medical diagnosis of cholera could also be found in *Tānksūqnāmah* (Vol.7):

“Xu Yintsi (Note 3), the physician said that the cause of the cholera is that people do not abstain from certain things and eat food at inappropriate times, and this disease often afflicts them. In this disease, if there is vomiting and diarrhea and something comes out from both sides (mouth and anus), it can be treated. However, if there is diarrhea, nausea and something else only came out from mouth, it is a sign of a serious condition, because it shows the body’s strength to expel harmful substances is no longer sufficient and may lead to death.”

In *Yu Yao Yuan Fang*, there are also several records about cholera, some of which are similar to the content in *Tānksūqnāmah*. This essentially proves that Xu Guozhen’s *Yu Yao Yuan Fang* had already been brought to Iran by the late 13th or early 14th century. In Rab’-i Rašīdī, this book was translated into Persian and compiled as the third part of *Tānksūqnāmah*.

It is no coincidence that the two books *Yūū Chū Tsang Shū* (suspected to be *Yu Yao Yuan Fang*) and *Ben Tsāu* (suspected to be *Da Yuan Ben Cao*), appear in the third part of *Tānksūqnāmah*. First of all, Xu Guozhen presided over and participated in the compilation of *Yu Yao Yuan Fang* and *Da Yuan Ben Cao*, *Yu Yao Yuan Fang* was compiled in 1267, and this book showed a detailed explanation of the use and efficacy of Chinese medicines and revised more than 1,000 prescriptions of the Imperial Pharmacy of the Song, Jin and Yuan dynasties in 11 volumes, including internal medicine and surgery, gynecology and pediatrics, ophthalmology and otorhinolaryngology, health preserve, etc. *Da Yuan Ben Cao* was a new book on materia medica. Secondly, the compilation of *Da Yuan Ben Cao* began in 1285, and was also relatively close to the compilation year of *Yu Yao Yuan Fang*. Because the Yuan dynasty was unable

to compile new official books on pulse, acupuncture and statute, when Rašīd ud-Dīn organized the compilation of *Tānksūqnāmāh*, the first part “Chinese Pulse Studies” collected the views of several medical scholars in the Song dynasty on *Wang Shu He Mai Jue*; the second part “Chinese Acupuncture and Moxibustion” selected Wang Weiyi’s *Tong Ren Jing*; and the fourth part “Chinese Statute” used *Tai He Lyu Ling*, while *Yu Yao Yuan Fang* and *Da Yuan Ben Cao* as the latest books of the official and authoritative pharmaceutical and materia medica works of the Yuan dynasty, could be highly likely to become the reference books for “Chinese Pharmacology”, the third part of *Tānksūqnāmāh*.

According to the records in *Yuan Shi*, *Da Yuan Ben Cao* was compiled in 1288, but after that there was no clear record about this book in Chinese historical resources. Questions about *Da Yuan Ben Cao* arose such as why was this book not preserved, whether it has ultimately been completed or not, and in what way was *Da Yuan Ben Cao* introduced to Iran. To answer the above questions, firstly we need to know the way of Rašīd ud-Dīn for compiling Chinese scientific and technological books. Some of books, such as *Su Wen* (《素问》 *Basic Questions*), *Nan Jing* (《难经》 *The Classic of Difficult Issues*), *Zhen Jiu Jia Yi Jing* (《针灸甲乙经》 *The Systematic Classic of Acupuncture and Moxibustion*), *Zhu Bing Yuan Hou Lun* (《诸病源候论》 *Treatise on the Origins and Manifestations of Various Diseases*), *Qian Jin Yao Fang* (《千金要方》 *Important Formulas Worth a Thousand Gold Pieces*), *Tong Ren*, etc., were all well-known and classical Chinese medicine works throughout history. It indicated that Rašīd ud-Dīn had already collected a large number of Chinese books in the library of Rab’-i Rašīdī in a systematic and large-scale way at that time. Rašīd ud-Dīn would not choose an unfinished book to compile the Persian version of Chinese scientific and technological works. Therefore, *Ben Tsāu*, the third part of *Tānksūqnāmāh*, was supposed to be compiled from a completed Chinese materia medica book. Gong Haifeng and Bao Ying also pointed out in “A textual research on the history of *Materia Medica* revised and added in Yuan dynasty” that according to historical materials, Ai Xue and several other Muslim physicians also participated in the compilation of *Ben Cao*, and believed that Muslim medicines should have an important ingredient in the compilation of *Ben Cao*. For this reason, such a materia medica book containing the latest Muslim medicine was undoubtedly more qualified to be recommended to the Ilkhanid dynasty from the Yuan dynasty. The preface of *Tānksūqnāmāh* also mentioned that “the second volume is supplemented by the medicines used by Greek and Chinese scholars”. This indicates that there were physicians from Europe and China in the compilation team in Rab’-i Rašīdī at that time and probably they brought some books on Greek and Chinese pharmacology from their own countries, probably including *Da Yuan Ben Cao*.

4 Has the compilation of *Da Yuan Ben Cao* in Persian ever been completed or not?

Currently only the preface and the first part of *Tānksūqnāmāh* have survived. Whether the second to fourth parts mentioned in the preface were planned to be compiled or have been fully compiled remained a mystery. Rašīd ud-Dīn compiled many books related to China in his lifetime, some of which were not only preserved in the library of Rab’-i Rašīdī, but also used as study materials for scholars in the territory of the Ilkhanid dynasty. The first three parts on Chinese medicine in the *Tānksūqnāmāh*, including Theory of Chinese Medicine Pulse (Part 1: *Wang Shu He Mai Jue*), Acupuncture and Moxibustion (Part 2: *Tong Ren*) and Chinese Medicine (Part 3: *Yūū Chū Tsang Shū* and *Ben Tsāu*) are very consistent with the compulsory content of Chinese medicine teaching in history, and students majoring in Chinese medicine also need to study these books, so the Chinese medicine books in the *Tānksūqnāmāh* should also be compiled at the same time. Furthermore, the main content of the only existing manuscript of *Tānksūqnāmāh* is the comments and opinions of some famous physicians of the Northern and Southern Song dynasties on *Wang Shu He Mai Jue*, such as Liu Yuanbin [刘元宾, literary name Tong Zhenzi (通真子)], Chi Rong (or Chi Daming, 池荣), Li Jiong (or Li Ziye, 李駟), and Li Minshou (黎民寿). Rašīd ud-Dīn also clearly wrote at the end of *Tānksūqnāmāh*’s preface that: “in this preface, the chapters and catalogue of this book are compiled, and after collation we named this book *Tānksūqnāmāh* and divided it into the following four parts...” From this, it can be known that the time of completion of the preface, which is a summary of the whole book should actually be after the compilation of the four parts of the *Tānksūqnāmāh*.

In addition, in the first part of *Tānksūqnāmāh*, the contents of Wang Weiyi’s *Tong Ren Jing* are quoted several times as a supplement to the comments on the verses of *Wang Shu He Mai Jue*. This shows that the compilation of *Tong Ren Jing*, the Persian version of the second part of *Tānksūqnāmāh* should have been earlier than or at the same time as the first part, so it could be believed that the compilation of *Ben Tsāu*, the third part of *Tānksūqnāmāh* was completed before 1313.

5 Conclusion

According to the existing historical resources and documents in Chinese and Persian, Kublai Khan ordered Xu Guozhen and his team to compile *Da Yuan Ben Cao* in 1284. This work officially began in 1285 and possibly several famous materia medica books of the Northern and Southern Song dynasties, such as *Kai Bao Ben Cao*, *Jia You Bu Zhu Ben Cao* and *Ben Cao Tu Jing* were

selected as references. The compilation of *Da Yuan Ben Cao* was finished in 1288. It may have been brought and introduced to the Ilkhanid dynasty in the early 14th century as one of the Chinese classical works of science and technology, along with other Chinese books. They were compiled and translated into Persian language in Rab'-i Rašidī and was added it into *Tānksūqnāmāh* by Rašid ud-Dīn. The third part of this book is divided into two parts, the first part is *Yūū Chū Tsang Shū*, which may be *Yu Yao Yuan Fang*, another medicine book compiled by Xu Guozhen. The second part includes two volumes. The first volume is *Da Yuan Ben Cao* and the second volume is a introduction of Chinese and Greek medicines and a list of them which is edited by the other medical scholars in Rab'-i Rašidī.

Although *Da Yuan Ben Cao* could be founded in some Chinese historical sources, but none of them is in detailed. The preface of *Tānksūqnāmāh* said that “the content (of *Ben Tsāu*) is their descriptions of physical strength, activities, constitution, the characteristics of medicines and how to obtain them from minerals, plants, human bodies and animals”. It may give us a preliminary understanding of that book. In addition, according to *Tānksūqnāmāh*, the compiled Chinese medical books were used as resources of teaching and studying Chinese medicine for Iranian scholars in Rab'-i Rašidī. It reflects that *Da Yuan Ben Cao* was also the official book of the Yuan dynasty at that time and was used for teaching, research and other related works in institutions such as *Tai Yi Yuan*. Although it is regrettable that both the Chinese and Persian versions of *Da Yuan Ben Cao* have been lost, the history of their relationship with each other deeply shows the in-depth cultural exchanges between China and Iran in the fields of science and technology during the Yuan dynasty.

Notes

1. Zamaruddin (扎马鲁丁) was from Iran and served in the Yuan dynasty government for a long time during the reign of Kublai Khan. He was in charge of the compilation of *Wan Nian Li* (万年历, the Perpetual Calendar), *Zhi Yuan Da Yi Tong Zhi* (至元大一统志, a geographical map of the Yuan dynasty) and the building of an observatory in Dadu city. He also introduced and manufactured a variety of astronomical instruments in China.
2. The seventh Ilkhan of the Ilkhanid dynasty, reigned from 1295 to 1304.
3. The courtesy name of Xu Guozhen is “Jinzhi (进之)”, “Yintsi” may be the Persian transliteration of “Jinzhi” in *Tānksūqnāmāh*.

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Ethical approval

This article does not contain any studies with human or animal subjects performed by the author.

Author contributions

SHI Guang drafted and reviewed the article.

Conflicts of interest

The author declares no financial or other conflicts of interest.

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Zhu Shi and Wang Honghan, Pioneers of Integrating Chinese and Western Medicine in the Early Qing Dynasty

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Abstract

When examining the exchange between Chinese and Western medicine during the late Ming and early Qing dynasties, Wang Honghan (王宏翰) stands out as the only Chinese physician who has been thoroughly discussed to date. However, Zhu Shi (祝石) holds a distinct position as the earliest known Chinese to receive Western medical training, extensively practice Western medicine in China, and leave behind medical writings. Drawing on Western anatomical knowledge, Zhu Shi reevaluated traditional Chinese medicine (TCM) and even incorporated distillation techniques into his clinical practice. This paper primarily focuses on Zhu Shi, with comparative reference to Wang Honghan, exploring their medical learning journeys, reflections on TCM, attitudes toward anatomy, Zhu Shi's influence on Wang Honghan, and their respective medical practices. Through such comparative analysis, this study provides deeper insights into the integration of Chinese and Western medicine during the early Qing dynasty.

Keywords: Zhu Shi (祝石); Wang Honghan (王宏翰); Chinese and Western medicine; Anatomy; Distillation

1 Introduction

The integration of Chinese and Western medicine is a key topic in the exploration of history of medicine in China. Current scholarship uses the introduction of Western cowpox inoculation to China in 1805 as the demarcation point, dividing the interactions between Chinese and Western medicine during the Ming and Qing dynasties into two periods. Notably, there is significantly less research available on the earlier period compared to the later one. Meanwhile, research on the introduction of Western medicine to China before 1805 has predominantly centered on missionaries, and the court of Emperor Kangxi (康熙). Wang Honghan (王宏翰, 1648-?) is the only Chinese physician who has been thoroughly discussed to date.

Wang Honghan is renowned as “the first Chinese physician to embrace Western medical theory” (Note 1). However, scholars have generally viewed his efforts as not fully achieving the integration of Chinese and Western medicine. For instance, Fan Xingzhun (范行准) observed that Wang Honghan seemed to lack the ability to fully integrate, except for the explanation provided in “life gate (命门)” section of *Yi Xue Yuan Shi* (《医学原始》 *Origins of Medicine*).¹ Zhu Pingyi (祝平一) further emphasized that although Wang Honghan “adopted concepts from Western medicine prevalent at the time, such as the four elements and four humors, and attempted to break away from the five-element system used in traditional Chinese medicine (TCM), the new concepts formulated by Wang Honghan were not applied in actual clinical diagnosis and treatment”.²

Due to limitations in materials, research on Wang Honghan tends to focus solely on him, lacking comparative analysis. This results in a limited understanding of the methods and effectiveness of the integration of Chinese and Western medicine during the early Qing dynasty. In fact, Wang Honghan was not the only Chinese physician who studied both Chinese and Western medicine during this period.

In contrast to Wang Honghan, another Chinese physician, Zhu Shi (祝石, 1602-post 1689), has long been neglected by academia. He was two generations senior to Wang Honghan. He not only received Western medical education earlier and conducted more in-depth studies in anatomy, but also applied Western medical theories and techniques in a pioneering manner, including

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distillation of medicinal liquids, in actual diagnosis and treatment.^{3,4} Zhu Shi was very proud of his medical works. He said: “The books, illustrations and medical prescriptions, were all orally transmitted [to me] by the perfect men. They represent the culmination of my entire life’s efforts and are truly remarkable works (书与图并方药, 皆至人口授, 老朽一生心血所在, 真奇书也)” (Note 2).⁵ It is unfortunate that only the shorter works, *Lu Yi* (《录医》 *Medical Notes*, 1666) and *Yi Xin* (《医信》 *Medical Belief*, 1667) have survived.^{6,7} Although *Lu Yi* is much longer and valuable than *Yi Xin*, it is still merely a compilation of brief personal notes. In *Lu Yi*, Zhu Shi frequently referenced his other works, titled *Ao Wei Ben Lun* (《奥微本论》 *Subtle and Refined Treatise*, also known as 《精微本论》) and *Zhi Fa Fang Yao* (《治法方药》 *Therapeutic Methods and Prescription*). Unfortunately, these two referenced works have yet to be discovered.

This paper primarily focuses on Zhu Shi, with comparative reference to Wang Honghan, exploring their medical learning journeys, reflections on TCM, attitudes toward anatomy, Zhu Shi’s influence on Wang Honghan, and their respective medical practices. Through such comparative analysis, this study provides deeper insights into the integration of Chinese and Western medicine during the early Qing dynasty. In addition, due to the wide availability of research on Wang Honghan, this paper will discuss Wang Honghan first and then Zhu Shi, for convenience.

2 Zhu Shi (祝石) and Wang Honghan’s (王宏翰) medical learning journeys

Wang Honghan, whose style name was Huiyuan (惠源), primarily resided in Suzhou. He hailed from a family with medical tradition, as both his grandfather, Wang Guochen (王国臣), and his father, Wang Tingjue (王廷爵), were physicians (Note 3). Wang Honghan’s medical knowledge was inherited from them. For instance, the sixth volume of *Xing Yuan Guang Si* (《性原广嗣》 *The Origin of “Xing” and Methods for Ensuring Posterity*) is originally edited by Wang Tingjue and subsequently expanded by Wang Honghan. Additionally, in the third and sixth volumes of the same book, there are three explanations attributed to “Pu Cun said (蒲村曰)”.^{8,9} We can infer that Wang Tingjue (Pu Cun)’s medical theories have been influenced by Western medicine. For example:

“Pu Cun said: According to Bo Gao (伯高), one can discern the secrets of longevity and premature death through the physical form of the five extremities of the skeleton. This is a definitive view held by the ancient sages. However, within the physical form, the reasons for longevity and premature death can be attributed to two factors: the original heat and the original humidity. The human body, as a fleshly vessel, embodies the virtues of fire, air, water, and earth, and thus possesses the qualities of dryness and heat, as well as chills and humidity.

蒲村曰: 伯高所论, 乃具形骨骼之五端, 可以知寿夭之机, 此先圣之确论。但具形之内, 寿夭之故, 归有二端, 即元热、元湿是也。人之肉躯, 内含火气水土之德, 即具燥热、寒湿之情。”⁹

The terms “the original heat (元热)” and “the original humidity (元湿)” represent pathological theories derived from Western medicine, which Wang Tingjue acquired from Giulio Aleni’s (艾儒略, 1582–1649) *Xin Xue Cu Shu* (《性学述》 *A Brief Introduction to the Study of Human Nature*).

The Wang family began to contact with Western medicine during the late Ming dynasty. Wang Honghan’s grandfather, Wang Guochen, encountered Xu Guangqi (徐光启, 1562–1633), a famous Catholic. Xu helped him understand that the universe was founded on four basic elements: fire, air, water, and earth. Under the influence of Xu, Wang Guochen likely underwent baptism and adopted the Western medical theory of the “four elements”. Wang Guochen also had a considerable collection of Western books and scientific instruments. Consequently, Wang Honghan was influenced by Western learning from a young age and embarked on studying comets at the age of seventeen. He claimed: “Since childhood, I have learned from Western scholars, Johann Adam Schall von Bell and Ferdinand Verbiest, to comprehend the mysteries and wonders of astronomy and geography. This has continued for over 30 years (予自少至老, 得传于西儒汤、南二师天文坤輿精奥之秘, 有三十余年)” (Note 4). However, though Wang Honghan regarded Johann Adam Schall von Bell (汤若望, 1591–1666) and Ferdinand Verbiest (南怀仁, 1623–1688) as his teachers, there is no record indicating direct contact between Wang Honghan and these missionaries. His knowledge of Western medicine should mainly derive from reading the Chinese books by the missionaries, including Giulio Aleni’s *Xin Xue Cu Shu*, Raimundo del Valle’s (赖蒙笃, 1613–1683) *Xing Shen Shi Yi* (《形神实义》 *True Meaning of the Body and Spirit*), Alfonso Vagnone’s (高一志, 1568–1640) *Kong Ji Ge Zhi* (《空际格致》 *A Study of Celestial Phenomena*), and Johann Adam Schall von Bell’s *Zhu Zhi Qun Zheng* (《主制群征》 *On Divine Providence*). In particular, the first two books had the greatest impact on him.^{10,11}

Unlike Wang Honghan, who gained enlightenment through reading, Zhu Shi received direct instruction from the missionaries. Zhu Shi, also known by his style name Zijian (子坚), hailed from Lanxi (兰溪), Zhejiang province. He was baptized around the time of the fall of the Ming dynasty and was given the Christian name Lino. Zhu had direct interactions with missionaries such as Giulio Aleni, Martino Martini (卫匡国, 1614–1661), Raimundo del Valle, Lodovico Buglio (利类思, 1606–1682) and Ferdinand Verbiest. He played a pivotal role in the recording, editing and publication of many Chinese Western learning texts, including Martino Martini’s *Qiu You Pian* (《逖友篇》 *Pamphlet on Gathering Friends*),

Raimundo del Valle's *Xing Shen Shi Yi*, Ferdinand Verbiest's *Yan Qi Tu Shuo* (《验气图说》 *Images and Instructions on Thermometers*), Lodovico Buglio's *Chao Xing Xue Yao* (《超性学要》 *Summa Theologica*), and Li Jiugong's (李九功) *Shen Si Lu* (《慎思录》 *Meditations*). Zhu Shi was a cornerstone of the Catholic Church in Lanxi and even the wider Jinhua Prefecture during the early Qing dynasty.⁴

Among Zhu Shi's immediate family, he was the first one to encounter medicine. It is probably due to this background that he was not burdened with the conventional medical thought like Wang Honghan. Zhu Shi's journey into studying medicine was sparked by his frail health in childhood and the frequent misdiagnoses and mistreatments of his relatives and friends by quack doctors. Initially, he delved into numerous traditional Chinese medical texts, but often found himself dissatisfied. Seeking deeper understanding, he turned to the missionaries, from whom he spent a decade learning and clarifying his doubts.⁶ Therefore, Zhu Shi was a direct disciple of missionary medicine.

The missionaries who instructed Zhu Shi in Western medicine were primarily from the Dominican Order. They provided medical services in Lanxi, leading many treated locals to be baptized. The Spanish Dominican Raimundo del Valle exerted the greatest influence on Zhu Shi's understanding of Western medicine. Valle arrived in Zhejiang in 1657 and departed for Fujian in 1663, during when he resided mainly in Lanxi.¹² Zhu Shi was involved in editing Valle's *Xing Shen Shi Yi*, a work abundant in anatomical knowledge that was subsequently quoted by Wang Honghan in his book *Yi Xue Yuan Shi*. Meanwhile, Zhu Shi delved into medical knowledge from Jesuit works and integrated his understanding of European astronomy into the field of medicine. For example, upon learning of his disciple's illness, he "sends medicine to him immediately. According to *Huan You Quan* (《寰有诠》 *The Explanation on the Great Being*), 'The condition of the patient worsens during the end or beginning of the lunar month and improves from the third to fifteenth day of the lunar month. This is because of the moon's movement.' For several days, I have also experienced a more intense painful sensation in my left hand and foot. It can be seen from this (急以药驰寄。

《寰有诠》内云：'病人至晦朔则加重，及朏至望则轻，此月之故也。' 老朽连日左手足亦觉疼重，可见矣)”。⁵ It indicates that Zhu Shi had a relatively comprehensive and cohesive understanding of Western learning.

3 Zhu Shi and Wang Honghan's reflections on traditional Chinese medicine

Zhu Shi and Wang Honghan's medical knowledge was deeply rooted in TCM. Notably, Wang Honghan was

very familiar with the classics and historical background of TCM. For instance, his book *Yi Xue Yuan Shi* spans nine volumes. Among these, only the first two volumes focus on Western medicine, while the remaining seven volumes predominantly discuss TCM and bear no relation to Western medicine. As Zhu Pingyi observed: "At the beginning of the book, Wang borrowed heavily from Catholic theology. However, as the book delves into clinical practice, Wang relies more on traditional medicine and ultimately returns entirely to it. His method of integrating the four elements with the five zang organs has become his personal conviction, adorned within the TCM texts he cites".² Zhu Shi's background in TCM is profound too. In his *Lu Yi*, he extensively quoted numerous TCM works such as *Ge Zhi Yu Lun* (《格致余论》 *Further Discourses on the Acquisition of Knowledge through Profound Study*), *Ju Fang Fa Hui* (《局方发挥》 *Elaboration on Formulas from the Imperial Pharmacy*), and *Ben Cao Gang Mu* (《本草纲目》 *The Grand Compendium of Materia Medica*), emphasizing the significance of studying TCM classics. He remarked: "If you are unfamiliar with *Ben Cao* (referring to *Ben Cao Gang Mu*), how dare you prescribe medicine? And if you are familiar but not proficient, it can be even more harmful to your patients (《本草》不熟，则何敢何能以用药？苟《本草》熟而不精，其害人更在非小)".⁶

In their criticisms of TCM, Zhu Shi and Wang Honghan differed in both focus and intensity. Wang Honghan's criticism mainly focused on the incantations, numerology, diseases caused by ghosts and spirits, and surgical procedures, while he rarely directly criticized the framework of TCM. Even when he did offer critiques, they were confined to specific aspects and articulated in euphemistic terms. For example, when discussing the transformation of the pregnancy to fetus, he said that "Although it is discussed in books such as *Nei Jing* [《内经》, referring to *Huang Di Nei Jing* (《黄帝内经》 *The Yellow Emperor's Internal Classic*), they are in brief and inaccurate. In the past, I often pondered and imagined about it, but I couldn't figure it out. However, after reading the Western books on astronomy, human nature, and studies of natural phenomena, I finally grasped its origins (《内经》诸书虽有言之，略而未切也。余昔每常揣模意想，无从可拟，及读泰西天文、性学、格致诸书，始得其原)".¹³ He believes that although the TCM texts do address these topics, their discussions are brief and lack precision. Western medicine, he suggests, can complement and enrich such relevant knowledge.

Conversely, Zhu Shi's criticism of TCM is more direct and comprehensive. For example, he expresses dissatisfaction with the efficacy and ambiguity often found in TCM books:

"Upon reading *Su Wen* (《素问》 *Basic Questions*) and *Ling Shu* (《灵枢》 *The Spiritual Pivot*), I initially esteemed them as subtle and refined. However, after seeking practical verification, I found their teachings to be somewhat akin to using the first half of *Lun Yu* (《论语》 *The*

Analects) to support the governing of Emperor Taizu (of Song). Subsequently, I read the works of renowned scholars from ancient times, put their theories to the test, and discovered that some were effective, while others were not. I further examined various extensive tomes of *Ben Cao* and attempted to apply their formulas, only to find that they succeeded in approximately four out of ten cases. Eventually, I obtained Miao Zhongchun's book and learned that he had pioneered new approaches, surpassing renowned physicians such as Li Dongyuan (李东垣) and Zhu Danxi (朱丹溪) in the treatment of typhoid fever, malaria, and dysentery. Nevertheless, when it came to other diseases, treating them according to his methods did not always result in complete cure. Therefore, I wish to further explore the origins, causes and treatments of all diseases. Despite my diligent reading and seeking of knowledge, I find that much remains ambiguous and uncertain.

读《素问》《灵枢》，初甚宝为精微，后实求其确验，觉亦如以上半部《论语》佐太祖之言之类。及再遍读古来名贤诸集，试之，多有效、不效。复检各大册《本草》，用其方，反十中五四。末后获缪仲醇书，乃知其独开未有，如治伤寒、疟痢诸疾，交出东垣、丹溪各名辈上。至于他病，依其法下剂，则亦未之为尽瘳也。因欲进求一切病源、病因并其治法，苦阅苦访，俱在影响。”⁶

Zhu Shi studied classic medical books such as *Huang Di Nei Jing* (including *Su Wen* and *Ling Shu*) and *Shen Nong Ben Cao Jing* (《神农本草经》 *Shen Nong's Classic of the Materia Medica*), as well as the works of ancient and modern physicians such as Li Gao [李杲, aka Dongyuan (东垣), 1180–1251], Zhu Zhenheng [朱震亨, aka Danxi (丹溪), 1281–1358], and Miao Xiyong [缪希雍, aka Zhongchun (仲醇), 1553–1625/1626]. Driven by a factual-seeking and pragmatic approach, he embarked on a quest to “explore the origins, causes and treatments of all diseases (求一切病源、病因并其治法)”. However, the results were clearly unsatisfactory, as many therapies prescribed in the classics proved difficult to implement or lacked efficacy. This dilemma, combined with his religious identity and cognition, naturally inclined him towards Western medicine, which appeared to offer a more scientific and precise alternative.

Zhu Shi emphasized the importance of investigating the origins, cause, condition and progression when treating the disease. “When I treat typhoid fever, malaria and dysentery, my treatments are always effective. However, how could I fully comprehend the principles behind these diseases if I had not received instructions from the extraordinary individuals [referring to missionaries]! (予于伤寒、疟痢，治则必效，然其病之所以然，非得异人讲究，岂能洞明哉)”⁶ His critical study attitude and absorption of Western medical knowledge led him to develop strong dissatisfaction with certain aspects of TCM. Taking “pulse (脉)”, “*Mu Yuan* (募原)” and “zang-fu organs (脏腑)” as examples, he criticizes:

“Regarding the pulse, where does this pulse originate? What causes it to move? Why do the zang-fu organs distributed in this manner? If you have never fully grasped

the principles behind it in your mind, why deceive yourself and others, as if engaging in sleep-talking? *Huang Di Nei Jing* states that ‘each of the five zang organs has its own *Mu Yuan*.’ Upon reflection, if you consider this *Mu Yuan* in relation to the heart, where is it located? Is it within the skin or flesh? Is it part of qi or blood? What does it look like? These are matters that cannot be dismissed with nonsensical talk!

即如脉，此脉从何发？因何以动？脏腑何以见其分列于此？自心从未打透其所以然，奈何自欺欺人以说梦乎！

《内经》曰：“五脏皆有募原。”反照一思，就心论此募原，在心何处？抑在皮、在肉内？抑气？抑血？其形何似？此等处，可寐语也哉。

If one is unclear of the zang-fu organs, how can he know the origin and cause of the disease? I received instructions from extraordinary individuals [referring to missionaries], who imparted knowledge both through texts and illustrations of subtle and refined detail. Their illustrations are far from the rudimentary and inaccurate woodcuts of both ancient and modern times. For instance, [the woodcuts often depict] the shapes of the lungs and liver erroneously and crudely. Furthermore, it is stated that these organs have specific weights, but people vary in height and weight; hence, the weights of their lungs and livers should differ accordingly. How can there be a standardized weight! Moreover, the lungs and liver consist of external, intermediate and internal layers, along with three types of networks: sinews, blood collaterals and vessel collaterals, which either traverse through the organs or encircling inside out, and connect with other small and tiny pathways. Given the current rough and absurd depiction of the external layer, how could one possibly comprehend the intermediate and internal layers? Without understanding [the structure], how could one know the origin and cause of the disease! 凡人脏腑不明，则病源、病因何从知？予既荷异人讲授，其精微有书、有图，图非如古今所刻谬粗之形也。设如肺肝，其形既谬既粗。又云重有多少，人体既有大小、肥瘦之不同，则肺肝之轻重当亦不同矣，岂得一概云云乎！况肺肝有其外、其中、其内之体，并筋络、血络、脉络三者，或贯于中，或萦绕于内外。至其他细小管路之往来，今外形之模尚且谬粗，则其内、其中岂所能知？不知，何以得病源、病因哉。”⁶

After learning Western anatomy, Zhu Shi thought that the anatomy of TCM seemed to be filled with mistakes and omissions. He even went so far as to fiercely criticize TCM as self-deception, akin to an ignorant person sleep-talking. This sentiment echoed that of Wang Qingren (王清任, 1768–1831), who stated: “When diagnosing a disease, a physician should first understand the zang-fu organs... Writing a medical book without knowing the zang-fu organs is like an ignorant person sleep-talking; treating a disease without knowing the zang-fu organs is like a blind person walking at night (夫业医诊病，当先明脏腑.....著书不明脏腑，岂不是痴人说梦；治病不明脏腑，何异于盲子夜行)”.¹⁴ While it is unclear whether Wang Qingren ever read Zhu Shi's writings, their expressions and thoughts on this matter were strikingly similar. Scholars widely acknowledge Wang Qingren's theory as bold and avant-garde; however, it is remarkable that Zhu Shi made similar criticisms some 200 years earlier.

A similar situation also exists regarding pulse diagnosis, which is one of the main methods of diagnosis in TCM. Benjamin Hobson (合信, 1816–1873), a British missionary in the late Qing dynasty, is regarded as the first Western physician who made detailed and scientific criticisms of TCM pulse diagnosis.¹⁵ Although Zhu Shi also employed pulse diagnosis, he was aware of the differences between the meridians in TCM and the blood vessels in Western anatomy, emphasizing the need for a more precise understanding of the principles of pulse diagnosis. Zhu Shi was probably the first Chinese to deeply reflect on TCM from the perspective of Western anatomy.

Zhu Shi not simply inherited the knowledge of TCM, but he hoped to seek more effective treatment and more refined theories through research and experimentation, based on the absorption of new knowledge. For instance, he advocated for thoroughly mastering of *Ben Cao*, and what does he mean by “thoroughly mastering”? He believed: “To be thorough means one must investigate [the principles] and conduct experiments in order to understand the nature and properties of the things (所谓精者，必讲究，又试验，知其物之性之情也)”. He further used *Bing Pian* (冰片 Borneolum Syntheticum) and *Bo He* (薄荷 Herba Menthae) as examples to explain it. Regarding the mechanism of action of *Bing Pian* and *Bo He*, he analyzed that “Both *Bing Pian* and *Bo He* are hot and warm in nature, but they produce a cooling sensation when swallowed. What is the reason? Because when we breathe, we exhale internal heat and inhale external coolness. *Bing Pian* and *Bo He* are strong orifice-opening medicines. The reason we feel cooling when swallowed is that we open the throat and allow cool air to enter other orifices (冰片、薄荷性俱热温，下咽反觉甚凉，其所以然谓何？因人之呼吸也，呼以出内之热气，吸以进外之凉气。冰片、薄荷皆甚开窍之物，下咽觉甚凉者，窍开凉气入诸窍也)”.⁶ He integrated Western medical theories on respiratory function with the knowledge of TCM. There are quite a few such examples. His exposure to Western medicine helped him move beyond TCM.

4 Zhu Shi and Wang Honghan's attitude towards anatomy

Anatomy was a pivotal distinction between TCM and Western medicine at that time. Despite incorporating considerable Western anatomical knowledge into his works, based on available information, it appears that Wang Honghan either had not seen Western anatomical diagrams or, if he had, did not accept them. Consequently, the human body diagrams in his books are entirely derived from TCM. Meanwhile, his attitude towards anatomy is also ambiguous. In his *Gu Jin Yi Shi* (《古今医史》 *Medical History: Past and Present*), he repeatedly analyzed and criticized the external medicine practices within TCM. For example, he dismissed Yu

Fu (俞跗), a legendary physician recorded in *Shi Ji* (《史记》 *Records of the Grand Historian*), who was renowned for the surgical procedures including cutting the skin and dissecting the muscles (割皮解肌), cleansing intestines and stomach (湔浣肠胃), washing and rinsing the five zang organs (漱涤五脏) as “absurd” (Note 5).

Another example is Wang Honghan's commentary on Hua Tuo (华佗, c. 145–208), who attempted to cure Cao Cao's (曹操, 155–220) persistent headache (头风) by opening his skull with a sharp axe, ultimately resulting in his execution. Wang Honghan disputed the authenticity of this legend, asserting: “If one were to cut open the head to remove the disease, it would not only fail to cure the existing disease, but also increase the risk of contracting external pathogens. How could the disease be cured? (若劈破其首欲取其病，不但前疾不去，而反又增入外邪矣，病何能得愈耶)”. He believed that the appropriate treatment for persistent headache was to “consume or fumigate with acrid hot medicine (辛热之药服之或药汤薰之)”. Consequently, he speculated that Hua Tuo's true intention was to assassinate Cao Cao rather than heal him.¹⁶ As Zhu Pingyi noted: “Wang Honghan viewed all surgical procedures involving opening the chest or abdomen in China's medical history as mere metaphors and denied their possibility...Although Western learning introduced to China included considerable anatomical knowledge, Wang Honghan remained intolerant towards dissection techniques”.¹⁷

In contrast, Zhu Shi exhibited a much higher acceptance of anatomy compared to Wang Honghan. In the preceding section, we mentioned Zhu Shi's criticism of the “crude (谬粗)” anatomy in TCM. According to Zhu Shi, only through precise anatomy can one truly comprehend the causes of life and death, the origins of diseases, and the properties of medicines, thereby enabling the modification and adaptation of treatment methods accordingly.⁶ He mentioned that the missionaries “expounded the teachings with illustrations (出图阐教)”, which should refer to anatomical illustrations. The illustrations that Zhu Shi saw should include *Ren Shen Tu Shuo* (《人身图说》 *Illustrated Explanations of the Human Body*). Scholars have believed that no Chinese physician read or commented on this work during the late Ming and early Qing dynasties. In fact, Zhu Shi already referred to it when discussing the stomach:

“The yin and yang of the stomach indeed should be greatly replenished. Additionally, its sinew should be replenished to make it strong and tight. The sinew originates from the skull, descends through the throat, branches out within the lungs, and subsequently reaches the heart....This shapes the powers of Stomach's nature to absorb, digest, perceive hunger, and desire to eat, all derive from the movement of the sinew in the brain and skull. This sinew further extends throughout the entire stomach body to increase its strength. Therefore, when the brain is hit, vomiting and stomachache occur... The reason ancient people use *Wu Wei Zi* (五味子

Schisandra chinensis) to treat diarrhea is based on this understanding...

胃体之阴阳宜大补，固也。其筋亦宜补，使有力而紧。筋发于脑颅，从食喉下行，分散多肢于肺，再至心.....赋以本性之德，一吸取，一消化，一知饥，一欲食，皆因脑颅筋之动也。此筋复分散于胃之全体，以增胃之力。故脑受击，即欲呕吐，胃即作疼.....古人治洩泻，用五味子者，知此义耳.....”⁶

Zhu Shi's understanding of stomach anatomy is rooted in the chapter titled “General theory of the stomach (胃总论)” from *Ren Shen Tu Shuo*.¹⁸ Simultaneously, he integrated TCM concepts such as yin (阴) and yang (阳) into his interpretation. He further employed anatomical knowledge to reinterpret the mechanism behind using *Wu Wei Zi* to treat diarrhea in TCM, emphasizing the importance of differentiating among the three types of diarrhea for targeted treatment. Zhu Shi demonstrated a profound grasp of Western anatomy and has successfully integrated Chinese and Western medicine both theoretically and clinically.

5 The influence of Zhu Shi on Wang Honghan

Although Wang Honghan never mentioned Zhu Shi, there are notable similarities between contents of his book and Zhu Shi's *Lu Yi*. These similarities suggest that Wang Honghan potentially benefited from Zhu Shi's medical works. For example, in their discussions on the three branches (三肢, referring to the liver, heart and brain) and the three powers (三德, referring to the human body's abilities to absorb, transform and eliminate), both Zhu Shi's and Wang Honghan's work seem to originate from *Xing Shen Shi Yi*. However, Zhu Shi has made modifications or extensions to the original text, whereas Wang Honghan's version bears a striking resemblance to Zhu Shi's.^{6,19} Considering the timeline—*Lu Yi* was written in 1666, and *Yi Xue Yuan Shi* was published in 1692—and the fact that Zhu Shi was one of the editors of *Xing Shen Shi Yi*, it is plausible to infer that Wang Honghan referred to Zhu Shi.

Another example is cerebral hemorrhage. Wang Honghan's primary source of knowledge on this topic is Raimundo del Valle's *Xing Shen Shi Yi*. However, some contents in Wang Honghan's book concerning cerebral hemorrhage are absent from Valle's original text and might draw from other sources. For instance, Wang Honghan explained: “If someone is half-paralyzed, it is due to the obstruction of motor sinews by pathogenic qi, which disrupts the circulation necessary for movement. Conversely, if the person with half-paralysis can still feel pain, it indicates that the sensory sinews have not yet been blocked by pathogenic qi. Thus, they can perceive sensations upon being touched (若半身不遂者，盖运动之筋受恶气阻塞，不能流通以运动也。如半身不遂尚能知痛苦，则知觉之筋犹未为恶气所阻，则摩触之而即知觉也)”.^{10,19} Fan Xingzhun placed significant emphasis

on this content and quoted the full text in his book.¹ In fact, Zhu Shi delved more extensively into the mechanism and treatment of cerebral hemorrhage. This could be one of the sources of Wang Honghan's knowledge on the subject. Zhu Shi stated that:

“Those who are half-paralyzed are because the sinews responsible for movement have been blocked by pathogenic qi; those who still feel the itch and pain are because the ability to perceive sensations are still functioning... People become half-paralyzed due to the gradual or sudden rise of pathogenic qi to the brain, often occurring without their awareness... The treatment method is mainly to disperse the pathogenic qi in the sinew. If it is treated according to whether the paralysis is at the zang or fu-organ, whether it is qi or blood deficiency, it will not be effective.

半身不遂者，因筋之动能为恶气阻塞；而痛痒尚知者，以觉之能犹在也.....半身不遂者，因恶气之升在脑，或积渐，或倏然，人不知耳.....治法在散筋中恶气为主，中脏、中腑、血虚、气虚论皆左，治之必不效。”⁶

TCM believes that cerebral hemorrhage generally belongs to apoplexy involving the zang organ or fu organ, while cerebral thrombosis and cerebral infarction belong to apoplexy involving the meridians and collaterals. All these are due to constitutionally weak qi and blood, imbalance of yin and yang in the heart, liver and kidneys, contraction of external pathogens, or internal injuries of seven emotions. Zhu Shi opposed this theory. Drawing upon Western anatomy, he focused on the structure of the brain and sinews, and advocated for the treatment method of “dispersing the pathogenic qi in the sinews (散筋中恶气)”. Wang Honghan's exposition closely resembles Zhu Shi's, hinting at a possible connection between them. Zhu Shi not only elaborated on this topic in greater detail but also applied his knowledge of Western anatomy in clinical practice.

In another book by Wang Honghan, titled *Xing Yuan Guang Si*, Zhu Shi's influence is also evident (Table 1). For example, when Zhu Shi discussed the development of the human fetus, he absorbed knowledge and concepts of Western embryology from *Xing Shen Shi Yi*. To facilitate the understanding of Chinese readers, he employed the metaphor of chicken egg incubation, believing that by observing the daily changes in hen-hatched eggs, one can gain insights into the gestation process of the human fetus. Wang Honghan continued to use this metaphor in his own writing. Another example of Zhu Shi's influence is his observation that obese women often have difficulty conceiving, and that women with heavy menstrual bleeding tend to have weaker children or children who die prematurely. Notably, these contents are not included in the relevant missionary books. Rather, it is more likely the result of Zhu Shi's efforts to integrate Chinese and Western medicine, although he did not distinguish between viviparity and oviparity. Thus, it is highly probable that Wang Honghan had read Zhu Shi's works.

Table 1 Comparison of contents between *Lu Yi* and *Xing Yuan Guang Si*

Zhu Shi's <i>Lu Yi</i>	Wang Honghan's <i>Xing Yuan Guang Si</i> ³
If one wishes to understand this intrinsic meaning, they can prepare twenty chicken eggs and let a hen to hatch them. Six days later, one can break an egg each day and carefully observe the changes inside. After twenty days, the complete form [of the chick] will have taken shape, and the principles behind the placenta and umbilical cord will become self-evident. (人苟欲明此妙义，将鸡蛋二十枚，令母鸡抱之。六日后，日日破一枚，详审细察。二十日后，全体已成，其胞衣与脐之所以然自见也)	If one wishes to understand the intrinsic mechanism of how life begins, they can prepare approximately twenty chicken eggs and let the hen to hatch them. One can break an egg each day and carefully observe the changes inside. By the twentieth days, the complete form of the chick will have taken shape, and the principles behind the umbilical cord will become self-evident. (人欲明始生之妙义，其大概可用鸡卵二十，与其母抱，日破一枚，细为详视，直至二十日，则小鸡之全体已成，并其脐之所以然尽见知矣)
Obese women are often childless is because of the narrowing and fatty deposits of the opening of the uterus. Furthermore, their children usually born with abnormalities, such as having only one hand or one foot, being physically thin and weak, suffering from ulcers and smallpox, or dying prematurely. The reasons for the occurrence of all these issues are due to the impurity of the female blood, lack of moral strength, or having sexual intercourse before menses are fully discharged, leading to the presence of bad blood inside the body. (女人之肥者常无子，因子宫之口油窄也。又生子多奇形，或一手一足，或体羸羸，或瘡毒痘殇，或幼夭殇。种种之故，多因女血不纯不粹，或中无德力，或月信未尽，即为作受，内有败血也)	If a woman is too fat, her uterus must be narrow, unable to receive a man's sperm due to fat obstruction...If a woman's menses happen too regularly or overflowed, it will be difficult for her to conceive. Even if she can conceive, the blood nourishing the fetus will be insufficient, resulting the born child must be weak, with soft bones, flesh, sinews, and collaterals. Such a child is prone to frequent illnesses and premature death. (女若过肥，则子宫必窄，不得受男精质，以肥为阻也。……夫女人月信过溢，则难受孕，倘或能受，而养胎之血少，所生之子定为柔弱，骨肉、筋络乏坚固之德，身多常病，亦多殒歿矣)

Given the limited surviving works by Zhu Shi, the extent of his influence on Wang Honghan requires further discussion and direct evidentiary support. Nonetheless, the similarities between the two figures not only underscore Zhu Shi's pioneering role, but also help academia better understand and situate Wang Honghan's medical works.

6 The medical practice of Zhu Shi and Wang Honghan

As an applied science, medicine ultimately needs to be grounded in practice. The majority of Wang Honghan's patients were common people from Suzhou and its neighboring areas, with relatively fewer officials and literati. The resources he employed during consultations—ranging from medical concepts to prescriptions—stem from

traditional medicine.² In contrast, Zhu Shi had incorporated Western medicine into his actual diagnosis and treatment practices.

The characteristics of Western medicine, as perceived by Chinese scholars during the late Ming and early Qing dynasties, are documented in contemporary writings. For example, Nalan Xingde (纳兰性德, 1655–1685) observed: “The way of medicine by Westerners is different from China, hence they have terms such as yellow humor and white humor. In their use of medication, even *Ren Shen* (人參 Radix et Rhizoma Ginseng) is processed through distillation akin to alcohol brewing, and then drink it (西人医道与中国异，有黄液、白液等名。其用药，虽人參亦以烧酒法蒸露而饮之)”.²⁰ These observations align with the medical practices recorded in Zhu Shi's *Lu Yi*. One example is his treatment of body pain for his two wives, where he skillfully incorporated Western medical concepts such as blood vessels, meridians and collaterals, sinews and the four humoral theories (white, yellow, red and black humor) in his explanation:

“For individuals who experience pain throughout their entire body, it is important to identify whether the pain originates from the blood vessels, meridians and collaterals, or sinews. Among these three types, pain arising from the blood vessels is the most common, with a higher prevalence in women... My former wife, Nee Wang, suffered from pain due to blood vessel issues and passed away despite being treated by multiple famous doctors. My current wife, Nee Zhu, also experienced the same problem. She moaned day and night, unable to toss and turn. I urgently prescribed a strong medication for her. She took three to four bowls daily and could get up within just three days. When a person suffering from typhoid fever experiences pain throughout their body, it is caused by blood heat. Phlegm does not usually cause pain, but in some cases where it does, it is due to the presence of yellow humor. This can be identified by the presence of yellow color in the phlegm. 凡人遍身作疼者，须明其是血络、脉络、筋络何者作疼。然三者之疼，血络为多，女人则更多。……予先室王病血络疼，历诸名医治之而歿。今内子诸亦然，日夕冤呼，不能转侧，急以重剂日服三四盞，三日即起矣。病伤寒遍身疼者，血滚也。痰不作疼，间有疼者，黄液在其中，吐痰内有黄色者是也。”⁶

In addition to serving his family and patients from the surrounding areas, Zhu Shi frequently travelled outside his local area to practice medicine. In a letter to Chen Gongyin (陈恭尹, 1631–1700), he said: “I previously visited San Wu (三吴, Jiangnan region) to engage in open and free conversations with prominent individuals [in that region]. I utilized the medical skills that I had learned from Western extraordinary people to not only cover part of my travel expenses, but also to provide financial assistance to my poor old friends (弟前行游三吴，欲得豪杰与相畅对，挟太西异人医术少资旅费，且得以少资贫困老友)”.²¹ The Western medical skills were an distinctive aspect of Zhu Shi's medical practice. Being a doctor was not only a breakthrough for Zhu Shi to forge friendships with elites, but also a source of income.

Compared to Wang Honghan, Zhu Shi had a broader practice area and his patients came from higher social statuses. Consequently, more evaluations and feedback from his patients have been preserved.

As leaders of the literati, Qian Qianyi (钱谦益, 1582–1664) and Cao Rong (曹溶, 1613–1685) both admired Zhu Shi's medical skills. Qian Qianyi made an appointment with Zhu Shi to “refine medicine (炼药)”, hoping to leverage on Zhu Shi's “aromatic distilled herbal liquid (香草露)” to cure his own illness. Qian Qianyi made a poem to illustrate the process: “Gathering the finest herbs, decocting and refining them, then put them in an ice-cold pot. A tiny drop from this pot can heal a wide area of people...When I drink the aromatic distilled herbal liquid, my inflammation dissipates (采掇草药精, 烹炼投冰壶。壶中药涓滴, 可以苏寰区.....饮我香草露, 一酌炎歛除).”²² Meanwhile, Cao Rong commented on Zhu Shi by saying, “Beating the bellows produces liquid droplets (鼓鞴致零露)”,²³ which also alluded to Zhu Shi's distillation of medicinal liquids.

The renowned poet Chen Weisong (陈维崧, 1625–1682), was also deeply impressed by the distilled medicinal liquid refined by Zhu Shi. He praised Zhu Shi as “today's Hua Tuo (今华佗)” and commended his skill in “refining hundreds of herbs without any mistake (百药锻炼无偏颇)”. Chen Weisong portrayed Zhu Shi as someone who “wanders through cities selling medicine (卖药游都市)”, indicating Zhu Shi's extensive practice in medicine. Furthermore, Chen Weisong distinguished Zhu Shi from ordinary “mediocre doctors (庸师)” by emphasizing Zhu Shi's profound grasp of medical principles, a quality that Zhu Shi himself greatly valued.²⁴

The bibliophiles of the early Qing dynasty, Wang Sen (汪森, 1653–1726) and Wang Wenbai (汪文柏, 1659–1725), were also patients of Zhu Shi. Wang Sen described Zhu Shi as someone who “plants herbs and distills flowers, contentedly residing in the mountains (种药与蒸花, 自惬山中居)”,²⁵ clarifying that Zhu Shi's distilled medicinal liquid was produced through the distillation of flowers. Wang Wenbai, on the other hand, praised that Zhu Shi was “diligent in gathering medicinal herbs, with ample skill in decocting and refining them (药草勤采掇, 烹炼功有余)”.²⁶

In the eyes of others, Zhu Shi's medical practice was primarily characterized by refining and distilling medicine. Although the application of distilled medicinal liquids for treating illnesses had already been known in China before the late Ming dynasty, the comprehensive distillation technique was only introduced to China “after the arrival of Western missionaries”.^{1,27} Zhu Shi learned this technique from the missionaries. He was not only skilled in employing the distilled medicinal liquids, but also understood its underlying principles, strengths and weaknesses, as well as its therapeutic effectiveness. For example, Zhu Shi stressed that: “Fresh herbs are superior in medicine because they are rich in essence. If medicinal liquids are extracted through distillation, their

effectiveness will be even greater. Even bitter flowers and leaves will lose their bitterness after being distilled into liquids (药以鲜者为上, 盖精华丰萃也。若蒸出露, 则其力更大, 即至苦之花叶, 蒸露即不苦者)”. He also explained why the distilled liquids are not bitter: “The bitterness of flowers and leaves is located at the sinews. When distilling, the heat is gentle and slow, hence only the juice of the superficial part is extracted. However, when decocting, the heat is strong and intense, forcing out the juices from the sinews, so it is bitter (凡花叶苦分俱在其上之诸筋, 蒸则热力微缓, 但取其片上之汁。煎则热力猛大, 诸筋内之汁交逼出矣, 故苦也)”.⁶ He believed that for extremely bitter flowers and leaves, the Western method of distillation was superior to the traditional Chinese method of decoction.

Although Sabatino de Ursis's (1575–1620) *Tai Xi Shui Fa* (《泰西水法》 *Hydromethods of the Great West*) and Fang Yizhi's (方以智, 1611–1671) *Wu Li Xiao Shi* (《物理小识》 *Notes on the Principles of Things*) documented the preparation of medicinal distillation in detail prior to Zhu Shi, they did not discuss the reason why distilled liquids were not bitter. Even more astonishing is that Zhu Shi not only analyzed the problem of bitterness deriving from flowers and leaves, but also advanced from technical level to biology theory. Although Zhu Shi's understanding differs slightly from the actual distillation mechanism, his ability to formulate his own opinions is highly valuable. Later, some Chinese physicians also discussed and applied distillation method in their practices. For example, Zhao Xuemin (赵学敏, c. 1719–1805) listed as many as 22 kinds of distilled medicinal liquid, and explained the effects of each.²⁸ However, Zhao Xuemin's distillation knowledge primarily focused on technology and application, and he did not delve into the principles as deeply as Zhu Shi had.

While there is no historical record regarding Wang Honghan's medical successors, Zhu Shi's medical skills were not only praised by social elites of his time, but were also recognized and inherited by some doctors. Zhou Sheng (周笙), a renowned Chinese physician from the early Qing dynasty, was born in Jiaxing (嘉兴), Zhejiang province. In 1698, he compiled *Yi Lin Kou Pu Liu Zhi Mi Shu* (《医林口谱六治秘书》 *The Secret Book on Six Therapeutic Methods that is Orally Transmitted within the Medical Community*). In the preface, Zhou Sheng stated: “I further sought out wise mentors and benefited greatly from teachers such as Zhao Jisheng from Wujiang, Chen Rizhang from Jiaxing, Zhu Zijian from Lanxi, and Xue Jiyang from Wuxi, mastering their secret prescriptions, processing methods and formulations (复择明师, 请益如吴江赵稽生、嘉兴陈日章、兰溪祝子坚、无锡薛既扬四先生, 颇得其禁方修合之要)”.²⁹ Zhu Shi was one of the four medical mentors specifically mentioned by Zhou Sheng. The book also contains Zhu Shi's medical prescriptions, including the use of *Huang Jing Zi* (黄荆子 *Fructus Vitex negundo*) to treat malaria based on Zhu Shi's experience. However,

upon examining the entire book, there is no indication of Western medicine. Therefore, Zhou Sheng primarily learned herbal formula prescriptions from Zhu Shi rather than the underlying disease principles that Zhu Shi highly valued. Additionally, Wang Zixian (王子显), son of Wang Guozhen (王国桢) from Wuxi (无锡), also studied under Zhu Shi (Note 6). It is through the writings and medical practices of Zhou Sheng, Wang Zixian, and others that Zhu Shi's medical legacy was passed down.

7 Conclusion

During the late Ming and early Qing dynasties, it was common for Chinese physicians to embrace Catholicism. For instance, in 1637, when Giulio Aleni served as a missionary in Dehua (德化), Fujian province, two physicians were among the attendees. Giulio Aleni preached:

“The medicine you provide is for the body, but what I speak of is medicine for the soul. When one is physically ill, they seek a doctor and treatment...So there is no need for me to explain about curing physical illness. However, I must explain the healing of spiritual disease. It has been some time since I arrived, yet those who have sought to heal their spiritual illness are few...Is the disease of the soul less serious than that of the body?

夫子所济之药，形药也。余所云者，神药也。形有病，知医、知疗.....顾疗形病不用言，疗灵魂之病，不得不待余言也。兹余来有日矣，其疗已神病者，未数数也.....岂神病轻于形病乎？”³⁰

In Giulio Aleni's view, while curing the body's diseases was undoubtedly a good deed, it was merely a “medicine for the body (形药)”. He placed greater emphasis on the “medicine for the soul (神药)” that can heal the soul's diseases—namely, Catholicism. Consequently, missionaries during the late Ming and early Qing dynasties were not particularly enthusiastic about teaching Western medicine to Chinese physicians. The books edited and translated by these missionaries, such as *Xin Xue Cu Shu*, *Ren Shen Tu Shuo*, *Xing Shen Shi Yi*, contained substantial anatomical knowledge. However, these works were not purely medical in nature; they also incorporated theological elements. Therefore, during their circulation, the medical knowledge contained within may not have been the primary focus of readers' attention.

Since the late Qing dynasty, Western medicine has progressively established a commanding advantage over TCM in terms of theory and clinical efficacy. Consequently, the integration of TCM with Western medicine is intimately tied to the survival and progress of TCM. However, it is worth noting that during the early Qing dynasties, Western medicine was still in transition, evolving from medieval Christian medicine towards modern scientific medicine. On one hand, individuals with ingrained traditional Chinese concepts generally found it difficult to accept Western anatomy. On the other hand, the clinical effectiveness of Western medicine in the seventeenth century had not yet surpassed

that of TCM. As a result, despite the existence of many baptized physicians during that time, they were not necessarily inclined to consider or adopt Western medical knowledge, and even less so to merge the two medical systems. Against this backdrop, the theories and practices of physicians like Zhu Shi and Wang Honghan appear somewhat unique and unconventional.

In the past, when scholars examined the late Ming and early Qing physicians' discourses on Western medicine, Wang Honghan stood as a unique case. This led to the conclusion that Chinese and Western medicine had not been integrated during that period. However, the discovery and study of Zhu Shi's medical works have significantly deepened our understanding of the interactions between Chinese and Western medicine during the early Qing dynasty. Dissatisfied with the vagueness of TCM, Zhu Shi was drawn to the precision and practicality of Western medicine. He is the earliest known Chinese physician to embrace Western medicine, who left behind relevant medical publications and widely applied Western medical practices at that time. He not only paved the way for the integration of Chinese and Western medicine, but also influenced Wang Honghan's writings. Although Zhu Shi's surviving medical works are less abundant and systematic compared to Wang Honghan's, his cognitive acuity and thoroughness surpass Wang's. His criticism of the “unclear of zang-fu organs (脏腑不明)” in TCM and his tracing of the source and cause of disease are insightful, directly addressing the weaknesses in TCM. The study of Zhu Shi and Wang Honghan's medical works and thoughts not only holds academic significance in tracing the history of medical knowledge, but also provide valuable insights for rethinking the issues concerning Chinese and Western medicine in modern times.

Notes

1. For research on Wang Honghan, please see: Fan XZ. *Medicine Introduced from the West during the Ming Dynasty* (明季西洋传入之医学). Shanghai: Shanghai People's Publishing House; 2012. p. 19–20, 207–215. Chinese. Fang H. *Biographies of Personalities in Chinese Catholic History* (中国天主教史人物传). Beijing: Religious Culture Press; 2007. p. 480–481. Chinese. Zhu PY. *Medicine East and West: Wang Honghan's synthesis of medicine, Christianity and Confucianism* (通贯天学、医学与儒学: 王宏翰与明清之际中西医学的交会). *Bulletin of the Institute of History and Philology, Academia Sinica*. 1999;70(1):165–201. Chinese. Xu HS. *Scholars of the Early Qing Dynasty and Western Learning* (清初士人与西学). Beijing: Eastern Press; 2000. p. 147–164. Chinese. Zhu PY. *Christianity and the rewriting of China's medical past: Wang Honghan's Medical History: Past and Present* (天学与历史意识的变迁: 王宏翰的《古今医史》). *Journal of the Institute of History and Philology, Academia Sinica*. 2006;77(4):591–626. Chinese. Dong SX. *Between*

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2. *Records of Knowing How to Appreciate Good Learning* (《知好好学录》). The manuscript is held by the East Asian Library at the University of California, Berkeley, and does not have page numbers. Zhu Shi has another manuscript titled *Xi Yan Shuo* (《希燕说》), which focuses on politics.

3. Anonymous. *Continued Supplement to Medical History: Past and Present - Ming Dynasty* (续增古今医史·明). p. 13b. The manuscript is held by the Shanghai Library.

4. Wang HH. *Mirror of Qian Trigram and Kun Diagram* (乾象坤图格镜). the cover. The manuscript is held by the Library of Zhejiang University.

5. Wang HH. *Medical History: Past and Present* (古今医史). Vol. 1. p.6b. The manuscript is held by the Shanghai Library.

6. Huang A. *Anecdotes of Wuxi and Jingui* (锡金识小录). Vol. 5. Woodblock-printed edition from the Guangxu period of the Qing dynasty.

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Ethical approval

This study does not contain any studies with human or animal subjects performed by any of the authors.

Author contributions

CHEN Tuo drafted the paper. YU Xinzong revised the paper.

Conflicts of interest

YU Xinzong is an Editorial Board member of *Chinese Medicine and Culture*. The article was subject to the journal's standard procedures, with peer review handled independently of this Editorial Board member and their research groups.

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The Persian Way? Dingzhou Eye Ointment and Its Origins

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Abstract

Dingzhou eye ointment gained significant popularity from the late Qing dynasty to the Republican era. Its legacy persists through three prominent families: Bai Jingyu (白敬宇), Ma Yinglong (马应龙) and Zhang Qizhu (张齐珠). Each family's Dingzhou eye ointment is similar, with comparable ingredients, dosages, and usage methods, suggesting a common origin. While many well-established Dingzhou eye ointment brands claim their origins date back to the late Ming dynasty, the origins of its formulation are likely much older. In ancient Chinese medical texts, there were proto-formulations of similar eye ointments recorded during the Jin and Yuan dynasties, with comparable external and standardized eye medicine formulations appearing in the Ming and Qing dynasties. By the late Qing dynasty, Dingzhou eye ointment had become a popular mainstream topical eye treatment in traditional Chinese medicine. From a broader geographically perspective, the composition aligns with that of similar treatments used in Greco-Roman medicine, which combined minerals such as calamine with aromatic ingredients to create eye medicines. The principles behind the composition of Dingzhou eye ointment are in accord with the concept of the four humours in Arabian medicine. It is possible that the Hui ethnic group was responsible for the introduction of Dingzhou eye ointment to China, indicating cultural exchange between Chinese and foreign medicine practices.

Keywords: Dingzhou eye ointment; History of medicine; Medical exchange; Greco-Roman medicine; Arabic medicine; Traditional Chinese medicine

1 Introduction

Dingzhou eye ointment (定州眼药) refers to a category of distinctive ophthalmic medicine products from several well-established traditional Chinese medicine (TCM) pharmacies in Dingzhou (定州), Hebei province. Most of these pharmacies are managed by local medical families, with “Dingzhou eye ointment” serving as a unified regional product identifier for the product. The ointment gained widespread popularity from the late Qing dynasty to the Republican era, with branches of Dingzhou pharmacies established in numerous cities across China, earning both domestic and international acclaim. Today, the legacy of this tradition continues through three prominent families: Bai Jingyu (白敬宇), Ma Yinglong (马应龙) and Zhang Qizhu (张齐珠), with “Ma Yinglong

Eye Ointment Making Techniques (马应龙眼药制作技艺)” and “Jinniu Eye Ointment Making Techniques (金牛眼药制作技艺)” recognised as representative items of national cultural heritage.¹ Their brands remain the mainstream varieties of topical eye medicines in TCM and continue to contribute to the health and well-being of the Chinese people.

The long history and extensive dissemination of Dingzhou eye ointment imbue it with significant medical, cultural, and ethnic importance, making its study of considerable value. However, existing research on the subject remains relatively limited. The overall research on Dingzhou eye ointment comes from Luo Yanhui (罗彦慧), who has outlined the history of renowned brands such as Ma Yinglong and Bai Jingyu, summarizing the application and spread of Dingzhou eye ointment during the late Qing and Republican periods.² Other studies focus on the individual histories of established brands. For instance, Zheng Lemin's (郑乐明)³ account of the history of Bai Jingyu since the late Qing dynasty and Guo Qiubei's (郭秋北) monograph *The Story of Bai Jingyu* (《白敬宇的故事》) provide a comprehensive narrative of Bai Jingyu's legacy.⁴ Other studies include the inheritance history and corporate culture of Ma Yinglong by Zhou Dejun (周德钧),⁵ Ma Yongfu's (马永福) record of the oral historical account of Ma Yinglong's descendant,⁶ and Man Hengxian's (满恒先) compilation of archival records related to Ma Yinglong and Bai Jingyu in Beijing.⁷

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Existing research has provided valuable insights into the evolution of Dingzhou eye ointment from the late Qing dynasty to the Republican era, during when its remarkable therapeutic efficacy earned it nationwide recognition. Its formula composition is undoubtedly central to its effectiveness. As an external ophthalmic remedy, Dingzhou eye ointment has a relatively complete formulation and is one of the typical representatives of traditional ophthalmic treatments that are still popular among the public today. A thorough investigation into the origins of Dingzhou eye ointment's formula can not only provide valuable information regarding its historical evolution but also offer insight into the overall development and lineage of external ophthalmic medicines. However, there remains a significant gap in the study of the origins of Dingzhou eye ointment, particularly regarding the source of its medicinal formulas. Research on the origins is crucial for understanding its cultural characteristics and historical value. Previous studies have laid the groundwork by documenting the historical and familial aspects of these eye medicines, but they have not addressed the essential question of where the specific formulas of Dingzhou eye ointment originated from, and how they relate to the broader development of TCM practices. Yet, identifying this source is crucial to a full exploration of the cultural characteristics and historical value of Dingzhou eye ointment. This study will review the inheritance and development of the three existing Dingzhou eye ointment brands, as well as the distinctive characteristics of their formulas, and explore the origins of Dingzhou eye ointment to supplement the existing research.

2 Dingzhou eye ointment and its formulas

2.1 Inheritance and development of Dingzhou eye ointment

The established brands of Dingzhou eye ointment include Bai Jingyu, Zhang Qizhu, Ma Yinglong, Ma Yuanlong (马元龙), Ma Yunlong (马云龙), Ma Jinyu (马金字), Suo Haiyu (锁海宇), Guo Jingyu (郭敬宇), *Heng Ji Tang* (恒济堂), *Ren De Tang* (仁德堂), *Liu Ji Tang* (六计堂) and *Heng De Tang* (恒德堂), all of which specialize in ophthalmic treatments. These brands produce similar ranges of eye medicine and use similar formulations, indicating a possible common origin. Most of these brands claim to have originated during the late Ming dynasty, but there is currently no conclusive historical documentation available to support or refute this. Existing historical records date back to the late Qing dynasty and the early Republican era, with particular focus on the Bai Jingyu, Ma Yinglong and Zhang Qizhu brands.

2.1.1 Bai Jingyu (白敬宇)

The tradition of Bai Jingyu's eye ointment is said to have originated during the Yongle (永乐) period of the

Ming dynasty at the Jinyang Eye Ointment Shop (金羊眼药铺). It was located at the intersection of the central streets of Dingzhou city. In 1929, Bai Ruiqi (白瑞启), the 15th-generation Bai Jingyu descendant, introduced a new production model, transforming the facility from a small workshop into a pharmaceutical factory specializing in ophthalmic medicine on West Street in Dingzhou city. To maintain confidentiality, the medicinal materials were prepared by workers, but Bai Ruiqi personally blended them using a secret formula. After mixing, they were sent to a packaging workshop for packing and distribution. The main products were *Gua Zi Yan Yao* (瓜子眼药 Eye Ointment in the Form of Melon Seeds), *Ba Bao Yan Yao* (八宝眼药 Eight Treasures Eye Ointment), *Hong Ling Dan* (红灵丹 Red Spirit Elixir) and *Ming Mu Wan* (明目丸 Eye-brightening Pill). In addition to these, the Jinyang Eye Ointment Shop also sold over 80 other types of pills, powders, ointments and pastes.^{3,4}

In the early 1930s, Bai Ruiqi's eldest son, Bai Zemin (白泽民), designed the Bai Jingyu trademark logo, featuring a whale. Bai Jingyu gradually expanded beyond Dingzhou. Its reputation grew nationwide, and its branch stores established in cities such as Beijing, Tianjin, Nanjing, Wuhan, Xi'an, and so on. During the Anti-Japanese War, Bai Jingyu made multiple donations of medicine to support the resistance effort. In Chongqing's Gele Mountain (歌乐山), a Bai Jingyu pharmaceutical factory continued production, pioneered improved formulations and replaced loose powder with ointment in tin tubes, greatly facilitating the use of eye medicine. Other eye ointment brands mimicked this trend. After the Anti-Japanese War, branch stores across the country quickly resumed production and sales.

Following the establishment of the People's Republic of China, Bai Zemin began to synthesize artificial *Bing Pian* (冰片 Borneolum Syntheticum) at the Bai Jingyu pharmaceutical factory, alleviating the shortage of imported raw materials. Further improvements were made to formulations and processes, reducing the original twelve ingredients to six, and TCM products were gradually replaced with pharmaceutical chemical components, transforming a TCM factory into a Western medicine pharmaceutical enterprise. In 1955, Bai Zemin and other Bai Jingyu descendants entered a public-private partnership, and branch stores across the country gradually merged into state-owned pharmaceutical factories and stores. The Bai Jingyu brand temporarily disappeared. In 2002, the second branch of the Nanjing pharmaceutical factory was formed. The primarily manufactured product was previously made by Bai Jingyu's pharmaceutical factory and the Bai Jingyu brand was restored. It later became Nanjing Bai Jingyu Pharmaceutical Co., Ltd. (南京白敬宇制药有限责任公司) and was the sole inheritor of Bai Jingyu. Currently, the company still produces and sells compound calamine eye ointment (复方炉甘石眼膏) under the Bai Jingyu brand, but it accounts for a small market share. Nanjing Bai Jingyu Pharmaceutical

Co., Ltd. now primarily focuses on the production of Western medicines.^{3,4}

2.1.2 Ma Yinglong (马应龙)

Ma Yinglong eye ointment was founded by Ma Jingbiao (马景标), also known as Jin Biao (金标), a Hui medical practitioner from Dingzhou, during the late Ming and early Qing dynasties. It has been passed down through generations of the Ma family, including Ma Jintang (马金堂), Ma Jinshen (马锦绅), Ma Zengxiang (马增祥), Ma Tingbo (马亭柏), Ma Ruiqi (马瑞琪) and other descendants. In the late Qing dynasty, Ma Wanxing (马万兴) officially adopted the name “Ma Yinglong” for the brand (believed to be his father’s name). During the late Qing and early Republic periods, other eye ointment brands were produced in Dingzhou by the Ma family, such as Ma Yuanlong and Ma Yunlong. In 1875 [the first year of the Guangxu (光绪) reign], Ma Wanxing brought Ma Yinglong eye ointment to Beijing and opened a Ma Yinglong eye ointment store at 52 Xihe Street, Qianmen West. It was popular in the capital at that time, and the location still exists today.

In 1922, Ma Wanxing’s son, Ma Liting (马丽亭), inherited the Ma Yinglong eye ointment store and expanded its reach nationally, as well as exporting it overseas. Ma Liting opened branches in Tianjin, Shanghai, Zhenjiang and Nanjing.⁷ After China’s War of Liberation, Ma Liting held various positions as a result of his achievements in the Beijing TCM industry, including standing committee member of the Beijing TCM Industry Association and member of the Beijing Municipal TCM Industry Representative Conference.

In 1956, like Bai Jingyu, the company entered a public-private partnership. Ma Liting served as the Deputy Head of the Processing Department of Beijing Medicinal Materials Company and was a member of the 7th Beijing Political Consultative Conference.⁶ After Ma Liting’s death in 1987, his son Ma Yongfu inherited Ma Yinglong eye ointment. He registered and established the Beijing Xihe Street Ma Family Cultural Communication Co., Ltd. (北京西河沿马氏文化传播有限公司) and, in October 2011, applied for the inclusion of Beijing Ma Yinglong Eye Ointment Pharmaceutical Techniques in the third district-level intangible cultural heritage list for the Xicheng district.

In 1919, Ma Wanxing’s great-nephew Ma Qishan (马岐山) opened the Ma Yinglong Shengji Eye Medicine Store (马应龙生记眼药店) in Wuhan, using the signboard from the Beijing branch.⁶ After China’s War of Liberation, the company went into a public-private partnership. In 1966, it was renamed Wuhan Third Pharmaceutical Factory. In 1993, it was restructured as Wuhan Ma Yinglong Pharmaceutical Group Co., Ltd. During this period, Ma Qishan’s descendants, Ma Huimin (马惠民) and Ma Caili (马彩丽), worked for the company and were responsible for some of the core technologies. In

the 1980s, Wuhan Ma Yinglong Pharmaceutical Group Co., Ltd. developed Ma Yinglong Musk Hemorrhoids Ointment and Longzhu Soft Ointment based on *Ba Bao Yan Yao*. These have since become the company’s main products.⁵ In 2011, Wuhan Ma Yinglong Pharmaceutical Group Co., Ltd. applied for the inclusion of the TCM Formulation Method (Ma Yinglong Eye Ointment Production Techniques) in the third national-level intangible cultural heritage list.

2.1.3 Zhang Qizhu (张齐珠)

It is said that Zhang Qizhu, the founder of Zhang Qizhu Eye Ointment, was born during the late Ming dynasty. In the Kangxi (康熙) reign of the Qing dynasty, he established the Zhang Qizhu Jinniu Eye Ointment Shop (张齐珠金牛眼药铺) on the east side of Beilu Street in Dingzhou city. It was the earliest eye ointment shop established in Dingzhou. As its store sign, the shop had a carved wooden *Jin Niu* (金牛 golden ox), so the people of Dingzhou referred to their product as Jinniu eye ointment. It is said that Jinniu eye ointment was so effective that Zhang Qizhu received a plaque saying “Jinniu Zhang Shop” personally inscribed by Emperor Qianlong (乾隆) of the Qing dynasty.

According to Republican-era newspaper records, many Dingzhou residents at that time believed that, of the various purveyors of Dingzhou eye ointment, Jinniu Eye Ointment Shop had the longest history. However, Zhang Qizhu had a conservative business approach and a lack of proficiency in promotion and packaging. Therefore, he focused on the Dingzhou market and did not open other branches in major cities. As a result, this brand did not enjoy the same popularity as some of its counterparts, such as Bai Jingyu and Ma Yinglong.⁸

After China’s War of Liberation, the Dingzhou eye ointment factory was established for the manufacture of the products sold in the Jinniu Eye Ointment Shop. The factory has been renamed several times. It has been known as Dingxian Chinese Medicine Factory, Dingzhou City Chinese Medicine Factory, Hebei Jinniu Pharmaceutical Co., Ltd. and Hebei Wantong (万通) Jinniu Pharmaceutical Co., Ltd. It is currently known as Hebei Jinniu Yuanda Pharmaceutical Technology Co., Ltd. In 2014, the “TCM Formulation Method (Jinniu Eye Ointment Production Techniques)” was included in the fourth list of nationally representative intangible cultural heritage projects. This made Hebei Jinniu Yuanda Pharmaceutical Technology Co., Ltd. a protected unit.

2.2 Characteristics of Dingzhou eye ointment formulas

The specific contents of Dingzhou eye ointment formula in the early days were kept as a closely guarded secret by each family-run pharmacy, and there was a lack of written records, making it unknown to the public. It wasn’t

until after the founding of the People’s Republic of China, when various family businesses underwent public-private cooperation, that the secret formulas for eye medicines and other knowledge were transferred from family secrets to national public ownership. In the 1960s, the government organized the publication of relevant formula collections and compendiums. *The Selected Collection of Chinese Medicine Formulas in Beijing* (《北京市中药成方选集》) includes several Dingzhou eye ointment formulas, and these have shed light on the contents of certain formulations.⁹

Having analyzed and summarized Dingzhou eye ointment formulas (Table 1), we made three primary observations. These are described below.

Firstly, there is a high level of similarity between the eye ointment formulas of different families. The ingredients of eye medicines produced in the early years of the People’s Republic of China and those in currently available eye medicines are very similar. Both contain mineral medicines and spices, including *Lu Gan Shi* (炉甘石 Calamina), *Bing Pian*, *She Xiang* (麝香 Moschus), *Zhen Zhu* (珍珠 Margarita) and *Peng Sha* (硼砂 Borax). Ingredients such as *Niu Huang* (牛黄 Calculus Bovis), *Xiong Dan* (熊胆 Fel Ursi), *Nao Sha* (硃砂 Sal Ammoniacum) and *Hu Po* (琥珀 Succinum) are also common. This supports the notion that the formulas of the different families may share a common origin.

Secondly, the primary therapeutic effects of the eye ointments focus on clearing heat, eliminating inflammation, and improving eyesight. The various types of eye medication have very similar effects. These include clearing heat and treating inflammation-related symptoms such as redness, swelling, heat, pain and itching, both within the eye and externally. Some eye medicines also claim to alleviate opacity and cataracts, and reduce age-related blurred vision.

Lastly, early formulations were mostly available in powder form. During the initial years, the majority of the eye medicine formulations were available in powder form, with a few in tablet form. The common method of administration was to dip a glass rod in cold water, then dip it in a small amount of medicine and apply it to the eyes. Later, Bai Jingyu and Ma Yinglong improved their formulations to allow its use in ointment form. Only Jinniu eye ointment continues to be sold in powder form.

3 The origin of Dingzhou eye ointment

3.1 Dingzhou eye ointment formulas in traditional Chinese medicine classics

Dingzhou eye ointment flourished in the late Qing dynasty, but its formula may have originated much earlier. Given that many of the well-established Dingzhou eye ointment companies were owned and run by

Table 1 Dingzhou eye ointment formulas

Name	Ingredients	Main Functions and Indications	Administration and Dosage
Bai Jingyu Eye Ointment ⁹	Pearl roasted with bean curd, musk, bear gall, borneol, sal ammoniac, calamine, abalone shell, cuttlebone	Improves vision, reduces swelling, relieves itching. For acute eye inflammation, red cornea, and painful ulcers	Ointment: Squeeze a small amount into the inner corner. Powder: Dip a glass rod in cool water, apply powder to the inner corner. Use 2–3 times daily
Ma Yinglong Eye Ointment ⁹	Powder of calamine, musk, pearl, bear gall, sal ammoniac, borneol, borax, amber	Improves vision, relieves pain, clears opacity. Treats redness, itching, pterygium, tearing, and acute eye inflammation	Ointment: Squeeze into the inner corner of the eye. Powder: Dip a glass rod in cool boiled water, apply a small amount to the inner corner. Use 3 times daily
Jinniu Eye Ointment ¹⁰	Pearl, artificial musk, bear gall, cinnabar, coral, amber, borneol, calamine (calcined)	Clears heat, removes opacity, improves vision. Treats acute eye inflammation, trachoma, tearing, and corneal opacity	Dip a glass rod in cool boiled water, apply a small amount of medicine to the inner corner of the eye. Use 2–3 times daily
Boyun San Eye Medicine (<i>Jin Niu</i>) ¹¹	Artificial bezoar, artificial musk, borneol, cinnabar, amber, sal ammoniac, borax, calamine (calcined)	Clears heat, reduces inflammation, improves vision, removes opacity. For eye inflammation and vision obstruction	Use a little eye medicine each time, point into the corner of the eye, 2–3 times a day
Ma Yinglong Eight Treasure Eye Ointment ¹²	Calamine, amber, artificial musk, artificial bezoar, pearl, borneol, borax, sal ammoniac	Clears heat, reduces redness, relieves itching, and removes corneal opacity. Used for red, swollen, painful, itchy eyes and excessive tearing	Apply the ointment to the eyelids 2 to 3 times a day
Bai Jingyu Eye Ointment (Tongrentang 同仁堂) ⁹	Abalone shell, bear gall, pearl, cuttlebone, calamine (calcined) sal ammoniac (scorched), musk, borneol	Acute conjunctivitis, itching around the eyes, ulceration and pain, pterygium, corneal opacity, blurred vision and excessive tearing	Take a small amount of medicine, point in the corner of the eye, 3 times a day
Compound Calcined Gypsum Eye Ointment (Bai Jingyu) ¹³	Calamine, borneol, borax, anhydrous cupric sulfate, etc.	Eye redness, swelling, pain, itching and other eye disorders	For external use. Apply an appropriate amount to the eyes 3–4 times a day

members of the local Hui ethnic group,¹⁴ it is likely that the Hui people played a significant role in its introduction and dissemination into Dingzhou. Most of the Hui people who migrated to the inland regions of China did so during the Jin and Yuan dynasties when Dingzhou eye ointment began to take shape. An examination of ancient Chinese medical texts reveals similar rudimentary eye medicines in medical books from the Jin and Yuan dynasties (Note 1). For example, Liu Wansu's (刘完素) *Huang Di Su Wen Xuan Ming Lun Fang* (《黄帝素问宣明论方》 *Formulas from the Discussion Illuminating the Yellow Emperor's Basic Questions*) provides a formula for *Pu Sa San* (普萨散 Bodhisattva Powder), as follows:

“*Pu Sa San* was used to treat all eye diseases, both chronic and acute.

Pu Sa Shi, *Jin Jing Shi*, *Yin Jing Shi*, *Tai Yin Shi*, *Tai Yang Shi*, *Yu Yu Shi*, *He Luo Shi*, *Fan Kuang Shi*, *Yun Mu Shi*, calamine, pumice, white smooth stone, *Zi Ying Shi*, *Han Shui Shi*, *Yang Qi Shi*, *Zhu Ya Shi*, *Dai Zhe Shi* (hematite), *Bi Xia Shi*, cuttlebone, green salt, each 1 liang (41.3 g); sal ammoniac, 0.5 liang (20.65 g); litharge, 1 liang (41.3 g); *Tong Qing*, 1 liang (41.3 g); *Huang Dan*, 4 liang (165.2 g); musk and camphor, each 1 qian (4.13 g); calomel, 1.5 qian (about 6.2 g); borax, 3 qian (12.39 g); frankincense, 2 qian (8.26 g); bear gall, 1 jin (660.8 g); white sugar, 2 jin (1,321.6 g).

Grind the above ingredients into fine powder. Boil nine large bowls of well water down to four bowls. A large coin should sink when dropped into the water without dispersing. If it disperses, boil the water again. Filter the residue and then redissolve it in dew. (The size of ancient bowls varied, so precise measurement is unnecessary; the key aspect here is maintaining the correct ratio in the preparation process.)

普萨散，治远年近日一切眼疾。

普萨石 金精石 银精石 太阴石 太阳石 禹余石 河洛石 矾矿石 云母石 炉甘石 井泉石 白滑石 紫石英 寒水石 阳起石 猪牙石 代赭石 碧霞石 乌鱼骨 青盐各一两 硃砂半两 密陀僧一两 铜青一两 黄丹四两 麝香 脑子 各一钱 轻粉一钱半 硼砂三钱 乳香二钱 熊胆一斤 白砂蜜二斤

上为细末，以井花水九大碗，熬就作四碗。点水内落下钱许大，不散可。如散者再熬。滤滓，过露旋点。”¹⁵

This formula uses a variety of mineral-based medicines, including calamine, as well as commonly used eye medicine ingredients from Dingzhou, such as borneol, musk, borax, sal ammoniac, cuttlebone, and bear gall. A similar formula for the sacred eye medicine of *Fen Zhou Guo Zhu Jiao Jia Shen Sheng Yan Yao* (《汾州郭助教家神圣眼药》 *The Sacred Eye Medicine from Guo Zhujiao's Family in Fenzhou*) was given in the book *Ru Men Shi Qin* (《儒门事亲》 *Confucians' Duties to Their Parents*), which was written in the same era. This can be regarded as the prototype for Dingzhou eye ointment. The medical book *Za Lei Ming Fang* (《杂类名方》 *Miscellaneous Famous Prescriptions*), written during the Yuan dynasty, contained the formula for *Chan Guang Gao* (蟾光膏 Tord Light Ointment), which was used for

“chronic eye diseases, obstruction of the visual pathways and the removal of clouding membranes”. This formula contained commonly used ingredients in Dingzhou eye ointment such as calamine, borneol, musk, pearl, cinnabar, amber, borax, and others. The preparation process is also more complex.¹⁶

During the Ming dynasty, there were significant developments in ophthalmology within TCM. Numerous ophthalmology books were published, and the range of topical eye medications increased. Both Dingzhou eye ointment and other topical eye medications were refined. For example, in the book *Gu Jin Yi Tong Da Quan Yan Ke Dian Yan Yao* (《古今医统大全·眼科·点眼药》 *The Complete Compendium of Ancient and Modern Medical Works: Ophthalmology: Apply Droppings in the Eye*), there was a prescription called *Guang Ming San Zi* (光明散子 Brightening Powder), which was made by “Prepare 1 liang (37.3 g) of Calamine powder, 1 qian (3.73 g) of Borax, and 2 fen (about 0.75 g) of borneol. Grind all ingredients together into an extremely fine powder and apply”.¹⁷ Processed calamine, borax and borneol were also the main ingredients of Dingzhou eye ointment at that time. The Ming dynasty ophthalmology book *Shen Shi Yao Han* [《审视瑶函》 *A Close Examination of the Precious Classic (on Ophthalmology)*] stated that *Ling Fei San* (灵飞散 Divine Flight Powder) treated eye diseases, reduced swelling, stopped tearing, improved vision, removed opacities, reduced redness and pain, and eliminated dampness and sores, treating various conditions (Fig. 1). The prescription is as follows:

“Roast calamine until it turns red, quench it with urine from a child seven times until the water evaporates, dry it in the sun, and store it properly. Take one liang of the prepared calamine and grind it separately with *Zhu Sha* (朱砂 Cinnabar), amber, pearl, bezoar.



Figure 1 The preface of *Shen Shi Yao Han* [《审视瑶函》 *A Close Examination of the Precious Classic (on Ophthalmology)*] (Source with permission from: Tianjin University of Traditional Chinese Medicine Library)

And genuine bear gall, each finely ground, 1 qian (3.73 g); *Ling Yao* (灵药), 2 qian (7.46 g).

Grind the ling medicines separately, each with two qian. Mix them thoroughly and apply a small amount with a toothpick for each application. Close your eyes for a while and then apply again. When closing the eyes, wait for the medicinal effects to subside, then use the toothpick to remove any residue, wash with warm water, and apply two to three times daily. A prolonged application is ideal.

Fu Ling Yao Fang (附灵药方 Supernatural Medicine Formula):

Mercury and black lead, each 5 fen (about 1.87 g); salt peter, 8 qian (29.84 g); refined borax, 2 qian. Melt the lead, add mercury to form an alloy, grind with salt peter and borax, place in a sealed jar, heat with three sticks of incense, first gently then intensely, and let cool before use.

This is the recommended preparation for *Ling Fei San*. This powder includes calamine to absorb moisture and eliminate sores, *Ling Yao* to dispel opacities and clouds, and ingredients like cinnabar, amber, pearl, bezoar, and bear gall to detoxify, clear heat, stop tearing, reduce redness, and improve vision. It is suitable for any external eye conditions.

炉甘石火煅通红，用童便淬，如此七次，水飞净，晒干，听用，每用一两，明朱砂 琥珀 珍珠 牛黄

真熊胆以上俱各另研赋粉，各一钱 灵药二钱，上和极匀，每次用牙簪挑少许点眼，闭目片时，再点；又闭片时，待药性过，然后用簪拨去药滓，温水洗净，每日点二三次。久闭为妙。

附灵药方

水银 黑铅各五分 火硝八钱 官硼二钱

先将铅化开，入水银作一家，再加硝硼研匀，入阳城罐内，盐泥封固；打火三炷香，先文后武，待冷，取出听用。

按此灵飞散所宜制也。是散也，甘石收湿除烂，灵药磨翳拨云，若砂珀珠末。牛黄、熊胆者，解毒清热、止泪退赤、明目之品也。凡目有外症者，俱可用。”¹⁸

Thus, the composition of *Ling Fei San* was very similar to that of Dingzhou eye ointment. They were both powdered formulas, and were used by applying a small amount to the eyes with a toothpick. This was similar to the later method of Dingzhou eye ointment application using a small glass rod.

By the early Qing dynasty, external eye medicine formulas similar to Dingzhou eye ointment had become well established. For example, *Xiong Dan Gao* (熊胆膏 Bear Gall Ointment) in Zhang Lu's (张璐) *Zhang Shi Yi Tong Yan Ke Mu Men* (《张氏医通·眼科目门》 *Comprehensive Medicine According to Master Zhang: Ophthalmology*) recorded that:

“Calamine, calcined, purified by water, and formed into pellets the size of bullets, 1 liang (37.3 g), divided into ten pellets, quenched with a decoction of 3 qian (11.19 g) of *Huang Lian* (黄连 *Coptis Chinensis*), burn-quenched until the juice is exhausted; each dose uses 2 qian (7.46 g) of clean powder; amber, 5 fen (about 1.87 g); agate, purified by water, 3 qian; *Shan Hu* (珊瑚 Coral), purified by water, 3 fen (about 1.12 g); pearl, calcined, purified by water, 3 fen; cinnabar, purified by water, 5 fen; borneol, 2 fen (about 0.75 g); musk, 2 fen.

Mix well, store in a porcelain jar, and apply a small amount to the eye corners two to three times a day.

炉甘石煅过水飞，丸如弹子大，每净一两，分作十丸，用川黄连三钱浓煎去滓，烧淬之，汁尽为度，每料用净者二钱、琥珀五分 玛瑙水飞，净三钱 珊瑚水飞，净三分 珍珠煅，飞，净三分 朱砂水飞，净五分 冰片二分 麝香二分

和匀，瓷罐收贮，每用少许点大眦上，日二三次。”¹⁹

Huang Tingjing's (黄庭镜) *Mu Jing Da Cheng Zhu Yao Wai Zhi* (《目经大成·诸药外治》 *The Great Compendium of Classics on Ophthalmology: External Treatment of Various Medicines*) included a recipe for a *Ba Bao Dan* (八宝丹 Eight Treasures Elixir) (Fig. 2). It had a similar formula to Dingzhou eye ointment and offered a glimpse into the principles behind the formulation:

“Borax, *Hai Piao Xiao* (海螵蛸 Cuttlebone), de-shelled and water-floated, calamine, calcined and water-floated, *Ling Sha* (灵砂 Cinnabar), finely ground, each 1 liang (37.3 g); frankincense and myrrh, each 2 qian (7.46 g); borneol, 3 qian (11.19 g); musk, 1.5 qian (about 5, 6 g).

All eye medicine powders must be carefully ground and sieved until they make no sound when pinched and are free of grit when bitten. Store in a good jar. Borax prevents sweating, *Ling Sha* calms fire, calamine removes opacities, cuttlebone absorbs moisture, frankincense and myrrh promote blood circulation and relieve pain, borneol and musk detoxify and disperse wind. These ingredients are effective for long-term deep-seated diseases, which are difficult to treat. Somebody adheres to the teachings of the fixed master, but the symptoms are not effectively treated. The so-called “jade vessel without



Figure 2 Title page of *Mu Jing Da Cheng* (《目经大成》 *The Great Compendium of Classics on Ophthalmology*) (Source with permission from: Henan Provincial Library)

match” means that gold, jade, pearls, amber, coral, agate, turquoise, and crystal—eight rare and expensive items—are nothing more than dust. Therefore, this pill has no special requirements, and is simply named the ‘*Ba Bao* (Eight Treasures)’.

硼砂、海螵蛸去粗壳飞、炉甘石煨飞，三黄水去渣尘煮干、灵砂细研，各一两，乳香、没药各二钱，冰片三钱，麝一钱五分。

凡一切入眼丹药，须小心碾筛，总以手捏不响，齿啮无沙为则。好罐珍藏听用。凡药价贵而大邦罕见，及一石一木用获奇效者，皆为宝。如上项硼砂辟汗，灵砂镇火，炉甘石去翳，海螵蛸收湿，乳香、没药行血止痛，冰片、麝香拔毒散风，非近年深病，难可消磨。彼人守定师传，症治不达，所谓玉厄无当，即得金、璧、珠、珀、珊瑚、玛瑙、空青、水晶，价贵罕见八物，等尘土耳。故兹丹无一务别，而特署名八宝。”²⁰

By the late Qing dynasty, there was an abundance of topical ophthalmic formulas such as those described above. These included Ma Peizhi’s (马培之) *Shui Yan Yao* (水眼药 Water Eye Medicine) from *Wai Ke Chuan Xin Ji* (《外科传薪集》 *Transmission of External Medicine Collection*), Shaanxi Apricot Kernel Eye-cooling Medicine (陕西杏核凉眼药), Yunnan Laoboyuntang’s *Bo Yun Ding* (云南老拨云堂拨云锭) and Dingzhou eye ointment, which became the most popular mainstream TCM for external eye treatment at the time. To make it easier for readers, the following formulas traced in the above-mentioned ancient Chinese medical texts are arranged in chronological order, as shown in table 2 (Table 2).

3.2 Tracing the origins of Dingzhou eye ointment overseas

Early forms of Dingzhou eye ointment could be traced back to the Jin and Yuan dynasties. However, outside of China, there is evidence of the origins of Dingzhou eye ointment’s formulas dating back further.

Ebers Papyrus (《埃伯斯纸草》), written around 1500 BCE, is one of the oldest surviving medical texts in the world. It contains a chapter on ophthalmology with 95 formulations for external application to the eyes. Ancient Egyptian medicine treated eye conditions using combinations of mineral medicines and aromatic herbs. For example, the 367th recorded:

“Another, to eliminate the disease (hnt), in both eyes: Black eye-paint 1/32; snn-balm 1/16; mineral (htm) 1/16; red mineral (trw) 1/64; fresh ‘resin (ntjw) 1/64; Upper Egyptian mineral (sj³) 1/64; ground fine; made into a mass; introduced into both eyes so that they immediately get well.”²¹

This serves as a typical example of the characteristics of this medicinal formulation. The eye medicines of ancient Egypt went on to influence Greco-Roman medicine. In the first century CE, Celsus wrote *De Medicina* (《论医学》 *On Medicine*), which included 33 formulations for topical application to the eyes. These primarily treated inflammatory eye conditions using mineral medicines such as calamine with aromatic herbs. This formula in the second volume can serve as an illustration:

“The salve of Theodotus himself, which by some is called achariston, is composed of: castoreum and Indian nard 4 grms. each; lycium 0.66 grm.; an equal amount of poppy-tears; myrrh 8 grms.; saffron, washed white lead and lign-aloes 12 grms. of each; cluster-shaped oxide of zinc, washed and roasted copper scales 32 grms. each; grum 72 grms.; acacia juice 80 grms.; the same amount of antimony sulphide, to which is added rain-water.”²² (Note 2)

The basic combinations of ingredients and the diseases targeted align with those of Dingzhou eye ointment. Arabian medicine inherited knowledge from Greco-Roman medicine, including ophthalmology. It went on to develop further in its own right, with a wider range of medicine applications. The ingredients commonly used

Table 2 Chronological arrangement of formulas traced in ancient Chinese medical texts

Dynasty	Formula Name	Source Classic	Main Functions and Indications
Jin	Bodhisattva Powder (菩萨散)	<i>Huang Di Su Wen Xuan Ming Lun Fang</i> (《黄帝素问宣明论方》 <i>Formulas from the Discussion Illuminating the Yellow Emperor's Basic Questions</i>)	Treats all eye diseases, both chronic and acute
Yuan	Tord Light Ointment (蟾光膏)	<i>Za Lei Ming Fang</i> (《杂类名方》 <i>Miscellaneous Famous Prescriptions</i>)	Treats chronic eye diseases, obstruction of the visual pathways, removal of clouding membranes
Ming	Brightening Powder (光明散子)	<i>Gu Jin Yi Tong Da Quan</i> (《古今医统大全》 <i>The Complete Compendium of Ancient and Modern Medical Works</i>)	Treats all eye diseases, especially seasonal eye inflammation, blurred vision, obscured
Ming	Divine Flight Powder (灵飞散)	<i>Shen Shi Yao Han</i> (《审视瑶函》 <i>A Close Examination of the Precious Classic (on Ophthalmology)</i>)	Reduces swelling, stops tearing, improves vision, removes opacities, reduces redness, and eliminates dampness and sores
Qing	Bear Gall Ointment (熊胆膏)	<i>Zhang Shi Yi Tong</i> (《张氏医通》 <i>Comprehensive Medicine According to Master Zhang</i>)	Treat all chronic and intractable eye opacities and obstructions
Qing	Eight Treasures Pill (八宝丹)	<i>Mu Jing Da Cheng</i> (《目经大成》 <i>The Great Compendium of Classics on Ophthalmology</i>)	Treats long-term deep-seated eye diseases, improves vision, removes opacities, detoxifies and clears heat

in Dingzhou eye ointment, such as calamine, borneol, borax and sal ammoniac, were introduced to China by Persian merchants, who acquired them from Western Asia, Central Asia, South Asia, and Southeast Asia. In addition, musk, bezoar, pearl and amber were commonly used in Arabian medicine. In the early Chinese ophthalmology text *Long Shu Pu Sa Yan Lun* (《龙树菩萨眼论》 *Nāgārjuna Bodhisattva's Treatise on Eye Diseases*), which was compiled during the mid to late Tang dynasty. There was a record of the Persian use of mineral medicines for treating eye diseases:

“Pterygium at the corner of the eye, difficult to resolve with scattered treatments. If the membrane rises and connects with the eyeball, it requires surgical incision. For the pupil, using wheat flour slices and applying air, the medication is suitable. It resembles floating clouds; sometimes, cinnabar and borneol are used in eye drops, to clear the eyes and relieve wind. Amber and pearls can skillfully grind away the cataract. Sal ammoniac has a hot nature, which helps with decaying flesh. Though chalcantite is cold, only a small amount is used in the formula. The Persian way differs from the Chinese use of medicine, but if well blended, it proves effective.

眦头息肉，散点难消。膜起连睛，要须钩割。瞳人麸片，傅气而药可宜。仿佛浮云，时时点煎朱砂、龙脑，明目抽风，琥珀、真珠，巧能磨翳。硃砂性热，乃有烂肉之功，石胆虽寒，方中用少。波斯之法，与汉用药不同，若善调和，功能有验。”²³

This shows that by the Tang dynasty, such knowledge had already been introduced to China, and later, it might be absorbed and integrated by Chinese medical practitioners, becoming localized to the point that its foreign origin was no longer mentioned.

The medicinal characteristics of Dingzhou eye ointment have a strong foreign influence. Furthermore, its formulation aligns with the principles of Arabian medicine. Borneol and musk are commonly paired in Arabian medicine, with borneol having a cooling nature and musk having a warming nature. The combination of these two ingredients balances hot and cold conditions and can be used to treat eye conditions.^{24,25} Calamine, known as tuttyor, tūtiyā in Arabic, is one of the most commonly used drugs in Arabian ophthalmology because of its astringent and antipyretic properties.²⁵ Borax has a strong purifying effect on bodily fluids and can help to eliminate excess fluids. This, again, is a commonly used drug in Arabian ophthalmology.²⁴ Sal ammoniac can dilute and dissolve residual fluids, making it suitable for treating corneal opacities.²³ Overall, Dingzhou eye ointment closely follows the principles of the Arabic humoral theory (inherited from Greco-Roman medicine), including those pertaining to the purification of bodily fluids, wound healing and vision improvement through the combined use of hot and cold substances.

Eye medicine formulations that are like Dingzhou eye ointment can be found in Arabian medical classics such as volume V of the 11th-century Arabian medical master piece *Al-Qānūn fī al-ṭibb* (《医典》 *The Canon of*

Medicine) (Fig. 3). This includes 51 eye medicine formulations. One of these, Shīaf Al-Masih, an eyewash, bears similarities to Dingzhou eye ointment.

This unique collyrium has been tested, and it is recommended by the physician Masih in treating cases of opacity of the cornea and overflow of tears due to obstruction of the tear ducts when prepared with blue vitriol. It removes the membrane of the eye and all types of the coarseness of the eyelids, and strengthens eyesight. Its ingredients are the following:

“Musk 1 qirat, Camphor, Powdered, 1 danig, Coral 2 danig, Pearls, Small 2 danig, Gold Litharge 1 dirham, Hematite-like Stone 1 dirham, Silver Litharge 1 dirham, Indian Zinc Oxide 2 1/2 dirham, Wormwood, Burnt 2 Vi dirham, Copper, Burnt 2 2/7 dirham, Copper Scrapings 2 2/3 dirham, Isfahan Antimony Sul fide 4 dirham.

Mortar and pestle these ingredients with rain water. When they are fully powdered, sprinkle powdered camphor and musk over them. Mix thoroughly. Now its pills are made and sried in the shade. When required, the pills are to be rubbed with water against a sea-shell and then used as collyrium.”²⁶(Note 3)

This eyewash formulation includes calamine, musk, borneol, pearl and coral, all of which are used in Dingzhou eye ointment. Ingredients like myrobalan, wormwood and copper shavings, which were used in ancient Chinese medicines, are also used in this eye medicine. The formulation mirrors the combination of mineral drugs with ice crystals and musk seen in Chinese medicine during the Jin and Yuan dynasties.

Further research is required to collect relevant historical materials from both within and outside China to clarify the origins, dissemination, and introduction of related ophthalmic formulations and their integration



Figure 3 One page of *Al-Qānūn fī al-ṭibb* (《医典》 *The Canon of Medicine*) (Source with permission from: Yale University Library)

into traditional Chinese ophthalmology. This subject holds significant importance in exploring the integration and dissemination of medical and cultural knowledge between China and foreign countries. It can be regarded as a typical example of foreign medical knowledge introduced to China through the Silk Road, which was then integrated into the Chinese medicine system. It has continuously been inherited, applied, and developed, and continues to serve the health and well-being of the Chinese people to this day, warranting further in-depth study. TCM has never been a closed system but has embraced and incorporated the knowledge of other countries and cultures over the course of its thousands of years of development. With this inclusive, broad-minded approach, it has used global knowledge to innovate and develop through local clinical practice, displaying the profound depth of Chinese medicine. This cultural exchange and mutual learning between civilizations play a significant role in the innovative development of TCM, especially in the field of Chinese ophthalmology. In-depth research on the integration and dissemination of Chinese and foreign medical cultures can provide a historical reflection for international medical exchange and cooperation, as well as the “localization” of foreign medical knowledge.

4 Conclusion

Dingzhou eye ointment may have originated overseas. Its formulation, including aromatic spices and minerals such as stone, is in accord with ancient Greco-Roman eye medicine formulations. Many of the medicines used in Dingzhou eye ointment have foreign origins and are or have been particularly common in Arabian ophthalmology. The approach to its formulation also aligns with the concept of the four humours seen in Arabian medicine. Hence, Dingzhou eye ointment has strong Arabic influences. Similar formulations can be found in *The Canon of Medicine*, a classic Arabic work. This further supports the likelihood that Dingzhou eye ointment has ancient Arabian origins. Eye medicine formulations derived from *The Canon of Medicine* can be found in *Pu Ji Fang* (《普济方》 *Formulas for Universal Relief*) and *Ben Cao Gang Mu* (《本草纲目》 *The Grand Compendium of Materia Medica*),²⁷ again verifying the influence of Arab ophthalmology on traditional Chinese ophthalmology.

Influenced by the ancestors of the Hui people, the prototype of the Dingzhou eye ointment formula first appeared during the Jin and Yuan dynasties. It gradually took shape and became standardized during the Ming and Qing dynasties. By the late Qing and Republican era, it became nationally renowned and spawned numerous brands, of which at least ten became sufficiently well-established to open branches across the country. Three of these, Bai Jingyu, Ma Yinglong and Zhang Qizhu, have successfully carried forward the precious heritage of Dingzhou eye ointment using their respective models of inheritance. Dingzhou eye ointment has been passed

down through generations, with three manufacturers still in operation today, producing and selling the medicine while maintaining the original traditional formula. It continues to have a significant impact on public health and well-being and stands as an important representative of topical eye treatments. Notably, Nanjing Bai Jingyu Eye Medicine Co., Ltd. transformed Bai Jingyu Eye Ointment into a Western medicine known as Compound Lutum Stony Eye Ointment. This is an intriguing case of medical and cultural transformation.

Notes

1. The dosage conversions for the prescriptions listed in the following classical Chinese medical texts are based on the standard conversions: “During the Song, Jin, and Yuan dynasties, 1 qian (钱) is equivalent to 4.13 g in modern measurement; during the Ming and Qing dynasties, 1 qian is equivalent to 3.73 g.” Furthermore, the traditional weight system follows the rule: one qian equals one-tenth of a liang, ten qian make one liang, and sixteen liang make one jin. See: Zhang L, Tang RS, Song J, Zhang HM, Fu YL. Textual research on principle of dose conversion in ancient famous classical formulas (古代经典名方中方药剂量折算原则考证). *China Journal of Experimental Traditional Medical Formulae*. 2024;30(10):196–202. Chinese.
2. “Grm.” is the abbreviation for “gram”.
3. Qirat: An ancient unit of weight, commonly used for measuring spices, jewelry, or medicinal materials. 1 qirat is approximately equal to 0.2 grams. Danig: This unit is commonly found in the Middle East, especially in Islamic medical literature. 1 danig is approximately equal to 4 grams. Dirham: An ancient unit of both currency and weight. 1 dirham is approximately equal to 3.2 grams. (However, the weight of the dirham may vary across different regions or historical periods.)

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Ethical approval

This study does not contain any studies with human or animal subjects performed by any of the authors.

Author contributions

SONG Ge was responsible for the research design and the writing of the article. HE Yuting was responsible for the polishing and revision of the article.

Conflicts of interest

The authors declare no financial or other conflicts of interest.

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An Exploration of *Zhi Wen Ben Cao* from the Perspective of the Interaction of Medical Knowledge in East Asia

YU Yeli^{1,*}

Abstract

Zhi Wen Ben Cao (《质问本草》 *Inquiry of Materia Medica*) is a material medica work compiled by Wu Jizhi (吴继志), a native from Ryukyu, and was published in 1837. In addition to the printed edition, there are also numerous handwritten and illustrated editions that have been passed down, and these manuscripts exhibit significant differences, suggesting that they were completed by different authors at different times. These differences also indicated that the compilation process of *Zhi Wen Ben Cao* was actually complex. In addition to Wu Jizhi, various individuals from the Satsuma Medicinal Garden Bureau (萨摩药园署), led by Murata Keiyō (村田经膳), were also involved. The compilation of this book was a direct result of the exchanges of medical knowledge in East Asia, and represented a unique case in the history of the dissemination and interaction of medical knowledge in East Asia. In this process of dissemination and interaction, images played a particularly important role. Due to the unequal knowledge of medicinal images held by the interacting parties, it may also lead to communication barriers.

Keywords: *Zhi Wen Ben Cao* (《质问本草》 *Inquiry of Materia Medica*); Ryukyu; East Asia; Medical history; Wu Jizhi (吴继志); Traditional Chinese medicine

1 Introduction

It is generally accepted that *Zhi Wen Ben Cao* (《质问本草》 *Inquiry of Materia Medica*) was a materia medica work compiled by Wu Jizhi (吴继志), a native of Ryukyu. The most extant and authoritative version today was the edition published in 1837 (the eighth year of the Tenpō era), overseen by Shimazu Nariakira (岛津齐彬), hereafter referred to as the “Tenpō printed edition” (Fig. 1).¹ The entire work consisted of nine volumes, and was divided into four volumes of the inner chapters (内篇), four volumes of the outer chapters (外篇), and one appendix volume. The first volume of the inner chapters contained correspondence letters between Wu Jizhi and Chinese doctors and scholars, as well as prefaces written by these people for *Zhi Wen Ben Cao*. The remaining eight volumes were the main text, containing descriptions of 160 medicines,

each illustrated with separate images and textual explanations. In addition to the main content, the book included several important prefaces and postscripts: a preface by Fujiwara Takayuki (藤原高猷) dated 1835, one by Sugawara Toshiyasu (菅原利保) dated 1834, and Wu Jizhi's own foreword to *Zhi Wen Ben Cao* dating back to 1789. At the end of the book, there were the appendix postscripts by Satsuma scholar Shidara Sadatomo (设乐贞丈) from 1836 and a postscript by Zeng Yuan (曾愿) from 1837. These prefaces and postscripts provided valuable documentation on the compilation, transmission, and publication history of *Zhi Wen Ben Cao*, making them crucial reference materials for scholarly research. In 1984, Publishing House of Ancient Chinese Medical Books reprinted the text based on a copy preserved at the Chinese Academy of Traditional Chinese Medicine's library, thereby making this important historical medical resource more accessible to the academic community.²

In addition to the printed editions, there existed multiple versions of *Zhi Wen Ben Cao*, including handwritten copies by the author (autograph manuscripts) and handwritten copies with colored illustrations. Notable among these were the color-illustrated copies held by the Okinawa Prefectural Library [titled *Ben Cao Zhi Wen* (《本草质问》 *Materia Medica Inquiry*), hereafter referred to as the “Okinawa edition”] and the color-illustrated copies preserved in the library of Kagoshima University (hereafter referred to as the “Kagoshima University edition”) (Note 1) (Fig. 2). Japanese scholar

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Figure 1 Front cover of Tenpo printed edition of *Zhi Wen Ben Cao* (《质问本草》 Inquiry of Materia Medica) (source with permission from: *Collection of Chinese-language Documents from the Ryukyu Kingdom*¹)

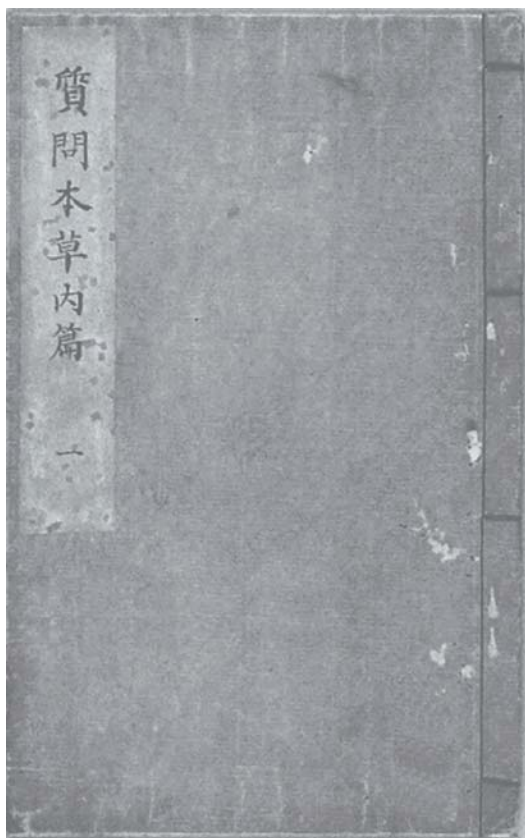


Figure 2 Front cover of Volume 1 of Kagoshima University edition of *Zhi Wen Ben Cao* (source with permission from: *Collection of Chinese-language Documents from the Ryukyu Kingdom*¹)

Takatsu Takashi (高津孝) has collaborated with Chen Jie (陈捷) to include these two editions along with the Tenpo printed edition in the facsimile publication titled *Collection of Chinese-language Documents from the Ryukyu Kingdom* (《琉球王国汉文文献集成》), thereby greatly facilitating subsequent scholarly research.¹ The Okinawa edition has been reproduced in a high-quality facsimile edition by Fudan University Press, featuring a foreword by Han Jiegen (韩结根) that introduced the extant versions of *Zhi Wen Ben Cao*, and discussed its history of compilation.³

Besides the Okinawa edition and the Kagoshima University edition, other copies of *Zhi Wen Ben Cao* available online include the draft of the outer chapters of *Zhi Wen Ben Cao* preserved in the Nanki Bunko (南葵文库) preserved at the University of Tokyo (hereafter referred to as the “Nanki Bunko edition”) and a four-volume 1790 handwritten edition from the Murano Bunko (村野文库). The Nanki Bunko edition has been made publicly accessible on the internet, whereas the original Murano Bunko edition has not been found. Additionally, there are numerous extant copies of the Tenpo printed edition, some of which include later notes and annotations by subsequent scholars, providing valuable reference material for research.

As an important work in history of Ryukyu, *Zhi Wen Ben Cao* possessed multiple dimensions and has attracted considerable scholarly attention, with substantial research already conducted. As a compilation on the topic of medical materia medica, it has long been studied by researchers of Ryukyuan history of medicine, including Japanese scholars Kinjo Kiyomatsu (金城清松)⁴ and Inafuku Seiki (稻福盛辉),⁵ as well as Chinese scholar Dong Ke (董科),⁶ who discussed it in their respective works. Due to its nature as a natural history text, *Zhi Wen Ben Cao* has also drawn the interest of naturalists such as Ueno Masuzo (上野益三)⁷ and Yamada Keiji (山田庆儿).⁸ Moreover, the exquisite illustrations in the book have been examined by experts in botanical illustration and plant studies, including Sakakibara Yosio (榊原吉郎),⁹ Shirahata Yozaburo (白幡洋三郎),¹⁰ and Zheng Jinsheng (郑金生).¹¹ Research on Ryukyuan history of culture and history of Ryukyuan overseas students occasionally references *Zhi Wen Ben Cao*. However, such references are scattered, somewhat repetitive, and have not been fully developed. The most valuable reference existing is the article titled “Photography, observation, and authentication: examining eighteenth to nineteenth century East Asian natural history exchanges through *Zhi Wen Ben Cao* (《写真、观看与鉴定：从〈质问本草〉看十八--十九世纪东亚的博物学交流》)” by Jiang Zhushan (蒋竹山) in 2011, which provided detailed discussions on the background, compilation methods, and production of the book, offering insightful analyses.¹² Research of Takatsu Takashi is also noteworthy. In part one, section one of his 2010 publication, *Natural History and Literature in East Asia: Satsuma, Ryukyu*

and *Maritime Exchanges* (『博物学と书物の东アジア: 萨摩・琉球と海域交流』),¹³ and part one of his 2017 work *Edo Natural History: Shimazu Shigehide and the Natural History of the Southwest Islands* (『江戸の博物学: 岛津重豪と南西诸島の博物学』).¹⁴ he provided thorough and significant discussions on *Zhi Wen Ben Cao*, contributing greatly to the academic study on this work.

Despite the existing research, many issues remain unresolved. To list a few, in addition to the printed editions of *Zhi Wen Ben Cao*, multiple handwritten versions by the author and handwritten copies with colored illustrations are preserved, but their contents are not consistent. Introduction and analyses regarding these differences have been made in Takatsu Takashi's research, yet the relationships among the printed editions and other editions have not been clearly systematized. Furthermore, Jiang Zhushan pointed out in his study that, although *Zhi Wen Ben Cao* has not occupied a place within the research spectrum of Chinese materia medica history, it should be repositioned when considered within the broader context of East Asian materia medica history.¹² This insightful observation deserves attention. However, Jiang's research mainly relies on the Tenpo printed edition. A study referencing other handwritten editions of *Zhi Wen Ben Cao* would reveal that its compilation process was more complex. This complex compilation would directly indicate that the book is a product of medical and pharmaceutical knowledge exchanges in East Asia, making it a distinctive case for studying the transmission and interaction of medical knowledge in East Asia.

This study will examine the compilation process of various draft editions by the author, handwritten copies with colored illustrations, and printed editions of *Zhi Wen Ben Cao* in relation to the social context of Ryukyu at the time. It aims to reconstruct the compilation process of the book and use this framework to explore the dissemination and interaction of medical knowledge in East Asia, with a particular emphasis on the significant role of illustrations in this process.

2 Wu Jizhi (吴继志) and *Ben Cao Zhi Wen* (《本草质问》) *Materia Medica Inquiry*

According to Takatsu Takashi, the Okinawa edition of *Zhi Wen Ben Cao* was originally housed in the Okinawa Prefectural Library. After World War II, it came into the possession of Stanley Bennett from USA, who donated it back to the Okinawa Prefectural Library in 1985. As a result, each volume of the manuscript bore a rectangular seal reading “Donated by Mr. Stanley Bennett (Stanley Bennett氏寄贈)” on its back cover.

As mentioned above, there are two facsimile editions of the Okinawa edition published in China, both in color. The facsimile edition published by Fudan University Press is of higher quality with clearer images

and text. However, compared to the edition included in *Collection of Chinese-language Documents from the Ryukyu Kingdom*, it lacks the front cover and includes a square red stamp reading “Okinawa Prefectural Library Seal (沖縄県图书之印)” on the first page of each volume. It suggests that this edition was produced at a later date when the original covers had been lost. The title on the front cover of this edition is *Ben Cao Zhi Wen*, different from the Tenpo printed edition. Additionally, the edition bears the inscription “Five volumes in total (共五册)”, indicating that the work was divided into five volumes. The Fudan facsimile edition is divided into three volumes, and Han Jiegen's study also refers to the manuscript as “three volumes”, suggesting that the version may have been rebound. In the facsimile edition, out of four volume covers, only three bear the rectangular “Donated by Mr. Stanley Bennett” seal, implying that at the time of Bennett's donation, the manuscript had already been rebound into three volumes.

The Okinawa edition mainly consists of medicine illustrations, some accompanied by text while others are not. The first volume contains 81 illustrations, with only the first four bearing text. The second volume has a total of 114 illustrations, however, there are several duplications: illustrations 3 and 4 duplicating 1 and 2, 15 and 16 duplicating 13 and 14, 23 and 24 duplicating 11 and 22, 31 and 32 duplicating 29 and 30, 35 and 36 duplicating 33 and 34, 53 and 54 duplicating 51 and 52, and 57 and 58 duplicating 55 and 56. These duplicated pairs not only share identical images and text but also exhibit the same pattern of paper damage, which indicates they were reproduced by duplication in print. Without the duplicates, the second volume contains 100 unique illustrations, each with accompanying text that varies in content. The text on the first 50 illustrations differs from that on the latter 50 in several ways: first, the handwriting style varies; second, the text on the first 50 illustrations is placed irregularly depending on blank spaces, while on the latter 50, it is consistently located near the upper right corner; third, each of the first 50 illustrations is numbered, whereas the latter 50 are not. Thus, the second volume can be subdivided into two distinct parts. The third volume contains 74 illustrations, all numbered and accompanied by text.

In total, the Okinawa edition comprises 255 medicine illustrations, with 178 of them accompanied by text, exceeding the number of 160 medicines recorded in the Tenpo printed edition. Comparative analysis reveals that a number of medicines included in the Tenpo printed edition are absent from the Okinawa edition.

Based on the prefaces, postscripts, and explanatory notes in the Tenpo printed edition, the compilation method of *Zhi Wen Ben Cao* was quite unique. Previous researchers have also noted this and have summarized it accordingly. For example, the publisher's introduction to the facsimile edition of the Tenpo printed version by

the Publishing House of Ancient Chinese Medical Books stated that:

“During the mid-Qianlong (乾隆) period, Wu collected several hundred medicinal herbs native to the Ryukyu, the Tokara Islands (土噶喇诸岛), and Yakushima (拔久岛). He meticulously illustrated and annotated the growth conditions of roots, stems, leaves, flowers, and fruits, and prepared plant specimens or even potted plants. These plants were sent by tributary envoys traveling to China from Ryukyu, as well as Ryukyuan students in China, to medical experts skilled in materia medica from various Chinese provinces. Through reciprocal verification and 12 years of persistent and dedicated research, 160 medicines were carefully examined and compiled into a book.

乾隆中叶，吴氏采集琉球本土及土噶喇拔久诸岛所产的药用植物数百种，将其根株枝叶花萼果实等生长情况绘图详注，或制成标本，甚至以盆栽生物通过琉球来华的贡使及琉球在华游学者，与我国各省精于医药者往复考证，经过十二年的长期钻研，不懈努力，共考订药物一百六十种而成书。”¹

Jiang Zhushan also noted in his article that:

“The compiler’s approach involved sending the hand-drawn images of plants collected in Ryukyu to Chinese materia medica scholars and doctors in provinces such as Fujian, Zhejiang, Beijing, Jiangxi, and Guangdong for authentication by special persons. In addition to images, dried specimens of branches, leaves, bark, and roots were affixed alongside the materials sent for verification. A brief description was provided to depict each plant’s characteristics, including whether it was marsh-dwelling, rock-dwelling, or tree-dwelling, as well as its germination and flowering periods.

本书编者的做法是，将在琉球采集后写下来的植物图像，派人亲送至中国的福建、浙江、北京、江西及广东等地的中国本草学者及医家鉴定。除了图像以外，编者会将实物标本（晒干枝叶及皮根）贴于送鉴定的资料旁，并以一句短文描绘这种植物的特性，例如究竟是泽生、岩生或树生，萌于何时，花于何候。”¹²

The “special persons” mentioned by Jiang, hereby referred to the tributary envoys from Ryukyu to China and Ryukyuan scholars studying in China, especially overseas students from Ryukyu. Wu Jizhi regarded them in the letters as “scholarly brethren studying abroad (游学诸兄)” (Fig. 3).¹⁵ Previous scholars has paid considerable attention to those Ryukyuan students, such as Hong Zhicheng (红之诚), Jin Wenhe (金文和), Cai Lian (蔡廉), Wang Bingyi (王秉懿), etc. (Note 2) Wu Jizhi himself also took the opportunity of a tribute mission to visit China and sought medical knowledge from the imperial physician Dai Wenyu [戴文煜, courtesy name Daoguang (道光)]. The preface to volume one of the Tenpo printed edition by Dai recorded that, “Today a Mr. Wu from the Ryukyu Kingdom, named Jizhi, came to tribute our reign carrying various medical illustrations. He inquired me about these medicines, their efficacies, and names (今有琉球国吴先生讳继志者，值贡期来朝我邦，带有诸药图式，询余地道，服性名目)”. The date at the end of this preface was the first month of winter in the



Figure 3 Letters by Wu Jizhi compiled in *Zhi Wen Ben Cao* (source with permission from: *Collection of Chinese-language Documents from the Ryukyu Kingdom*)

Chinese lunar calendar of the 49th year of the Qianlong reign (1784), indicating that Wu’s visit to China occurred in that year or shortly before.

Jiang also noted the different total numbers of medicinal plants identified by various Chinese scholars: “some identify seventy to eighty plant species in one volume, while others record about one hundred and twenty-three species across two volumes”. The different between numbers hold significance for determining the nature of the Okinawa edition. For example, Takatsu Takashi regarded the Okinawa edition as the earliest extant draft. From the varying specific counts identified by different Chinese scholars, it can be concluded that the Okinawa editor indeed was the draft copy.

The precise numbers of medicines identified by Chinese scholars could be easily confirmed, as records existed in the letters contained in the first volume of the Tenpo printed edition, as well as in prefaces and postscripts by Chinese doctors and scholars. For instance, Wu Jizhi’s letters mentioned “seventy to eighty species sent annually, with over one hundred species appended (岁七八十种，若百数种附之)”, while Chen Wenjin’s (陈文锦) preface referred to “eighty-two categorized items, grouped and divided, with sixteen detailed questions thoroughly explained (八十二条类折群分，一十六问详论细解)”. The preface by Pan Zhenwei (潘贞蔚) and Shi Jiachen (石家辰) stated that they “received eighty-two species (得八十有二种)”, and the two preface and postscript by Lu Shu (陆澍) also mentioned “eighty-two species (八十有二)”. All these letters and documents dated to 1782, indicating that Wu’s initial inquiries with Chinese doctors and scholars occurred in 1782. The total number of medicines he inquired about was 82.

Wu’s inquiries to Chinese doctors and scholars regarding medicines were not a singular event. After 1782, several responses from Chinese doctors and scholars were recorded in the first volume of the Tenpo printed edition in 1783 and 1784. The postscript by Zhou Tianzhang

(周天章) dated to the 48th year of Qianlong (1783) read that, “fifty items have been identified (兹检得五十条)”. Similarly, the preface by Pan Zhenwei and Shi Jiachen dated to the 49th year (1784) mentioned “an additional fifty types of medicine inquired about (复哀五十种下询)”. Additionally, the prefaces and letters by Sun Jingshan (孙景山) and Deng Lyuren (邓履仁), both dated in 1784, respectively noted “fifty species identified produced in your land (兹考贵地所产五十种者)” and “fifty species of herbs and wood from your country (贵国所产草本、木本共五十品)”. The number of 50 was different from the earlier cited number of 82, so that these were separate batches of medicines inquired.

Furthermore, in the autumn of 1785, Ryukyuan students Hong Zhicheng and Cai Lian brought illustrations of medicines to inquire Xu Huai [徐淮, courtesy name Ziling (子灵)], who named himself Xuting True Person (虚亭道人) in Fujian province. Xu recorded the number of inquired medicines as “more than seventy species (七十余种)”. In a letter written in the following year, Xu further stated that, “In the autumn of last year, two sirs surnamed Hong and Cai from your land, carrying two volumes of medicine illustrations totaling 123 species, came to inquire me about them (去岁乙巳之秋, 尊国红、蔡二先生, 携草木图二卷, 共一百二十三种, 来质于余)”. The number 123 might represent a third set of medicinal illustrations and specimens brought to China by Wu through Ryukyuan students.

In addition, the preface by Chen Zhuowei (陈倬为) written in 1786 included the phrase “accompanied by one volume of the *Bing Wu* manuscript (又付丙午帖一卷)”. The year 1786 corresponds to the *Bing Wu* (丙午) year in the Chinese sexagenary cycle, so the “*Bing Wu* manuscript” may refer to the volume of medicinal illustrations either created or brought to China in that year. The preface by Lin Qisong (林其嵩) written in 1789 stated that, “In late spring of this year, renowned people from the Ryukyu Kingdom, Mr. Cai Lian and Mr. Wang Bingyi, carried one volume of *Bing Wu* manuscript from Mr. Wu Jizhi, containing illustrations of seventy-two species of plants and medicines. They were instructed to have the illustrations evaluated and categorized (今岁己酉暮春, 有琉球国闻人, 蔡公名濂、王公名秉懿者, 袖吴公名继志丙午帖一册, 内绘草木七十二种, 属令分别品评)”. Xu’s letter was also written in the same year. As one of the Ryukyuan students who brought the illustrations to him was Cai Lian, it can be inferred that among the 123 species Xu mentioned, the 72 illustrated species seen by Lin Qisong were included.

We may conclude that between 1782 and 1789, Wu Jizhi entrusted Ryukyuan students to carry medicinal illustrations and specimens to China or personally traveled there to consult with Chinese scholars. The medicinal species inquired about could be categorized into at least three to four batches, which were 82 species, 50 species, and 123 species (which include the two batches of 72 and 50 species). The total number of species was

255, which precisely corresponded to the 255 medicinal illustrations recorded in the Okinawa edition. The three batches of medicinal substances Wu Jizhi inquired about closely correspond, one-to-one, with the numbers of medicinal illustrations in the three volumes of the Okinawa edition. The first batch of 82 species roughly matched the 81 illustrations in the first volume of the Okinawa edition. The second batch of 50 species corresponded to one of the two parts of the second volume of the Okinawa edition, but the exact part remains unclear. The third batch of 123 species included the 72 species in the “*Bing Wu* manuscript”, which closely aligned with the 74 species in the third volume of the Okinawa edition. Furthermore, the preface by Chen Zhuowei read that, “the illustrations are numbered and listed (一一按号, 臚列于后)”, which corresponded to the numbering of each illustration in the third volume of the Okinawa edition. The other 50 species within the 123 species may correspond to the second part of the second volume of the Okinawa edition. The minor differences might occur from adjustments made during the later compilation of the Okinawa edition.

The Kagoshima University edition concludes the following statement in “*Zhi Wen Ben Cao*: inner chapters: preface (《质问本草内篇·例言》)”:

“This collection includes the contents which have already been examined and judged, only the four volumes corresponding to the earthly branches *Chou* (丑), *Yin* (寅), *Mao* (卯), and *Chen* (辰) were included. Therefore, the collection consists of just over one hundred entries. In the future, on the day of *Gui Mao* (癸卯), inquiries will again be made concerning the *Yi Si* (乙巳) volume. If the examinations of several species be returned, then subsequent selected collections will also be compiled.

是选虽然既得鉴裁者, 唯丑、寅、卯、辰四帖耳, 故所选仅仅一百余种, 他日癸卯再问及乙巳帖, 若种盆数种相追而还, 则选集亦相嗣而出。”

The Kagoshima University edition was compiled in 1785 (*Yi Si* year). The reference to the “four volumes of *Chou*, *Yin*, *Mao*, and *Chen*” corresponds to the preceding four years, specifically from 1781 [*Xin Chou* (辛丑) year] to 1784 [*Jia Chen* (甲辰) year]. The preface mentioning these four volumes indicated the ongoing practice of overseas students bringing medicinal illustrations and specimens to consult with Chinese doctors and scholars, and such inquiries were conducted every year. The cumulative number of medicinal illustrations and specimens brought to China in these years aligned with the estimated number of the three to four batches discussed previously. Moreover, based on the letters and documents of Wu Jizhi, the earliest consultations with Chinese doctors and scholars began in 1782. So, the time when Wu collected medicines and created medicinal illustrations should be earlier. Stating that the activities began in 1781 was not contradictory.

The responses from Chinese doctors and scholars were not written on the medicinal illustration volumes,

but were instead written separately on additional sheets together with letters and prefaces. Wu Jizhi's letters mentioned that: "A separate set of blank sheets was enclosed with each volume, so that notes could be made regarding the herbs recorded... (别以所附之素叶子一卷, 与之每人, 使其书本草所载)". The preface by Pan Zhenwei and Shi Jiachen stated it as "detailed annotations were added afterwards (为细注于后)". Chen Zhuowei in his preface noted that responses were "arranged in sequence after the illustrations (牐列于后)", while the prefaces by Lu Jianqi (卢建其) and Lin Qisong mentioned that comments were "compiled on the left side in details (备列于左)" and "attached at the end of the book (附书于后)" respectively, confirming this practice. In the Okinawa edition, some medicinal illustrations had no text, while others included text. The text consisted of plant identification numbers (only in the first half of the second volume and in the third volume), descriptions of the plant's growing characteristics, and summaries of the responses by Chinese doctors and scholars. The responses included the name of each medicine, the parts used, the main indications, etc. If the medicine was unidentifiable, there would be a note stating the message. Each response was signed by the respective respondent. The handwriting on the texts accompanying the illustrations in the Okinawa edition was consistent, indicating that it was a compiled edition. However, as the compilation was not yet complete, it may still be accurately described as a "draft edition".

3 The Satsuma Medicinal Garden Bureau (萨摩药园署) and *Zhi Wen Ben Cao* (《质问本草》 Inquiry of Materia Medica)

Jiang Zhushan mentioned that during the governance of Tokugawa Ieyasu (德川家康), a nationwide survey of animal and plant products was launched around 1735. During this process, the 25th lord of the Satsuma domain, Shimazu Shigehide (岛津重豪, 1745–1833), who had a strong interest in natural history, actively promoted investigations into the domain's products and supported renowned scholars such as Tamura Ransui (田村蓝水) in completing works such as *Treatise on Products in Records of Messages from Zhongshan* (《中山传信录物产考》) and *Chronicles of Products from Ryukyu* (《琉球产物志》). From a perspective of natural history, Jiang argued that the compilation of *Zhi Wen Ben Cao* was related to this survey and was also influenced by *Chronicles of Products from Ryukyu*.¹² During the Edo period, nationwide surveys of products were conducted in Japan, though not merely once. Since Tokugawa Ieyasu passed away in 1616, Jiang's reference appears to be a clerical error. Nevertheless, his assertion holds validity in that the compilation of *Zhi Wen Ben Cao* might have a connection to these product surveys. Whether the

book was directly related to Shimazu Shigehide and how he influenced the compilation of *Zhi Wen Ben Cao* still required further detailed investigation.

Zeng Yuan (曾愿) stated in his postscript to *Zhi Wen Ben Cao* that:

"Towards the end of the An'ei era, (Wu) Jizhi came to reside here. Murata Keiyou (村田经船) at the domain government office persuaded him to inquire about the medicines without ceasing. Thereupon, Jizhi was deeply moved, and began to conceive the idea of inquiring medicines. In this way, Keiyou helped Jizhi by aiding him in the labor of gathering medicines and funding for the illustrations. His assistance was of great help to Jizhi. 向安永末年, 继志来寓, 于藩府村田经船劝之而不止。于是继志慨然, 始有质问之念。如是则经船实与有力。且采收分其劳, 绘画资其费, 亦不鲜焉。"

This paragraph is crucial as it revealed the following points: first, Wu had the intention to compile *Zhi Wen Ben Cao* as early as the late An'ei period (1772–1780), and he was encouraged by Murata Keiyou; second, during the process of collecting medicines produced in Ryukyu and illustrating their forms, Murata Keiyou provided support both in labor and financial resources.

We know very little about Murata Keiyou currently, but his identity deserved attention. According to the preface by Fujiwara Takayuki in the Tenpo printed edition, Murata once held the position of general superintendent of the Medicinal Garden Bureau. The Medicinal Garden Bureau, namely the Satsuma Medicinal Garden Bureau (萨摩药园署), was an official institution established during the tenure of Shimazu Shigehide by the Shimazu retainer Ano Gensai (阿野元斋) in 1780, as discussed in detail by Jiang Zhushan in his work. The Kagoshima University edition of "*Zhi Wen Ben Cao*: inner chapters: preface" also contained the phrase "our lord established the Medicinal Garden Bureau (我侯创建药园署也)", which supported this claim. Possibly due to General Superintendent Murata Keiyou's sponsorship of Wu Jizhi and their close relationship, the Satsuma Medicinal Garden Bureau probably participated in and obtained responses from Chinese doctors and scholars, compiling an alternative draft version of *Zhi Wen Ben Cao*, such as the versions held by Kagoshima University and the Nanki Bunko.

The Kagoshima University edition of *Zhi Wen Ben Cao* is housed in the Tamazato Bunko of Kagoshima University Library and formerly part of the Shimazu family collection, and is included and facsimiled in *Collection of Chinese-language Documents from the Ryukyu Kingdom*. The original manuscript was a handwritten copy with colored illustrations. Although it is now available only as a black-and-white facsimile edition, it remains evident that the original edition was exquisitely compiled. The complete work consisted of eight volumes, divided equally into four volumes of the inner chapters and four volumes of the outer chapters. Volume one of the inner chapters contained

correspondence between Wu Jizhi and Chinese doctors and scholars, as well as prefaces and postscripts authored by the Chinese doctors and scholars, totaling eleven pieces. Compared with the Tenpo printed edition, it lacked six texts, including the prefaces by Cai He (蔡贺), Xu Ziling (徐子灵) (with correspondence), Lu Jianqi, Lin Qisong, Xu Guanchun (徐观春), as well as two prefaces by Chen Zhuowei. This difference was due to the different compilation periods. The latest correspondence included in the Kagoshima University edition dated to 1784, whereas the six missing pieces were written between 1786 and 1789, and thus could not be included. Both volume two of the inner chapters and volume one of the outer chapters in the Kagoshima University edition contained a preface signed as “selected and compiled by the Satsuma Medicinal Garden Bureau in mid-autumn of the fifth year of Tenmei (1785, Yi Si year) (天明五年乙巳仲秋萨摩药园署编选)”. Hence, the compilation date of the Kagoshima University edition should be 1785, which corresponded to the 50th year of the Qianlong reign. In terms of content, the Kagoshima University edition recorded a total of 148 medicines, with 45 items in the inner chapters and 103 in the outer chapters, which was different from both the Okinawa edition and the Tenpo printed edition. Another significant difference from the Okinawa edition was that illustrations and texts were presented on separate pages, each occupying one page, following the format of the Tenpo printed edition.

The Nanki Bunko edition was also a handwritten copy with colored illustrations, and its calligraphy and illustrations were exquisitely executed. The title was *Draft Manuscript of the Outer Compilation of Zhi Wen Ben Cao* (《质问本草外编底稿》), and it contained only the four volumes of the outer chapters. The first volume began with a preface identical in content and authorship to that from the first volume of the outer chapters in the Kagoshima University edition. Upon examination, the Nanki Bunko edition was likely the draft manuscript for the Kagoshima University edition. This inference is supported by the self-identifying title as a “draft manuscript”. The content closely corresponded to that of the Kagoshima University edition’s outer chapters, with text being nearly identical and illustrations occasionally differing (Fig. 4). Notably, the Nanki Bunko edition featured the signature “Created by Haoxue (浩雪写真)” at the lower right of each illustration, which was absent in the Kagoshima University edition (Note 3). This suggested that the illustrations in the Kagoshima University edition were reproduced, and some went after adjustments. Furthermore, certain content revisions in the Nanki Bunko manuscript were inherited in the Kagoshima edition. For example, regarding the herb *Ye Qu* (野曲 *Sonchus Wightianus*), the Nanki Bunko edition contained an attached note stating that the depicted figure was actually *Hai Ai* (海艾 *Folium Artemisiae Argyi*), not *Ye Qu*, and the *Ye Qu* flower shape was drawn with an ink brush in addition to the original illustration. The

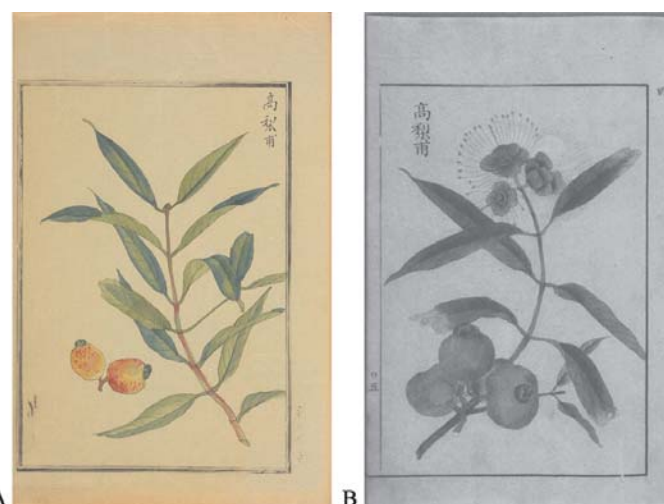


Figure 4 The Illustration of *Gao Li Fu* (高梨甫 *Pyrus Sorotina*): A Illustration in the Nanki Bunko edition (source with permission from: reproduced from Nanki Bunko, General Library, The University of Tokyo, <https://da.dl.itc.u-tokyo.ac.jp/portal/assets/71a27028-91d3-6f92-4ea9-ff83133a624c?pos=10>); B Illustration in the Kagoshima University edition (source with permission from: *Collection of Chinese-language Documents from the Ryukyu Kingdom*)

Kagoshima University edition has since replaced the *Ye Qu* illustration, and its flower form closely matched the ink-brush-drawn *Ye Qu* flower in the Nanki Bunko edition (Fig. 5).

Additionally, upon reviewing relevant online sources, another handwritten copy of *Zhi Wen Ben Cao* is known to exist in the Murano Bunko in Japan. The library’s catalog indicates that this work comprises four volumes, compiled by the Satsuma Medicinal Garden Bureau. The book dated to the fifth year of Tenmei (1785). Although the original manuscript has not yet been examined, based on comparisons with the Nanki Bunko edition, it is highly probable that this edition also served as



Figure 5 The Illustration of *Ye Qu* (野曲 *Sonchus Wightianus*): A Illustration in the Nanki Bunko edition (source with permission from: reproduced from Nanki Bunko, General Library, The University of Tokyo, <https://da.dl.itc.u-tokyo.ac.jp/portal/assets/e6f37bcc-38fe-0db3-855f-eefa8ad26599?pos=24>); B Illustration in the Kagoshima University edition (source with permission from: *Collection of Chinese-language Documents from the Ryukyu Kingdom*)

the draft version of the Kagoshima University edition, namely, *Draft Manuscript of the Outer Chapters of Zhi Wen Ben Cao* (Note 4).

As we identify the Nanki Bunko edition as the draft for the Kagoshima University edition, these two manuscripts can reasonably be considered as one for academic purposes. Compared with the Okinawa edition, this version was no longer a draft edition, and was much closer to the Tenpo printed edition in terms of format and structure. This manuscript was compiled in 1785 according to preceding analyses, and bore the signature of the “The Satsuma Medicinal Garden Bureau”, rather than Wu Jizhi. A detailed examination of the Kagoshima University and Nanki Bunko editions suggested that the Satsuma Medicinal Garden Bureau may have intentionally obscured the presence and contribution of Wu Jizhi in the compilation of *Zhi Wen Ben Cao*. Apart from the omission of Wu Jizhi’s name in the authorship, the preface to the inner chapters even appeared to deny Wu’s existence. Instead, the name “Wu Jizhi” was interpreted as a cryptic reference to the former lord (先侯). The statement was as follows:

“The name of Wu Jizhi is associated with a person from Zhongshan (Ryukyu), but is actually a fictitious name. Since many people named Wu lived in Zhongshan, the use of “Wu” was adopted as a surname for the author. With the former lord acknowledged China with abundant medical resources, he introduced certain medicines such as *Zhi Qiao* (枳壳 *Fructus Aurantii*), then the act of extending this legacy was regarded as inheriting his will (继志), hence he took the name Jizhi with the surname Wu as the author, with the courtesy name Zishan (子善). Later succeeding persons could also uphold this commitment, ensuring that the name would not be lost.

一，系之中山人，空拟人名。中山多吴氏，故以吴为姓。先侯既以唐山为证，若枳壳等诸药，皆移植之，斯举为善继其志，故名继志，字子善。尚后之人亦善继是志，不陨此名也。”

This interpretation was highly speculative. It was intended to glorify the achievements of the “former lord”. Takashi Takatsu drew on Zeng Can’s (曾燦) records in *Ben Cao Gang Mu Zuan Shu* (《本草纲目纂疏》 *Collection of Commentary on the Grand Compendium of Materia Medica*) regarding the transplantation of *Zhi Shi* (枳实 *Fructus Aurantii Immaturus*), argued that the “former lord” should refer to Shimazu Mitsuhide (岛津光久, 1616–1695), the second lord of the Satsuma domain. This argument is correct. In contrast, the founder of the Satsuma Medicinal Garden Bureau is referred to as “our lord (我侯)”, indicating Shimazu Shigehide. Jiang Zhushan noted that the compilation of *Zhi Wen Ben Cao* may have been promoted by Shimazu Shigehide, and his view held validity based on the activities of the Satsuma Medicinal Garden Bureau.

In Wu Jizhi’s earliest letters to his brethrens studying abroad, he stated that: “Our domain is as tiny as a mustard seed in the world, so that it boasts hardly any classics and there is no widely knowledgeable person.

When the local people are asked for the local plants from Tokara Islands and Yakushima, they could only blabber without clear explanations. It is because of this that I set up my mind for the endeavor (夫本藩不啻天地间一芥子，是以典籍匮乏，又无博览广闻者，所得其土噶喇、掖玖诸岛草木，问之土人，亦是朱离鸩舌，不足征也，故有此举)”. The statement indicated that the primary aim in compiling *Zhi Wen Ben Cao* was to take the assistance of Chinese doctors and scholars in accurately identifying medicinal plants produced within the domain. Consequently, the Okinawa edition included many rare or non-medicinal plants, while commonly used medicines were missing. The Satsuma Medicinal Garden Bureau sought to laureate the achievements of the “former lord” by defining this book as a literature on materia medica. They needed to explain the absence of frequently used medicines. The preface to the inner chapters offered the following reasoning:

“First, medicines were sent far to China to verify their authenticity. If there is no doubt about their qualities, why would the medicines be sent to China for inquiry? This is why medicines such as *Shan Yao* (山药 *Rhizoma Dioscoreae*) and *Fu Ling* (茯苓 *Poria*) are not included in this compilation. Some medicines have various types, and we need to confirm their authenticities, so that the related species are included in this manuscript. There are also medicines included to test the Chinese doctor and scholars for their reliability. This explains why herbs like *Chai Hu* (柴胡 *Radix Bupleuri*), *Chuan Xiong* (川芎 *Rhizoma Chuanxiong*), *Xin Yi* (辛夷 *Flos Magnoliae*), *Lian* (楝 *Fructus Toosendan/Melia*), and *Nyu Zhen* (女贞 *Fructus Ligustri Lucidi*) are included herein. As for *Zhi Ke*, the former lord once introduced it from China, and it is identical to that in China, leaving no room for dispute. *Long Yan* (龙眼 *Arillus Longan*), *Gan Lan* [橄榄 *Canarium album* (Lour.) *Rauesch.*], and *Shi Jun Zi* (使君子 *Fructus Quisqualis*) were also introduced from China and are unequivocal. These four types of medicines are accustomed to the southern climate and ill-adapted to the cold northern regions. They are truly the domain’s famous products. So, though they are not included in the inquiry list, they are placed at the beginning of this volume.

一，远质唐山，决真伪也，不疑何质？是所以山药、茯苓诸药不入斯编也。虽不属嫌疑，其多种类者，先质其真，附其种于其次者，亦有之。唯杂志帖中，以试彼说之苟不苟者，亦有之。今皆存之，是所以柴胡、川芎、辛夷、楝、女贞等入斯编也。若夫枳壳，则先侯尝致于汉，与汉无二，固无异论。若龙眼、橄榄、使君子，亦尝取于汉种，毫无疑窦。四者皆宜南土，不宜移寒北之地，实我藩之名品，故虽不在质问之数，选之卷首。”

From this quotation, one may discern certain principles guiding the Satsuma Medicinal Garden Bureau’s compilation of *Zhi Wen Ben Cao*. However, the preface to the outer chapters stated that: “Only those used in surgery or selected as curiosities are included in this volume, for example, the six items placed at the beginning are marvels of our domain. Hence, although they are not part of the inquiry list, they are nevertheless included (独系外科用者若属盆玩者选之斯篇，如卷首六品，则吾藩

之奇观，故虽不在质问之数，亦取之”。The statement further highlighted the intention to emphasize the richness of the Satsuma domain's natural products.

As the plants are “not part of the inquiry list”, they certainly lack accompanying textual descriptions. Supplementary information was necessary for the Satsuma Medicinal Garden Bureau to incorporate them into the book. The supplementation was obtained through *She Ren* (舌人 interpreter) with the name Gao Linzhi (高林枝), who inquired with Chinese merchants based in Nagasaki or those arriving by ship to Ryukyu. The book recorded that, “Since the inquiry was limited to one place and there was concern about incomplete verification, some information was obtained from Chinese merchants and foreign people in Nagasaki. On occasion, when ships from the Qing empire reached the harbor, the interpreter would pick stems and leaves to obtain identification and evaluation during receptions (唯质一方，恐有未审，故亦因于长崎，取唐商蛮人之说者有焉。或有清舶漂到这，舌人拈茎叶得鉴评于应接之际者，亦有焉)”. This mode of acquiring knowledge via inquiry added a new dimension to medical exchange and interaction in East Asia. Such methods were common in exchanges between Chinese and Japanese scholars. For example, in 1726, Chinese doctors surnamed Zhou and Zhu traveled from Nanjing to Japan by ship. Japanese scholars questioned them about the names and medicinal effects of certain plants and animals, recording the information in a book known as *Words in the Kyoho Era* (《享保复言》). Copies of this work are held by both the National Archives of Japan and the Kyo-U Library (杏雨书屋), representing another notable instance of medical exchange in East Asia.

This type of knowledge obtained through inquiry was absent in the Okinawa edition, indicating that it was a practice by the Satsuma Medicinal Garden Bureau. The Satsuma Medicinal Garden Bureau appended the Japanese names of each medicine to prevent confusion. These Japanese pronunciations noted in the Kagoshima University edition were subsequently adopted by the later Tenpo printed edition.

Based on the extant Kagoshima University edition, *Zhi Wen Ben Cao* compiled by the Satsuma Medicinal Garden Bureau had already taken substantial shape and was relatively complete, suggesting that it was intended for publication but ultimately failed. One possible reason for this was that the compilation was not fully complete. As noted in the preface to the inner chapters of the Kagoshima University edition, “In the future, on the day of *Gui Mao*, inquiries are made concerning the *Yi Si* volume. If the examinations of several species be returned, then subsequent selected collections will also be compiled (他日癸卯再问及乙巳帖，若种盆数种相追而还，则选集亦相嗣而出)”. According to this statement, inquiries to Chinese doctors and scholars continued even after 1785 and extended until at least 1789 or later. The additional content in the Okinawa edition

compared to the Kagoshima University edition primarily derived from responses obtained after 1785.

An intriguing phenomenon worth noting is that based on the Kagoshima University edition, it might be easily assumed that the Satsuma Medicinal Garden Bureau was responsible for hosting and conducting inquiries with Chinese scholars. However, the letters from Chinese scholars contained in volume one of the Tenpo printed edition consistently pointed to Wu Jizhi as the main interlocutor. The precise relationship between Wu Jizhi and the Satsuma Medicinal Garden Bureau remained unclear due to a lack of evidence, but Wu was not a member of the office. One piece of evidence was that Wu Jizhi, in his letters addressed to his fellow brethren studying abroad, described Ryukyu as a remote and isolated place where “it boasts hardly any classics and there are no widely knowledgeable persons (是以典籍匮乏，又无博览广闻者)”. In contrast, the preface to the inner chapters in the Kagoshima University edition referenced Chinese materia medica classics such as *Yi Fang Ji Jie* (《医方集解》 *Medical Formulas Collected and Analyzed*), *Tu Jing Ben Cao* (《图经本草》 *Illustrated Classic of Materia Medica*), and *Ben Cao Gang Mu* (《本草纲目》 *The Grand Compendium of Materia Medica*), indicating that such works were not truly scarce at the moment. At the same time, Chinese doctors and scholars replied precisely based on these texts. If Wu had been a member of the Satsuma Medicinal Garden Bureau, he would presumably have access to these materials, making the inquiries unnecessary. Furthermore, under the entry for *Ye Hui Xiang* (野茴香 *Fructus Foeniculi*) in *Zhi Wen Ben Cao*, there was a note stating “Jizhi was once a guest in Satsuma (继志尝客于萨摩之日)”, revealing that Wu was not native to Satsuma. Japanese scholar Higashionna Kanjun (东恩纳宽惇) suggested that Wu may have been Shimabukuro Kenryō's (岛袋宪亮) adopted son, Shimabukuro Kenki [岛袋宪纪, Chinese name An Chenglie (晏承烈)], who was tasked with investigating the medicinal plants of Ryukyu during his studies in Satsuma.¹⁶ However, Shimabukuro Kenki was not recorded as having traveled to China during his time in Satsuma. According to the preface by Dai Daoguang in volume one of the Tenpo printed edition, Wu personally brought “various medicinal illustrations (诸药图式)” to seek inquiry to China, posing further uncertainties about whether Wu Jizhi and Shimabukuro Kenki were the same person. If Wu was merely a student visiting Satsuma, he would not be a member of the Satsuma Medicinal Garden Bureau.

Zeng Pan, an ancestor of Zeng Yuan who wrote the postscript to *Zhi Wen Ben Cao*, once consulted a manuscript draft of *Zhi Wen Ben Cao* preserved in the Satsuma domain's educational institution (Fugaku) for compiling *Records of Local Products* (《物产志》). He copied part of the text and authored an article titled “A brief quotation of inquiring herbs and plants (质疑草木略引)”, in which he stated:

“The legitimacy of medicines should be determined based on classical sources, referencing various commentaries on materia medica. Our state has no official diplomatic relations with China, so even if some medicines are not identified, we can do nothing. However, Zhongshan, as a vassal of us, annually goes tribute to China. Therefore, our lord commanded the medicinal botanists of the Medicinal Garden Bureau to collect medicines, paste their flowers and leaves on sheets, to color and illustrate their depictions, carefully recording their places of origin, growth stages, and flowering periods. Furthermore, our lord sent orders to the King of Zhongshan, causing the annual tribute envoy Wu Jizhi to extensively inquire with renowned doctors and scholars in provinces south of Shengjing (Shenyang). If misidentifications occurred, repeated inquiries were made. This back-and-forth inquiry began in the first year of Tenmei (1781, *Xin Chou*) and ended in the *Yi Si* year (1785); the counterpart period spans from the 46th to the 50th year of Qianlong. The king then commissioned the court physician Wu Jizhi to complete the twelve-volume *Zhi Wen Ben Cao*, which is now housed in the Satsuma's education institute. Since I once consulted this book to compile *Records of Local Products* (《物产志》), I hereby copy its essential content to prevent loss.

药物当否当从古，因本草诸注取证而已。斯邦与唐山不得私交，是以虽其不审者，不能就而匡之也。独我附庸者中山，岁贡唐山。则我侯命药园生采集而药，腊粘其花叶，着色其图状，旁详录出产地，道及开落之候。而又请命之于中山王，使岁贡者吴继志，广质之于盛京以南各省诸县之名医硕儒，若误鉴评者，再三致以质焉。吴继志此质问往复始天明元年辛丑，终乙巳，彼则自乾隆四十六年至五十年。王乃命侍医吴继志竟乃编着色《质问本草》十二卷，今收萨之府学。槃尝编《物产志》，故参看此书，乃抄其匡略，以备遗忘耳。”

This passage mentioned both the Medicinal Garden Bureau and Wu Jizhi, attributing the inquiry efforts to “our lord”, the collection and illustration of medicinal materials to the Medicinal Botanical Office, and regarding Wu Jizhi as the “annual tribute envoy (岁贡者)” and later as the “court physician (侍医)”, thus reconstructing a new network of relationships concerning the book. Whether this reconstruction was entirely credible remained uncertain. However, according to Zeng Pan's account, Wu did travel to China, aligning with the records in the preface and postscript by Dai Daoguang in the Tenpo printed edition of *Zhi Wen Ben Cao*, stating that Wu personally consulted him with medicinal illustrations.

As previously noted, Wu had a close relationship with Murata Keiyou, the superintendent of the Satsuma Medicinal Garden Bureau, receiving his support in both the collection of medicines and the preparation of illustrations. In later stages, it was possible that the Satsuma Medicinal Garden Bureau became increasingly involved. Given that the Satsuma Medicinal Garden Bureau was able to compile the Kagoshima University edition, it must have obtained responses from Chinese doctors and scholars. What was intriguing, however, was why the Satsuma Medicinal Garden Bureau would deliberately erase Wu Jizhi's existence in the Kagoshima University

edition, even recasting his name as a pseudo name for the “former lord”. There might have been a falling out between the Satsuma Medicinal Garden Bureau and Wu in later stages. Consequently, it became difficult to definitively ascertain whether Wu or the Satsuma Medicinal Garden Bureau should be credited as the compiler of the Okinawa edition.

Another reason why the Kagoshima University edition was never published may be linked to the death of Shimazu Shigehide, as mentioned by Fujiwara Takayuki in his 1835 preface to the Tenpo printed edition: “The three lords who have passed away was delighted with it and ordered Murata Keiyou, superintendent of the Medicinal Botanical Office, to meticulously revise and annotate it with Japanese readings, intending to publish it within the domain so that the efficacy and toxicity of medicines might be well understood and appropriately used; however, the work was not completed before he passed away (故三位入道君夙得而喜之，命其药园署总裁村田经躬备加校订，附以和训，欲以刊布疆内，使审知其良毒主治，而用舍之，业未卒下世)”. Shimazu Shigehide passed away in 1833, nearly half a century after the compilation of *Zhi Wen Ben Cao* manuscript by the Satsuma Medicinal Garden Bureau in 1785, so that attributing the failure to publish the work solely to his death may be an oversimplification.

Within the half-century following its compilation, the manuscript of *Zhi Wen Ben Cao* was presumably kept at the Satsuma Domain's educational institution, but it was circulated in a certain manner. The preface written by Sugawara Toshiyasu in the Tenpo printed edition stated that, “As for *Zhi Wen Ben Cao* circulated among the society, it is uncertain what clever thief pilfered and copied it, scattering it among the people. After examinations, these scattered copies contain numerous inconsistencies and errors (然世所传《质问本草》者，不知何物狡儿窃夺抄录，落之人间。验其为书，鱼鲁亥豕，不一而足)”, indicating that various copies of *Zhi Wen Ben Cao* were in circulation. Sugawara Toshiyasu's preface was composed in a dialogic style. He borrowed the tone of the Satsuma lord's heir, Rinshū-kun (麟洲君, Shimazu Nariakira) (Fig. 6). This passage clearly expressed dissatisfaction regarding the extant transmitted copies of *Zhi Wen Ben Cao*. During the Tenpo era, the main transmitted versions of *Zhi Wen Ben Cao* were the Okinawa edition and the Kagoshima University edition. Any known copies must have been transcribed based on these two versions. It could be therefore inferred that Shimazu Nariakira's dissatisfaction was possibly directed towards the Kagoshima University edition, which appeared to excessively glorify the contributions of the “former lord”, and attributed a covert authorship to Wu Jizhi. It might explain why the Kagoshima University edition was never printed and published. As a result, in the Tenpo printed edition overseen by Shimazu Nariakira, the preface to the inner chapters and the preface to the outer chapters from the Kagoshima University



Figure 6 Preface of *Zhi Wen Ben Cao* by Sugawara Toshiyasu (菅原利保) (source with permission from: *Collection of Chinese-language Documents from the Ryukyu Kingdom*)

edition were both omitted. A newly written preface to *Zhi Wen Ben Cao* was placed at the beginning of the entire work, and the authorship was attributed to “Wu Jizhi from Zhongshan, whose courtesy name was Jishan (中山吴继志子善)”, rather than the Satsuma Medicinal Garden Bureau. The new preface partly referenced the Kagoshima University edition’s preface to the inner chapters, as evidenced by phrases such as “from the 46th year of the Qianlong era (1781) to the 50th year (1785) (自乾隆四十六年辛丑至五十年乙巳)”, despite the fact that the inquiry activities continued after the 50th year of Qianlong. Therefore, this subsequently composed preface to *Zhi Wen Ben Cao* was not a reliable scholarly source and should not be regarded as an original work of Wu Jizhi. Furthermore, the content attributed to Wu Jizhi in the Tenpo printed edition—compiled and edited under the name of the Satsuma Medicinal Garden Bureau—cannot be considered fully trustworthy for research purposes.

The Tenpo printed edition of *Zhi Wen Ben Cao* was presumably completed based on the Kagoshima University edition, as it contained 160 medicines, which corresponded to the main body of the Kagoshima University edition. Differences lay with the primary addition of 22 medicines in an appended volume. Certain medicines such as *Shou Lan* (寿兰 *Kalanchoe Blossfeldiana*), which were included at the beginning of the outer chapters in the Kagoshima University edition and labeled as “not part of the inquiry but rather curiosities of our domain”, were removed or partially repositioned into the appendix. The first volume of the inner chapters also included letters and prefaces written by Chinese doctors and scholars in response after the 50th year of the Qianlong reign. Unfortunately, medicines queried from Chinese doctors and scholars after the 50th year of Qianlong were not supplemented in this edition.

The reason Shimazu Nariakira chose to publish *Zhi Wen Ben Cao* appeared to be inheriting his ancestors’ legacy, as expressed in Fujiwara Takayuki’s preface: “What the father and grandfather created, the descendants narrate (父祖所创, 子孙述之)”. This aligned with the statement in the postwords to *Zhi Wen Ben Cao* expressing the intent to “continue the will of my ancestors (绍曾祖考之遗志)”. However, Nariakira’s father, Shimazu Shigehide, who ruled the Satsuma Domain for several decades and was a well-known natural history enthusiast, clearly possessed the ability to publish *Zhi Wen Ben Cao*. Shimazu Nariakira’s purpose in publishing this work was more about resolving this historical relationship, to restore Wu Jizhi’s authorship and rehabilitate his ancestors’ reputation. Consequently, there was neither the necessity nor intention to extensively revise or meticulously verify *Zhi Wen Ben Cao*. Although the Tenpo printed edition became the authorized text, compared to the Okinawa edition, it contained significantly fewer medicines, and is not considered the best version of *Zhi Wen Ben Cao* for scholarly study.

At the same time, Zeng Yuan mentioned in postwords to *Zhi Wen Ben Cao* that, “I once heard (Wu) Jizhi had an intention to inquire more in his later year, but he unfortunately passed away before he could achieve that. His successors inherited his will without ceasing, and compiled a number of volumes of *Xu Zhi Wen Ben Cao* (《续质问本草》 *Supplement to Inquiry of Materia Medica*) in a few years. It was a pity that the book was never published (愿尝闻继志晚年有再质之举, 而不幸下世, 其子承成嗣业弗懈, 更往复数年, 亦著《续质问本草》若干卷, 惜哉, 其书未致焉)”. *Xu Zhi Wen Ben Cao* is not scholarly found today. However, even if the book was finished, it could hardly be published due to the Satsuma Medicinal Garden Bureau.

4 Conclusion: *Zhi Wen Ben Cao* and the interaction of medical knowledge in East Asia

Zhi Wen Ben Cao possesses multiple natures. It is a materia medica text, exhibits characteristics of natural history, and has attracted scholarly attention due to its exquisite illustrations. Considering its purpose and method of compilation, the work should primarily be regarded as a materia medica book. The reasons are as follows:

First, the initial purpose of Wu Jizhi in compiling this work was to accurately identify medicine. He mentioned that, “Men cannot live without medicines in the face of illness. Even if there were medicines, the internal organs could be poisoned due to failure to distinguish their authenticities, resulting in untimely death, which is such a fearsome outcome (苟有疾病, 不可无药种, 纵令有药材, 不辨其真伪, 辄毒其肺腑, 使人死非命, 可畏之甚者)”. From the perspective of the Satsuma Medicinal

Garden Bureau, the book was also regarded as a *materia medica* text. This is evident from frequent references to “medicinal substances (药物)” in the preface to the inner chapters, as well as dividing the text into “Inner Chapters” and “Outer Chapters”, which corresponded to medicines used for internal and external treatments respectively. Second, overseas students primarily consulted doctors and pharmacists when they brought illustrations and plants to China. Occasionally, officials and scholars were involved, but their assessments and responses mostly focused on identifying medicines based on *materia medica* knowledge and the illustrations. In other words, the book’s main content was grounded in *materia medica* expertise. Third, although the compilation method of *Zhi Wen Ben Cao* was unique, its overall structure resembled that of Chinese *materia medica* works. After its completion, it was recognized both in Japanese and Chinese scholarly communities as a *materia medica* text.

In Jiang Zhushan’s works, *Zhi Wen Ben Cao* was primarily regarded as a work of natural history, resulting in a substantial portion of his discussion being framed from the perspective of natural history. *Materia medica* texts often incorporate elements of natural history, and Jiang’s approach is undoubtedly valuable. Nevertheless, evaluating *Zhi Wen Ben Cao* from the standpoint of a *materia medica* work might better illuminate its significance in the dissemination and interaction of medical knowledge in East Asia.

As indicated above, *Zhi Wen Ben Cao* is a direct product of medical knowledge interaction in East Asia. We may probe into the details within this process, with the book as a case study. Regarding interaction modes, *Zhi Wen Ben Cao* encompassed all forms of medical knowledge exchange in East Asia, including face-to-face consultation, written inquiry, and communication via interpreters, etc. Particularly noteworthy in this process was the role of imagery, which held significant value in facilitating the interaction and exchanges of medical knowledge.

When Wu Jizhi initially entrusted overseas students with the task of consulting Chinese doctors and scholars, he provided them with two forms of materials: illustrations and specimens of plants, as described in his letters: “all plants were carefully illustrated and the specimen affixed beside the illustration (悉图写之, 且贴其真于其旁)”. However, the specimens presented several problems. First, due to differences in place of origin, climate, and soil fertility, the same plant would not grow identically in every location. For example, regarding the entry for *Yuan Zhi* (远志 *Radix Polygalae*) in *Zhi Wen Ben Cao*, in 1783, Pan Zhenwei and Shi Jiachen identified the specimen as *Yuan Zhi*. In 1785, Wu Jizhi consulted them again because the roots appeared small and seemed unfit for medicinal use. Pan and Shi responded that, “the small size was simply due to thin soil, and that the plant was still

suitable as medicine (根之小, 不过地土薄耳, 堪以入药)”. Second, specimens were prone to deterioration. The preface by Pan Zhenwei and Shi Jiachen noted, “Since the commencement of sea voyages, dried specimens have experienced changes in color and flavor, raising concerns about their reliability (然自航海以来, 干枯之品, 色味变易, 不无疑似之虑)”. Third, specimens could only represent a fixed stage of growth and could not convey the entire developmental process necessary for accurate identification. Lu Shu observed that, “For other unnoted items, they could not be identified with certainty, and require further examinations of branches, leaves, flowers, fruits, and bark. For example, *Bai Zhi* (白芷 *Radix Angelicae Dahuricae*) and *Hou Po* (厚朴 *Cortex Magnoliae Officinalis*) must possess both fresh and dried states to be carefully assessed to confirm their true identity (其余未注诸品, 内多疑似, 尚需枝叶、花果、根皮。如白芷、厚朴者, 嫩枯俱备, 徐徐考核, 务得名真性确)”. Consequently, during later inquiries, the students brought some medicinal plants as potted specimens into China. Potted plants were inconvenient to transport, and specimens remained unreliable, so that the illustrations became especially important and were highly valued by Chinese doctors and scholars. This is evidenced by remarks such as “therefore, the illustrations were examined carefully (故为将所画之图用心细察)” (postwords by Zhou Tianzhang) and “meticulously examining illustrated books (滋细阅图书)” (Sun Jingshan’s letters). After 1785, when students further consulted figures such as Xu Ziling (徐子灵), Chen Zhuowei, and Lu Jianqi, they carried only illustrations, without specimens or potted plants.

Overreliance on illustrations during interactions and exchanges could cause additional problems. For instance, when there was an unequal knowledge of medicinal illustrations between both parties, communication would fail to continue. A notable issue was that Chinese doctors and scholars had limited knowledge of medicinal illustrations, and they could only respond with “I don’t know” or made incorrect judgments when questioned by Wu Jizhi about most medicines.

Chapter six of *Yao Lin Wai Shi* (《药林外史》 *The Unofficial History of Materia Medica*), “The evolution of *materia medica* illustrations (本草插图的演变)” compiled by Zheng Jinsheng (郑金生) is a systematic study of *materia medica* illustrations.¹⁷ Zheng classified these illustrations into two types: realistic and artistic. According to his research, the earliest existing block-printed realistic illustrated *materia medica* work is *Ben Cao Tu Jing*. However, due to limitations in printing technology, its illustrations were not very refined. By the Ming dynasty, scholars started to recognize the importance of *materia medica* illustrations. *Jiu Huang Ben Cao* (《救荒本草》 *Materia Medica for Famine Relief*) published in 1406 pioneered a realistic illustrating style that gradually aligned with the spirit of modern scientific illustrations. In the Qing dynasty, Wu Qijun’s

(吴其浚) *Zhi Wu Ming Shi Tu Kao* (《植物名实图考》 *Illustrated Reference of Botanical Nomenclature*) published in 1846 inherited the realistic style, and became a materia medica illustrated work comparable to *Jiu Huang Ben Cao*. Additionally, within realistic illustrations, there was a category emphasizing medicinal parts, represented by *Ben Cao Yuan Shi* (《本草原始》 *Origins of the Materia Medica*) published in 1612. Therefore, in the late 18th century, when Wu Jizhi consulted Chinese doctors and scholars for verification, illustrated materia medica works with highly academic values available to them included at least *Jiu Huang Ben Cao* and *Ben Cao Yuan Shi*.

Jiang Zhushan's article includes a statistical summary of the reference works consulted by Chinese doctors and scholars when responding to Wu Jizhi's inquiries. The texts cited were *Ben Cao Gang Mu*, *Ben Cao Bei Yao* (《本草备要》 *Essentials of Materia Medica*), *Yi Lin Zheng Zong* (《医林正宗》 *Orthodox Lineage of Medicine*), and *Wai Tai Mi Fang* (《外台秘方》 *Arcane Essentials from the Imperial Library*). *Ji Jie* was also mentioned (Note 5). The book should refer to Wang Ang's (汪昂) *Yi Fang Ji Jie*, and *Wai Tai Mi Fang* probably corresponded to *Wai Tai Mi Yao Fang* (《外台秘要方》 *Arcane Essential Formulas from the Imperial Library*). Both books were treatises focused on medical prescriptions. *Yi Lin Zheng Zong* authored by Rao Peng [饶鹏, courtesy name Jiuwan (九万)] in the Ming dynasty was a comprehensive clinical medical work that did not include materia medica illustrations. Therefore, the materia medica illustrated knowledge referenced by Chinese doctors and scholars primarily derived from *Ben Cao Gang Mu* and *Ben Cao Bei Yao*.

When first published, the illustrations in *Ben Cao Gang Mu* were created by Li Shizhen's descendants, but the artwork was crude. According to Zheng Jinsheng, "The line work of illustrations is rough and the compositions are simple. Compared to the dedicate Song dynasty *Ben Cao Tu Jing* and the Ming dynasty *Jiu Huang Ben Cao*, the quality of its illustrations falls far short".¹⁷ When *Ben Cao Gang Mu* was reprinted in 1640 and again in 1885, its illustrations were recreated and significantly improved.

Ben Cao Bei Yao, authored by Wang Ang, was compiled by selecting the essentials and revising content from works such as *Ben Cao Gang Mu* and *Ben Cao Jing Shu* (《本草经疏》 *The Classic of Materia Medica*). The original edition was published without illustrations. An additional volume of illustrations of medicines was added later when the text was reviewed by Wu Qian (吴谦) and included in *Yi Zong Jin Jian* (《医宗金鉴》 *Golden Mirror of the Medical Tradition*), published in 1742.¹⁸

At present, it is no longer possible to determine which editions of *Ben Cao Gang Mu* and *Ben Cao Bei Yao* were consulted by Chinese doctors and scholars at the time. It is certain, however, that their knowledge

of materia medica illustrations was limited. They were generally unfamiliar with materia medica works beyond *Ben Cao Gang Mu* and *Ben Cao Bei Yao*. This limitation may relate to the practitioners' level of expertise and education. Another possible reason was that the doctors and scholars inquired by Wu Jizhi were mostly from Fujian province or worked as doctors or officials within Fujian. Due to regional constraints, many materia medica illustrated works may have been inaccessible to them. The information left by these doctors and scholars was limited, and they may have referenced other works that were not documented, making it impossible to know their full scope of references today.

The medicinal illustrations created by Wu Jizhi under the sponsorship of the Satsuma Medicinal Garden Bureau were drawn from life, and from a contemporary perspective, exhibited a relatively high level of artistic skills. These illustrations were colored paintings, which differ significantly from traditional line-engraved images. As a result, many medicines, even those recorded in *Ben Cao Gang Mu*, were either unrecognizable or often misidentified by Chinese doctors and scholars, leading to varied identifications for the same plant. This phenomenon has been thoroughly analyzed in previous scholarly works and will not be elaborated here.

It is evident from the compilation process of *Zhi Wen Ben Cao* that compared to Wu Jizhi and the compilers from the Satsuma Medicinal Garden Bureau, Chinese doctors and scholars possessed a richer knowledge of medicines. However, when confronted with the materia medica illustrations created by Wu Jizhi and the Satsuma Medicinal Garden Bureau, not all questions could be answered conclusively, and some remained contentious. This circumstance was due to the extent of medicinal knowledge held by Chinese doctors and scholars, but it also revealed the complexity of the interactions and exchanges of medical knowledge in East Asia. It was not simply a unidirectional flow from China to neighboring countries. The acceptance and integration of Chinese medical knowledge in surrounding regions were highly complex, potentially influenced by political and other factors, which require multifaceted investigation.

Notes

1. Other manuscript copies include the Nishihara Town Library's copy of *Zhi Wen Ben Cao* dated 1880, etc. They are not closely related to the compilation of *Zhi Wen Ben Cao* and therefore will not be the primary focus of this study. For detailed examination, please refer to the relevant research by Professor Takatsu Takashi. The Kyo-U Library also holds a colored handwritten manuscript of *Zhi Wen Ben Cao* with a preface dated 1785, catalogued as No. 5301. According to the Kyo-U Library catalog, this manuscript presumably contains eight volumes in total, with four volumes on the

inner chapters and four on the outer chapters. The manuscript was not available, and specific details remained unclear.

2. For further reference, see: Xu K. *A Study on the Ryukyuan Students in China* (琉球王国赴华留学生研究) [dissertation]. Fuzhou: Fujian Normal University; 2019. p. 227–231. Chinese. Xie C, Xie BZ. The Ryukyuan students studying in China and the spread of Chinese medicine in Ryukyu Islands (来华琉球留学生与中华医药学的琉球传播). *Southeast Academic Research*. 2020;(5):199–205. Chinese. Both articles provide detailed discussion on Jin Wenhe but do not cover Cai Lian and Wang Bingyi. The latter two names were listed in volume one of the printed edition of *Zhi Wen Ben Cao* published in 1837, in the prefaces by Lu Jianqi and Lin Qisong (1789). According to the table of students to China appended at the end of Xu's dissertation, Wang Bingyi departed for China in the fourth lunar month of 1785 and returned in the ninth lunar month of 1788, as recorded in *Kumemura Genealogy* (『久米村系家谱』).

3. There is no evidence indicating the identity of Haoxue (浩雪).

4. In his article “Variants of *Zhi Wen Ben Cao*” [See: Masamune G. Variants of *Zhi Wen Ben Cao* (质问本草の异本). *Geography*. 1982;33:5–6. Japanese.], Masamune Genkei (正宗严敬) reported having seen a manuscript version formerly belonging to the Manko Bunko (万香文库) collection of Maeda Toshiyasu (前田利保), comprising volumes 2 and 3 of *Zhi Wen Ben Cao*. He claimed that the version contained the preface to the inner chapters and the authorship was signed as “Compiled by the Satsuma Medicinal Garden Bureau in mid-autumn of the fifth year of Tenmei (Yi Si year) (天明五年乙巳仲秋萨摩药园署编)”. Judging by its illustrations and descriptions, the two volumes corresponded to volumes 2 and 3 of the inner chapters of *Zhi Wen Ben Cao*. Masamune Genkei speculated that this manuscript was a pre-publication version sent to materia medica scholars for their commentary. He further noted that the manuscript exists in multiple volumes and that he had encountered copies in used bookstores in Kagoshima and Kanda. These various copies may not be identical, but based on their description and date, the Murano Library manuscript, also dated to the fifth year of Tenmei, belonged to the same textual tradition as the Kagoshima University and Nanki Bunko editions, even if it is not strictly the draft of the inner chapters.

5. In the replies by Dai Daoguang and Dai Changlan (戴昌兰), a book titled *Ben Cao* (《本草》 *Materia Medica*) was also mentioned, described as “contained in *Ben Cao* (载在《本草》)”, etc. The title *Ben Cao* as a book generally refers specifically to materia medica works centered around *Shen Nong Ben Cao Jing* (《神农本草经》 *Shennong's Classic of the Materia Medica*), though the specific reference varied across different eras. However, other answers by Dai Daoguang and Dai Changlan explicitly referred to “contained in *Ben Cao*

Gang Mu (载在《本草纲目》)”, which clarifies that *Ben Cao* in this context denoted to *Ben Cao Gang Mu*.

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The study does not contain any studies with human or animal subjects performed by the author.

Author contributions

YU Yeli did the research and drafted the manuscript.

Conflicts of interest

The author declares no financial or other conflicts of interest.

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Rethinking Ancient Learning: The Japanese Kohō School and Medical Knowledge Exchange in Early Modern East Asia

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Abstract

During the 17th and 18th centuries, medical exchanges between Japan and China were frequent and intensive. In the 17th century, due to the wars during the Ming-Qing transition, numerous Chinese physicians came to Japan, bringing with them advanced medical techniques and newly published medical texts. In the early 18th century, following Tokugawa Yoshimune's (徳川吉宗) implementation of medical reform policies, many Chinese physicians arrived in Japan. There, they exchanged knowledge with Japanese physicians and facilitated the publication of Chinese medical texts in Japan. These exchanges significantly increased attention to Chinese medical works, particularly *Shang Han Lun* (《伤寒论》 *Treatise on Cold Damage*), within Edo medical circles. This had a profound impact on physicians of the Japanese Kohō school (古方派) and significantly contributed to shaping Kampō medicine into its contemporary form. From the perspectives of intellectual history and knowledge exchange, this paper explores the circulation of medical knowledge between China and Japan during the early modern period, examining its profound historical influence on Japanese medicine. The study specifically aims to clarify the authentic meaning of "Ancient Learning (复古)" and to correct the prevailing academic misconception that the Kohō school exclusively focused on reviving *Shang Han Lun*.

Keywords: East Asian cultural sphere; Medical knowledge; Kohō school (古方派); "Returning to Ancient Learning (复古)"; *Shang Han Lun* (《伤寒论》 *Treatise on Cold Damage*)

1 Introduction

Early modern Japanese medicine shared a close relationship with East Asian medicine, evidenced in particular by the migration of medical practitioners. Many Japanese physicians traveled with envoys to China to study medicine, returning with various Chinese medical texts. In addition, Chinese physicians migrated to Japanese cities, enriching the exchange of medical knowledge. The first significant wave of migration occurred during the 40 years of the Ming-Qing transition. Amid the turmoil following the fall of the Ming dynasty, numerous physicians sought refuge in Japan. A second wave of migration occurred during the rule of Tokugawa Yoshimune (徳川

吉宗, r. 1716–1745; 1684–1751), who had implemented a series of medical policies as part of the Kyōhō reforms. These reforms included inviting skilled Chinese physicians to Japan, importing medical books, and promoting the localization of medicinal herbs, such as ginseng.

During the Kyōhō Era (享保, 1716–1736), many Chinese physicians predominantly arrived in Nagasaki, a vital port city. They not only practiced medicine but also introduced and interpreted Chinese medical texts in the city, fostering exchanges with Japanese physicians (Fig. 1). In the 17th and 18th centuries, most Chinese physicians who traveled to Japan came from Suzhou (苏州), Ningbo (宁波), and Fujian (福建), key departure ports for Chinese ships bound for Japan. Among these regions, Jiangnan area, including Suzhou and Ningbo, stood out as a major center of medical scholarship, where many renowned physicians dedicated themselves to studying *Shang Han Lun* (《伤寒论》 *Treatise on Cold Damage*),¹ a seminal medical masterpiece by Zhang Zhongjing (张仲景, late 2nd-early 3rd century). This focus on *Shang Han Lun* fostered a strong tradition of its study, which, upon the arrival of these physicians in Japan, contributing to a growing interest in this text within Edo Japan. The text caught the attention of Japanese physicians of the Kohō school (古方派), who studied and annotated it in their manner. According to Hiroshi Kosoto (小碓浩), as many as 400 commentaries on *Shang Han Lun* were written during the Edo period,

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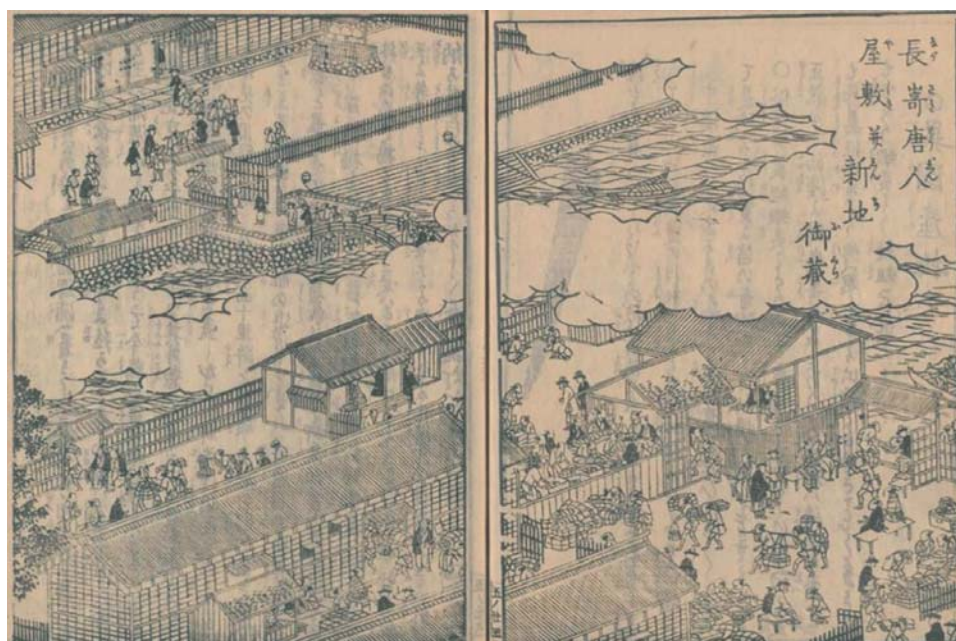


Figure 1 The Old Chinese Quarter in Nagasaki (『長崎唐人屋敷』) [source with permission from: *Nihon Sankai Meisan Zue* (『日本山海名産図会』) *Illustrated Famous Products of the Mountains and Seas of Japan*, Volume 5, National Diet Library Digital Collection]

making it the most extensively studied medical text of the time.² Furthermore, *Shang Han Lun* circulated widely in early modern East Asia, with the number of commentaries in Japan surpassing those in both China and Korea during the same period.

Previous studies have often linked the medicine of the Kohō school to the development of medical empiricism and the spread of Western medicine.^{3–5} Alternatively, the Kohō school has been narrowly defined as a medical tradition that exclusively honored *Shang Han Lun*,^{6,7} positioning it as the opposite of the Japanese Gosei school (后世派). However, few comprehensive studies have examined the concept of “Returning to Ancient Learning” among Japanese physicians.^{8,9} To comprehend the transformations in Japanese medicine during the 17th and 18th centuries, it is essential to examine them within the broader East Asian context. This paper explores the exchange of medical knowledge between China and Japan during the 17th and 18th centuries, with particular focus on the arrival of Chinese physicians and the dissemination of Chinese medical texts during the early 18th-century Edo period. This exchange was facilitated by the medical reform policies implemented by Tokugawa Yoshimune. Additionally, by examining the evolution of Confucian thought during this period, the paper aims to highlight the historical context behind the rise of the Kohō school, analyze the meaning of “Ancient Learning (古学)”, and clarify current misunderstandings surrounding the Kohō school within the academic community.

2 The Gosei School (后世派) in Japan and early modern East Asian medicine

Before exploring the emergence of the Kohō school, it is crucial to examine the characteristics of the Gosei

school, which wielded significant influence in Japan before the rise of the Kohō school. Manase Dōsan (曲直瀬道三, 1507–1594), the most influential figure of the Gosei school, was a prominent physician active during Japan’s Warring States period. Serving both the imperial court and Shogunate, he mentored numerous disciples and dominated Japanese medicine until the mid-Edo period. Besides studying under Tashiro Sanki (田代三喜, 1465–1537), founder of the Gosei school, Dōsan also acquired medical knowledge of the Ming dynasty via Sakugen Shūryō (策彦周良, 1501–1579), a Tenryū Temple (天龙寺) monk and envoy to China in 1539 and 1547. He brought Japan many Chinese books that were later reprinted and distributed during the Edo period. Shūryō stayed in China during the Jiajing era (嘉靖, 1522–1566) of the Ming dynasty, during which he gathered the latest information about medicine and numerous medical books for Dōsan after he returned to Japan.¹⁰ The period until mid-Edo is characterized by the absolute influence exerted by the Ming Dynasty medical books, especially the Jiajing edition.¹

Dōsan’s masterpiece, *Keitekishū* (『啓迪集』 *Textbook of Medical Philosophy and Experiences on Medicine*), compiles 64 medical treatises from the Song, Yuan, and Ming dynasties, shaping the trajectory of later medical practice. Among the five most frequently cited books in this collection, many were authored or edited by Ming dynasty physicians (Note 1), with the Jiajing edition being the most prevalent. Furthermore, Dōsan also valued the medicine of the four great medical masters in the Jin-Yuan period (金元四大家), a term referring to the four eminent physicians of the Jin and Yuan dynasties, Liu Wansu (刘完素), Zhang Zihe (张子和), Li Dongyuan (李东垣) and Zhu Danxi (朱丹溪).

Dōsan's disciples inherited and refined his medical ideas to align with changing times. Manasei Shōrin (曲直瀬正琳, 1565–1611), one of his disciples, had a collection of Korean-printed Chinese medical books and Korean medical books.¹¹ Thus, the physicians of the Gosei school paid attention not only to Chinese medicine but also to Korean medicine. Furthermore, As traditional Chinese medical texts continued to be imported and the book-printing industry advanced, the physicians of the Gosei school were actively engaged in interpreting these medical texts concisely and clearly. For example, Okamoto Ippo (岡本一抱, 1654–1716) employed a mix of kanji and kana to make Chinese medical texts more accessible (Note 2). These efforts highlight how the Gosei school remained focused on Chinese and Korean medical texts, while also adapting to local needs within Japan.

Gosei school incorporated metaphysical theories such as “yin-yang and the five elements” and the doctrine of “the five viscera and six bowels”, reflecting Neo-Confucianism influences. They prioritized classical Chinese texts such as *Huang Di Nei Jing* (《黄帝内经》 *The Yellow Emperor's Inner Classic*) and *Nan Jing* (《难经》 *Classic of Difficult Issues*). In addition to writing medical books, the physicians of the Gosei school were active in compiling books on herbal medicine. For example, Dōsan authored *Gikin Honzō* (『宜禁本草』 *Herbal Medicine of the Suitable and Prohibited*), a pioneer work on dietetic materia medica in Japan; his adopted son Manase Gensaku (曲直瀬玄朔, 1549–1632) compiled *Nichiyōshokusei* (『日用食性』 *Food Habits for Daily Use*), being published multiple times during the Edo period and significantly impacting contemporary dietetic materia medica texts. It is worth emphasizing that this book was the first in Japan to cite *Ben Cao Gang Mu* (《本草纲目》 *The Grand Compendium of Materia Medica*) in dietetic contexts. Published in Nanjing in 1596, *Ben Cao Gang Mu* reached Japan by 1604 and underwent 14 editions across six versions during the Edo period.¹² In 1607, Hayashi Razan (林罗山, 1583–1657), a Neo-Confucian scholar of the early Edo, obtained the book in Nagasaki and presented it to Tokugawa Ieyasu (徳川家康, r. 1603–1605; 1543–1616). *Ben Cao Gang Mu* significantly influenced Japanese medicine and herbal studies throughout the Edo period, exerting profound influence on the establishment and development of Japan's natural history. Manase Gensaku was one of the earliest medical practitioners to study *Ben Cao Gang Mu*.

As demonstrated above, whether through Manase Dōsan, Manase Gensaku, or their disciples, physicians of the Gosei school consistently focused on Ming dynasty medical and materia medica texts. Therefore, equating Gosei medicine solely with Jin-Yuan medicine is an oversimplification, as the school evolved continuously over time. However, previous studies have primarily centered on prominent figures such as Manase Dōsan, leading to

a limited understanding of this school. To gain a more objective and comprehensive perspective, it is crucial to examine physicians active from the mid-17th century onward, such as Okamoto Ippo. Even in the latter half of the 17th century, as the Kohō school emerged, its physicians inherited and further developed aspects of Gosei medicine. While the Kohō school is often described as an antithesis to the Gosei school, early Kohō physicians like Gotō Konzan and Kagawa Shūan, who will be discussed later, actively incorporated elements of Manase Dōsan's medical practices rather than outright rejecting them.

3 The exchange of medical knowledge between China and Japan in Nagasaki

3.1 The ascendance of *Shang Han Lun* Studies in the Edo period

From the late Ming to the Qing dynasty, there was a boom in the study of *Shang Han Lun* by medical practitioners in China, such as Fang Youzhi (方有执), Yu Chang (喻昌), and Cheng Yingmao (程应旆). Their works related to *Shang Han Lun* were later introduced to Japan. According to Mayanagi's research on the earliest records of texts from the “Cuo Jian Chong Ding School (错简重订派)” in Japan, Fang Youzhi's *Shang Han Lun Tiao Bian* (《伤寒论条辩》 *Systematic Analysis of the Treatise on Cold Damage Diseases*) arrived in 1653, Yuchang's *Shang Han Lun Shang Lun Pian* (《伤寒论尚论篇》 *Exalted Discourse on the Treatise on Cold Damage Diseases*) was imported into Japan in 1688, and Cheng Yingmao's *Shang Han Lun Hou Tiao Bian* (《伤寒论后条辩》 *Supplementary Analysis of the Treatise on Cold Damage Diseases*) was brought to Japan in 1688. The first Japanese edition, *Shang Han Lun Shang Lun Pian*, was published in 1696, followed by the Chinese version of *Shang Han Lun Shang Lun Pian* in 1704 and *Shang Han Lun Tiao Bian* in 1723.¹³ Prior to the introduction of these texts to Japan, *Shang Han Lun* was not widely known among Japanese physicians. Under the influence of the Gosei school, *Huang Di Nei Jing* and *Nan Jing* remained more influential until the mid-18th century.

Shang Han Lun is often associated with the Kohō school, particularly Yoshimasu Tōdō (吉益东洞). However, many physicians outside the Kohō school also paid great attention to *Shang Han Lun*. Okamoto Ippo, a physician of the Gosei school, wrote *Ikeisokai Shū Wagoshō* (『医経溯洄集倭語鈔』 *Japanese Annotated Edition of the “Retrospective Compilation on Medical Classics”*) using a combination of kanji and kana, a text based on *Yi Jing Su Hui Ji* (《医经溯洄集》 *Retrospective Compilation on Medical Classics*), and a study of *Shang Han Lun* by Wang Lyu (王履, 1322–?), a medical practitioner of the late Yuan and early Ming dynasties. It cannot be ignored, therefore, that not only the Kohō school but also physicians of the Gosei school paid close attention

to *Shang Han Lun* and actively commented on the text. In addition, Naitō Kitetsu (内藤希哲, 1701–1735), born a year before Tōdō but died at a young age, left behind a famous medical work for future generations titled *Ikeikaiwakuron* (『医経解惑論』 *Disabusing Medical Scriptures*; Note 3), a study of *Shang Han Lun*. Unlike the Kohō school, Naitō placed equal importance on the medical texts of *Huang Di Nei Jing* and *Nan Jing*.

3.2 *Shang Han Lun* studies by a physician of Chinese-Japanese origin

Kitayama Yushōshi (北山友松子, 1640–1701) was a physician active in Nagasaki and Osaka during the late 17th century, a period when the Kohō school was emerging while the Gosei school still held considerable influence.

He was among the early physicians of the Edo period who esteemed *Shang Han Lun* and actively incorporated it into medical practice. This inclination was closely linked to his upbringing in Nagasaki. His father, Ma Rongyu (马荣宇, ?–1654), was a medicine merchant from Fujian who had sought refuge in Nagasaki from the conflicts of the late Ming dynasty, while his mother had worked as a prostitute in the Maruyama District of Nagasaki. As a result, Yushōshi grew up fluent in Chinese, Japanese, and the Fujian dialect. Furthermore, he studied medicine with his father and with the Chinese physicians who came to Nagasaki (Fig. 2). Under the tutelage of the Fujian monk Kerin Shoei (化林性僕, 1596–1667), who was eventually naturalized in Japan, Yushōshi delved into the study of *Shang Han Lun* and Fujian local medicine.^{14,15} Yushōshi viewed Zhang Zhongjing's medical texts as timeless, likening them to the enduring presence of the sun and stars, and he believed that individuals who repeatedly study Zhang's works would uncover their profound meanings.¹⁴ According to Asada Sohaku



Figure 2 When Kitayama Yushōshi was an infant [source with permission from: *Kinsei kijinden* (『近世畸人伝』 *Biographies of Eccentric People in the Early Modern Japan*). Waseda University Library Collection.]

(浅田宗伯), at that time (during the latter half of the 17th century), physicians tended to focus exclusively on learning *Huang Di Nei Jing* and *Nan Jing*, neglecting *Shang Han Lun*. However, Yushōshi's acclaim for Zhang Zhongjing's medical texts served as a demonstration to the general populace of the importance of *Shang Han Lun*.¹⁴ Around the age of 30, he relocated from Nagasaki to Osaka, a major metropolis, where he practiced medicine. He was known as the “Sage of Medicine” at the time because of his excellent medical skills. In his works, Yushōshi mentions many books, and he clearly read the latest Chinese medical texts of his time.¹⁶ Through his father's connections, he had extensive interactions with Chinese physicians who came to Nagasaki, through which he gained access to the latest medical knowledge from China and the imported medical texts available in Nagasaki. This included works related to the study of *Shang Han Lun* by physicians from the Ming and Qing dynasties, as mentioned earlier. Notably, Yushōshi's emphasis on *Shang Han Lun* preceded that of the physicians from the Kohō school physicians in Kyoto and Osaka, marking him as a pioneer in its study.¹

3.3 Tokugawa Yoshimune's reform policies and the arrival of Chinese physicians

Besides the war and turmoil during the late Ming and early Qing dynasties, Tokugawa Yoshimune's era also witnessed a notable wave of Chinese physicians migrating to Japan. During the Kyōhō Era, Yoshimune implemented numerous reform policies. As part of his interest in Chinese medicine and materia medica, and in response to the prevalence of epidemics such as smallpox, he invited many skilled Chinese physicians to Japan. He specifically instructed that these physicians be proficient in both medical knowledge and treatment. Furthermore, the selection of these physicians was left almost entirely to the masters of the Chinese merchant ships.¹⁷ Those who eventually came to Japan were highly respected experts in their fields and played a pivotal role in transmitting the latest medical knowledge and works to Japan. For example, Chen Zhenxian (陈振先), a physician from Suzhou, arrived in Nagasaki in 1721 at Yoshimune's invitation and gathered medicinal herbs from the mountains of Nagasaki. He studied the efficacy of 162 medicinal herbs and collected and compiled his findings in *Chinshinsen saiyakuroku* (『陳振先採藥録』 *Pharmaceutical Procurement Records of Chen Zhenxian*). Mukai Gensei (向井元成, 1656–1727), a Japanese herbalist, added Japanese marginal notes, making Chen's work popular in Japanese medical circles.¹⁸ Chen contributed significantly to the development of Japanese pharmacology.¹⁹

In addition to Chen, the Chinese physician Zhou Qilai (周岐来) also contributed to the healthcare projects of the Shogunate's healthcare initiatives. Zhou, originally from Suzhou, arrived in Nagasaki aboard a Chinese merchant

ship in March 1725 at the age of 56, also at Yoshimune's invitation. During his stay in Japan, Zhou collaborated with Zhu Laizhang (朱来章), a physician from Fujian who had arrived to Nagasaki in July 1721 at the Shogunate's request. They were tasked by the Shogunate with identifying and translating the Chinese names of 145 species of fish and shellfish, 34 species of plants, and 13 species of birds and animals (Note 4). Their conversations were written down and compiled as the *Shūshufukugen* (『周朱復言』 *Zhou-Zhu Replying*), which was submitted to the Shogunate on August 19th, 1726.^{17,20}

Moreover, Chinese physicians traveling to Japan often brought Chinese medical texts with them. For instance, Zhao Songyang (赵淞阳) from Suzhou was invited by the Shogunate and first arrived in Japan in 1724. After a brief stay, he returned to China but made a second journey to Nagasaki in 1726. On this occasion, he brought a collection of 21 medical texts, including *Shang Han Lun*.²¹

As demonstrated above, in the early 18th century, Chinese physicians brought advanced medical knowledge to Japan. Nagasaki became a hub for the collection of medical texts and the latest information from the late Ming and Qing dynasties, which were subsequently transported to Osaka through trade routes. Physicians of the Kohō school, active in the Osaka and Kyoto regions, were influenced by these texts brought from China to Nagasaki, with particular attention to *Shang Han Lun*. However, it is important to note that their focus was not solely on this work. In the following section, the study will examine the concept of “Returning to Ancient Learning” in the context of Gotō Konzan, Kagawa Shūan, Yamawaki Tōyō, and Yoshimasu Tōdō, the four eminent physicians of the Kohō school.²²

4 The concept of “Returning to Ancient Learning (复古)” in the Kohō School

The Kohō school directly criticized medicine influenced by the Neo-Confucian theories of yin-yang and the five viscera and six bowels, as well as the use of herbal medicines such as ginseng for “warming and replenishing”. This critique formed part of a broader reform movement in Japanese medicine. Physicians associated with this movement linked their medical theory to the Neo-Classicist Kogaku (the Kogaku school 古学派, the “Ancient Learning” schools of Confucianism), which was emerging in Japan at the same time.²³ The ideas of the Confucian scholars Itō Jinsai (伊藤仁斋) and Ogyū Sorai (荻生徂徠, 1666–1728) exerted a strong influence on the practitioners of the Kohō school.

4.1 Itō Jinsai and Ogyū Sorai

Itō Jinsai (1627–1705) was a Confucian philosopher who criticized the Shushigaku (朱子学, Neo-Confucianism) and sought to replace it with a philosophy rooted in the

interpretation of key terms from *Lun Yu* (《论语》 *The Analects*) and *Meng Zi* (《孟子》 *Mencius*). His school, known as the Kogigaku (古义学), was considered part of the Kogaku school. Jinsai operated a private school in Kyoto, and the ideas propagated by him, his sons, and his disciples significantly influenced Kohō school physicians, who were also located in Kyoto. Additionally, Confucianists and physicians interacted with each other, exchanging prefaces for each other's writings.

Ogyū Sorai rejected both Shushigaku and Jinsai's work. He advocated for a direct understanding of the sages' teachings by studying ancient Confucian classics without relying on later commentaries. Sorai's method of interpretation was known as Kobunjigaku (古文辞学).²⁴ His school is also considered part of the Kogaku school. Physicians of the Kohō school, represented by Yamawaki Tōyō and Yoshimasu Tōdō, were greatly influenced by Sorai's methods of study.²⁵

In the influence of the Confucian scholars of the Kogaku school, what constituted the essence of Ancient Learning among the physicians of the Kohō school? In the following section, I use the four eminent physicians as a case study to analyze their ideas.

4.2 The four eminent physicians and the “Ancient Learning”

4.2.1 Gotō Konzan's concept of Ancient Learning

Gotō Konzan (后藤艮山, 1659–1733) is regarded as a pioneer of the Kohō school. He spent his childhood in Edo (now Tokyo) and moved to Kyoto in 1685, when Jinsai had already gained recognition in the city. Although there is no historical evidence that Konzan studied directly under Jinsai, he held Jinsai's Confucianism in high regard (Note 5). Jinsai's Confucian ideas, particularly the concept of “日用 (daily use)”, influenced Konzan's medical philosophy. Konzan frequently quoted from the *Analects* of Confucius and *Mencius* in his medical writings, emphasizing the Confucian principles of benevolence and filial piety.²⁶ Furthermore, he believed that medical treatment should be accessible to all, rather than a privilege for a select few. He criticized abstract medical theories such as yin-yang and the five elements, advocating instead for the practical application of medicine in daily life. He emphasized “prevention before illness” and promoted dietary therapy, hot springs, moxibustion, massage, and other widely accessible treatments while criticizing excessive reliance on medications. Although his medical texts reference *Shang Han Lun*, his approach was not confined to this text alone.¹ His concept of Ancient Learning involved rejecting abstract medical theories from the Song to Ming dynasties and focusing on empirical medicine recorded in texts from the Han to Tang dynasties, as well as Japanese folk medicine. Additionally, he inherited the medical principles of the Gosei School, exemplified by Manase Dōsan.

4.2.2 Kagawa Shūan's perspective of Ancient Learning

Konzan's ideas were inherited and further developed by his disciple, Kagawa Shūan (香川修庵, 1683–1755). Shūan studied Confucianism under Itō Jinsai, whose influence led him to attach great importance to the *Analects* and *Mencius*. He extracted passages from these texts related to disease, medicine, food, and daily maintenance, considering them fundamental to medicine.²⁷ In other words, he regarded the *Analects* and *Mencius* as the basis of both Confucianism and medicine. This concept of “儒医一本论 (Confucianism and Medicine as One Theory)”,²⁷ was representative of “Confucian physicians (儒医)” in the Edo period.¹

Shūan directly criticized the warming and supplementing treatment methods used by Chinese physicians of the Jin-Yuan dynasties, as well as the theories of five viscera and six bowels as well as yin-yang. He believed these ideas were influenced by the “evil doctrines” of Buddhism and Taoism, arguing that medicine should be based on the teachings of Mencius and Confucius. Therefore, he rejected Chinese medical works dating back 2,000 years and proposed the “Jigasakko (自我作古, I make the original myself)” approach.²⁸ In essence, he created medical books based on the health and medical ideas found in the *Analects* and the *Mencius*.

His works, *Ippondō Kōyo Igen* (『一本堂行余医言』 *Medical Discourse of the Ippondō*) and *Ippondō Yakusen* (『一本堂薬選』 *Pharmaceutical Section of the Ippondō*) (Fig. 3, Fig. 4) were written in accordance with Jigasakko. In *Medical Discourse of the Ippondō*, Shūan consulted a wide range of medical texts spanning from the Spring and Autumn Period and the Warring States Period to the Qing dynasty. Interestingly, Shūan did not limit himself to medical books alone but also referenced

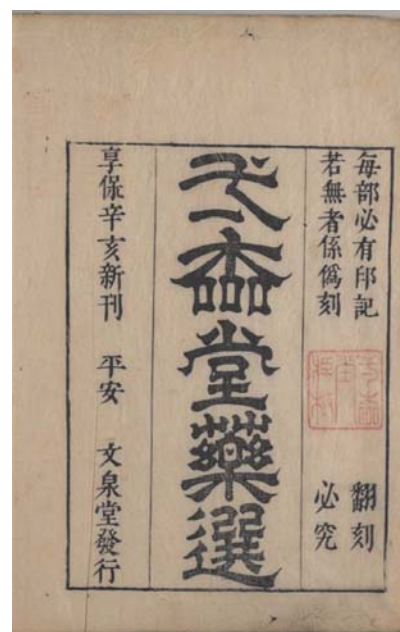


Figure 4 The paste-down of *Ippondō Yakusen* (『一本堂薬選』 *Pharmaceutical Section of the Ippondō*) (source with permission from: Waseda University Library Collection)

novels, encyclopedias, dictionaries, Buddhist historical accounts, agricultural books, and more. Moreover, he meticulously documented the sources of his citations, demonstrating rigorous scholarly practice.¹ In *Ippondō Yakusen*, he systematically verified the names of medicines in Chinese herbal and medical works one by one to unify terminology and clearly described their efficacies. He also explained the differences between Chinese, Korean and Japanese medicine, a key aspect in the “daily use” approach of medicine. It is also noteworthy that Shūan quoted numerous books, for example, Chinese medical and herbal books, Japanese folk remedies, and the medical books of his teacher Konzan and of Manase Dōsan.

Shūan noted that by the late 17th century, ginseng use for “vitality” had surged among physicians and patients, driving up prices significantly. Korean ginseng became exorbitantly expensive during this period and was accessible only to wealthy families. However, surging demand fueled adulteration, with even used ginseng (previously decocted) entering the market. Recognizing this dilemma, Shūan provided detailed guidelines on how to authenticate ginseng in his work *Pharmaceutical Section of the Ippondō*, detailing therapeutic properties, misuse risks, and alternative therapies.²⁹ Similarly, Yoshimasu Tōdō, who will be discussed later, criticized ginseng overuse. In his medical work *Yakuchō* (『薬徴』 *Description Work of Herbal Pharmacology Comprised of Excerpts from Shanhanlun and Medical Experiences*), Tōdō criticized physicians touting ginseng as an elixir and patients dependent on it for curative purposes. In response to the counterfeit Chinese medicinal ginseng on the market, he endorsed the efficacy of Japanese ginseng.³⁰



Figure 3 The paste-down of *Ippondō Kōyo Igen* (『一本堂行余医言』 *Medical Discourse of the Ippondō*) (source with permission from: Waseda University Library Collection)

In 1715, Shūan published *Shōkoku Shōkanron* (『小刻傷寒論』 *The Little Printed Shang Han Lun*), based on the *Zhu Jie Shang Han Lun* (《注解伤寒论》 *Annotation and Explanation of Treatise on Cold Damage*) by the Jin Dynasty physician Cheng Wuji (成无己). *The Little Printed Shang Han Lun* was widely circulated because it was small and portable, being reprinted nearly 10 times from the first edition to the end of the Edo period, making it one of the most widely read books on typhoid fever in Japan.³¹ Influenced by his teacher Itō Jinsai's emphasis on “daily use”, he published *Shōkoku Shōkanron* with a strong emphasis on practicality. Despite venerating *Shang Han Lun* in high regard, Shūan did not prioritize it exclusively. As evidenced by the books he compiled, he also placed great importance on *Lun Yu*, *Meng Zi*, the medical texts of various Chinese dynasties, as well as other works, including the medicine of the Gosei school.

4.2.3 Yamawaki Tōyō's practice of “Ancient Learning”

Shūan's fellow disciple, Yamawaki Tōyō (山脇東洋, 1705–1762), also studied under Gotō Konzan. From an early age, Tōyō studied the medical traditions of the Jin-Yuan and Ming dynasties under his adoptive father, Yamawaki Genshū (山脇玄修, 1654–1727). After Genshū's death, Tōyō studied under Gotō Konzan. Influenced by Konzan as well as the Confucian scholars in his circle, Tōyō began to question the medical knowledge he had acquired, including the concepts of yin-yang and the five elements. This intellectual shift led him to focus on *Shang Han Lun*, a text he came to hold in high regard. While Tōyō valued *Shang Han Lun*, he also placed great importance on Sun Simiao's (孙思邈) *Qian Jin Fang* (《千金方》 *Invaluable Prescriptions*) and Wang Tao's (王焘) *Wai Tai Mi Yao Fang* (《外台秘要方》 *Arcane Essential Formulas from the Imperial Library*) of the Tang Dynasty, with particular emphasis on the latter. According to Tōyō, apart from *Shang Han Lun*, only *Wai Tai Mi Yao Fang* embodied the principle of “describing but not creating (述而不作)”, synthesizing the “empirical method” of successive generations.³² *Wai Tai Mi Yao Fang* was first introduced to Japan in the late 17th century but fell into obscurity until the mid-18th century. It was exactly at this time that Tōyō decided to have it reprinted. With the assistance of Mochizuki Sanei (望月三英, 1697–1769), a medical officer of the Shogunate, he acquired a Song version from the collection of the Momijiyama Bunko (红叶山文库), a library of the Shogunate. He then revised the original text, established a publishing facility at his family school, and published *Wai Tai Mi Yao Fang* (40 volumes) in 1746 (Note 6). The edition reprinted by Tōyō was based on a version emended in 1640 by Cheng Yandao (程衍道), a physician from the late Ming and early Qing dynasties. Copies of these reprints were sent to the Qing in July 1746, followed later by the woodblocks. Many

of the present editions in China are based on these reprints. For example, *Wai Tai Mi Yao Fang* printed in Guangdong in 1874 is believed to have been produced using woodblocks engraved by Tōyō.³³ From the publication of *Wai Tai Mi Yao Fang* in China and Japan, we can see the “circulation” of classical Chinese medical texts that occurred in East Asian countries, especially between China and Japan.

When discussing human autopsy in the Edo period, Sugita Genpaku (杉田玄白, 1733–1817) is often mentioned. However, the autopsy led by Sugita Genpaku in 1771 was influenced by Tōyō, an imperial retainer active in Kyoto. Seventeen years before the autopsy attempt by Sugita Genpaku and others at Kozukabara (小塚原) in Edo, Tōyō led and witnessed the first officially authorized autopsy in Japan. This autopsy took place on February 7th, 1754, using a corpse from Rokkaku Prison (六角獄舎) in Kyoto. As a result, Tōyō is also recognized as the founder of anthropotomy in Japan (Fig. 5). While Genpaku performed an autopsy to verify the accuracy of Chinese and Dutch medical texts, Tōyō's motivation for conducting dissections was fundamentally different. Although Tōyō owned the anatomical works of Johann Vesling (1598–1649), a German anatomist, and was undeniably influenced by Western anatomical texts, his approach to human anatomy was rooted in Ancient Learning. His study of anatomy was closely associated with the thought of Ogyū Sorai.

Around the age of 40, Tōyō encountered the ideas of Ogyū Sorai. Under the influence of Sorai and his disciples, such as Hattori Nankaku (服部南郭, 1683–1759) and Dazai Shundai (太宰春台, 1680–1747), he came



Figure 5 The Monument of Yamawaki Tōyō's Place of Human Anatomy Observation (source with permission from: photo from Rokkaku-dori, Shinsen-en, Nakagyo Ward, Kyoto City, Japan, by the author)

to revere *Zhou Li* (《周礼》 *The Rites of Zhou*) as an authoritative text. The *Zhou Li* includes records of the “nine viscera (九藏)” of the human body, which Tōyō viewed as an alternative framework to the “five viscera and six bowels” described in *Huang Di Nei Jing* and other medical texts. Drawing on the concept of the “nine viscera” in *Zhou Li*, Tōyō sought to establish its authority through dissection. Ultimately, he concluded that the human body contained nine organs,³⁴ thereby challenging the traditional medical concept of the “five zang organs and six fu organs (五脏六腑)”.

As can be seen above, although both autopsies took place in the second half of the 18th century, Tōyō’s motivation for the human dissection differed entirely from that of Genpaku. Therefore, when thinking about human autopsy in the Edo period, it is important to consider the influence of the Chinese Confucian classics alongside that of Western anatomical works. Moreover, whether in the reproduction of *Wai Tai Mi Yao Fang* or the practice of human dissection, Tōyō consistently followed the principle of “describing but not creating”—an approach aimed at restoring and validating Chinese classical texts. It was precisely through the practice of “describing but not creating” that he realized his path of the returning to Ancient Learning (Fig. 6).

4.2.4 Yoshimasu Tōdō’s view on “Returning to Ancient Learning”

Yoshimasu Tōdō (1702–1773), the most famous physician of the Kohō school, joined three other physicians in strongly criticizing the theories of the five viscera and six bowels, as well as the concepts of yin-yang and five elements. He emphasized the importance of Fukushin (腹診, abdominal diagnosis), which significantly influenced modern Japanese Kampo, with many doctors identifying themselves as practitioners of the Tōdō school.

Tōdō gained fame through the recommendation of Yamawaki Tōyō and, like Yamawaki Tōyō, was deeply influenced by Ōgyū Sorai. He corresponded with Sorai’s disciples, including his prominent pupil, Yamagata Shūnan (山县周南, 1687–1752). Tōdō was particularly influenced by Sorai’s Kobunjigaku and applied this method to his own medical research. For example, he applied Kobunjigaku to study *Shang Han Lun*. He claimed that his understanding adhered closely to Zhang Zhongjing’s original intent while incorporating his own interpretations to his commentary.³⁰ For instance, in *Hosei Shūkō Shōkanron* (『補正輯光傷寒論』 *A Commentary on Shang Han Lun*), he omitted characters such as “yin (陰)” “yang (陽)” “deficiency (虛)” “excess (實)” “cold (寒)” and “warm (溫)”.³⁵ Tōdō studied the methodology of *Shang Han Lun*, while Ye was influenced by the *Cuo Jian Chong Ding* school and took its approach to studying *Shang Han Lun* to an extreme. Moreover, he claimed to exclusively revere *Shang Han Lun*, but this was merely a slogan, as his medical practice extended beyond the text. In addition to treatments based on *Shang Han Lun*, he developed his own remedies, such as those recorded in the *Jūniritsuhō* (『十二律方』 *Pills and Powder Formulations*), which comprised 12 original pills and powder formulas.³⁶

Furthermore, by employing the Kobunjigaku, Tōdō sought to validate his Ancient Learning philosophy by citing evidence from Chinese classics such as the *Lyu Shi Chun Qiu* (《吕氏春秋》 *The Spring and Autumn Annals by Lyu Buwei*), *Zhou Li*, *Xun Zi* (《荀子》 *Master Xun*), and *Shang Shu* (《尚书》 *Book of Documents*). In *Koshoigen* (『古書医言』 *Medical Discourse in Ancient Texts*), he cited 37 Chinese classical texts to demonstrate that his medical thought was rooted in the ancient knowledge³⁷. Moreover, based on *Shang Han Lun* and other medical texts, he compiled a book of medicines following the models of *Ruijuhō* (『類聚方』 *Gathering*

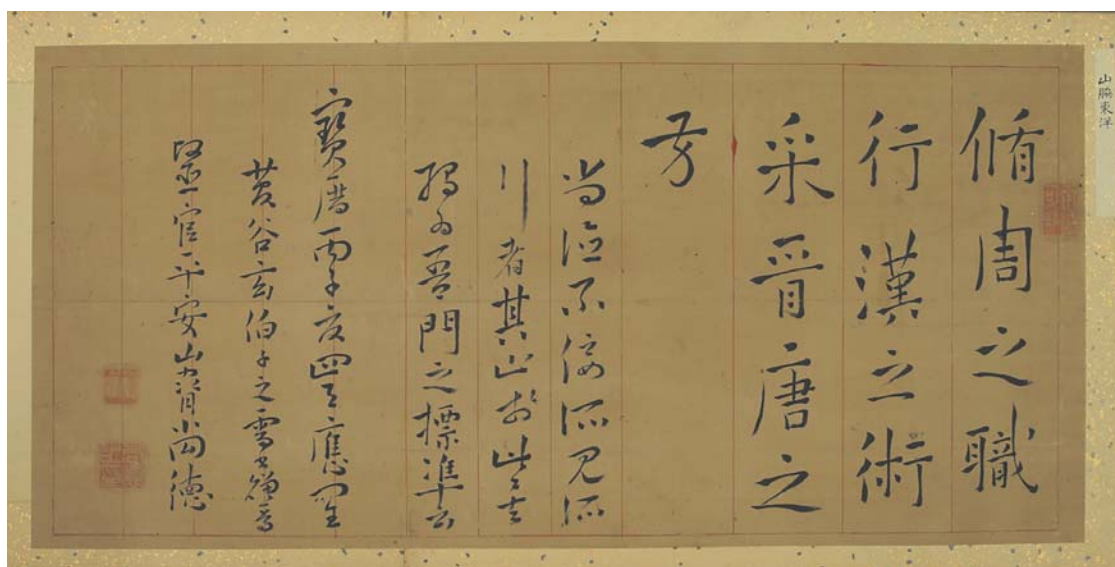


Figure 6 The handwriting of Yamawaki Tōyō on the “Ancient Learning” (source with permission from: Waseda University Library Collection)

of *Medicinal Formulas*) and *Yakutei*, facilitating the dissemination of Zhang Zhongjing's medical principles in Japan. The medical texts written by Tōdō, particularly *Gathering of Medicinal Formulas*, were highly influential at that time. Combined with the promotion by his disciples through their own writings, Tōdō's reputation grew significantly, ultimately establishing him as a representative figure of the Kohō school. His influence also contributed to the growing prominence of *Shang Han Lun* in Japan, leading to an increasing number of commentaries on the text and its broader adoption in clinical practice. That said, it is important to recognize that the Kohō school is not synonymous with Tōdō's medicine, nor does it represent an exclusive reverence for *Shang Han Lun*. In fact, many physicians prior to Tōdō interpreted Ancient Learning in much broader terms, encompassing diverse sources and perspectives (Fig. 7, Fig. 8).

As demonstrated above, the four eminent physicians of the Kohō school directly criticized Chinese Jin-Yuan medicine and the medicine influenced by the Neo-Confucian theories of yin-yang and five viscera and six bowels, as well as the use of herbal medicines such as ginseng for warming and replenishing. Their primary target of criticism was not the Japanese Gosei school, represented by Manase Dōsan. On the contrary, they frequently cited

Dōsan in their writings and incorporated some of his treatment methods into their practice. Furthermore, as is evident from the above discussion, these physicians held differing interpretations of the term "Returning to Ancient Learning" and were not solely focused on *Shang Han Lun*. In addition to various other medical texts, the Kohō physicians were also deeply influenced by Confucian classics such as the *Analects*, *Mencius* and *Zhou Li*.

5 Conclusion

Japanese medicine underwent significant transformation during the 17th and 18th centuries, characterized by a gradual shift away from traditional medical theories such as yin-yang, *Wu Xing* (五行 the five elements) and *Wu Zang Liu Fu* (五脏六腑 five zang organs and six fu organs), in favor of empirical medicine. Until the mid-17th century, influential texts such as *Huang Di Nei Jing*, *Nan Jing*, and medical works by Ming dynasty physicians dominated Japanese medical thought. By the late 17th century, medical practitioners, particularly those associated with the Kohō school, led reform efforts under the slogan of "Returning to Ancient Learning". They shifted their focus toward empirical medicine from the Tang to Han dynasties, while also delving into Japanese folk medicine. Their approach involved stripping away abstract and complex theories from Chinese medical texts, annotating classical works, and compiling their own medical literature. It is worth noting that the scarcity of imported herbal medicines, coupled with the challenge of applying medical theories such as yin-yang and *Wu Xing* to practical treatment, has also been considered a contributing factor in the rise of the Kohō school. Ultimately, Japanese medicine gradually diverged from Chinese medicine with the emergence of the Kohō school, contributing to the development of what is now known today as "Kampo medicine".

The rise and development of the Kohō school were shaped not only by Neo-Confucian thought but also by medical texts and the latest medical knowledge introduced to Japan through Nagasaki. Each physician within the Kohō school had distinct perspectives, making it crucial not to equate the school solely with a tradition that venerates *Shang Han Lun*.

However, the exchange of medical knowledge in East Asia was not a one-way transmission from China to Japan, but rather included the flow of ideas from Japan back to China. After the Meiji period, Japanese Kampo medicine books were reintroduced to China by Chinese scholars, students, merchants, and medical practitioners, significantly influencing modern and contemporary Chinese medical literature and research. Yang Shoujing (杨守敬, 1839–1915), a Chinese antiquarian and bibliophile, traveled to Japan in 1880, spending four years collecting a vast collection of books. Among these were medical texts from the Taki family (多纪家), who served as medical officers of the Shogunate. These works were later compiled into *Yu Xiu Tang Yi Xue Cong Shu* (《聿



Figure 7 The Sōgon-in (莊嚴院) at Tōfuku-ji (東福寺), where the grave of Yoshimasu Tōdō is located (source with permission from: photo from Higashiyama Ward, Kyoto City, by the author)



Figure 8 The tombstone of Yoshimasu Tōdō at Sōgon-in, Tōfuku-ji (in the center) (source with permission from: photo by the author)

修堂医学丛书》*The Taki Family Medical Collection*), published in China in 1884. Ding Fubao (丁福保, 1874–1952), an antiquarian book collector and physician, translated and published *Yi Jie Zhi Tie Zhui* (《医界之铁椎》*The Iron Hammer of the Medical World*) in 1911 in China, based on a Japanese Kampo medicine text. He was a pioneer in the introduction of Japanese Kampo medicine to China after the Meiji period.³⁸ Chen Cunren (陈存仁, 1908–1990), a Chinese physician, traveled to Japan and collected 93 Japanese Kampo books, which were later published in China in 1936 as *Huang Han Yi Xue Cong Shu* (《皇汉医学丛书》*Japanese Kampo Medicine Series*). The collection included Yoshimasu Tōdō's *Ruijuhō* and Yakutei and Kitayama Yushōshi's *Kitayama niwa* (《北山医话》*The Medical Book of Kitayama*). These Japanese Kampo medicine texts exerted a significant influence upon Chinese physicians. For instance, Lu Yuanlei (陆渊雷, 1894–1955), a modern physician, drew inspiration from Tōdō's works, quoting them in his own publications, such as *Shang Han Lun Jin Shi* (《伤寒论今释》*Today's Interpretation of Shang Han Lun*) and *Jin Gui Yao Lue Jin Shi* (《金匱要略今释》*Today's Interpretation of Essentials from the Golden Cabinet*). In 2008, Tōdō's medical writings were compiled and published in China as *Ji Yi Dong Dong Gu Fang Yi Xue Quan Ji* (《吉益东洞古方医学全集》*The Complete Collection of Ji Yi Dong Dong's Medical Formulas*).³⁹ Additionally, in 2020, *Yi Jing Jie Huo Lun Zhu Ping* (《医经解惑论注评》*Commentary on Disabusing Medical Scriptures*), an interpretation of Naitō Kitetsu's *Ikeikaiwakuron*, was published in China.⁴⁰

Classical Chinese medical texts introduced to Japan were carefully preserved, annotated, and studied by Japanese physicians before being reintroduced to China in the modern era, influencing both medical practitioners and the evolution of Chinese medicine. This circulation of medical knowledge was facilitated by the shared use of Chinese characters across East Asia. Focusing on the 17th and 18th centuries, this paper examines how Japanese physicians of the Kohō school, responding to domestic and international political and ideological factors, succeeded in establishing Japanese Kampo medicine as independent from traditional Chinese medicine (TCM) through the “Returning to Ancient Learning” movement. Meanwhile, physicians of the Kohō school made great contributions to the transmission and scholarly annotation of classical Chinese medical texts. Their work not only safeguarded this shared East Asian medical heritage, but also exerted a notable influence on the development of modern and contemporary Chinese medicine. This reciprocal knowledge exchange highlights the transnational nature of medical scholarship within the East Asian cultural sphere.

Notes

1. Ming: Yu Tianmin (虞天民), *Yi Xue Zheng Zhuan* (《医学正传》*Orthodox Lineage of Medicine*), 8 volumes (cited 462 times); Ming: Liu Chun (刘纯), *Yu Ji Wei Yi*

(《玉机微义》*Detailed Explanation of the Jade Pivot*), 50 volumes (cited 404 times); Ming: Wang Xi (王玺), *Yi Lin Lei Zheng Ji Yao* (《医林类证集要》*A Collections of Categorized Patterns of Medicine*), 20 volumes (cited 271 times); Ming: Yang Xun (杨珣) edited, *Dan Xi Xin Fa Lei Ji* [《丹溪心法类集》*A Collection of Teachings of (Zhu) Danxi*], 2 volumes (cited 198 times, originally by Zhu Danxi (朱丹溪) of the Yuan dynasty); Ming: Wang Yongfu (王永辅), *Hui Ji Fang* (《惠济方》*Formulas of Beneficial Assistance*), 8 volumes (cited 169 times).¹⁰

2. For example, he authored books such as *Huang Di Nei Jing Su Wen Yan Jie* (《黄帝内经素问谚解》*An Oral Explanation of the Yellow Emperor's Inner Classic: Basic Questions*), *Yi Fang Da Cheng Lun Yan Jie* (《医方大成论谚解》*An Oral Explanation of Treatise on the Great Compendium of Medical Formulas*), *Ge Zhi Yu Lun Yan Jie* (《格致余论谚解》*An Oral Explanation of Further Discourses on the Acquisition of Knowledge through Profound Study*), *Nan Jing Ben Yi Yan Jie* (《难经本义谚解》*An Oral Explanation of the Original Meaning of the “Classic of Difficult Issues”*), and *Su Hui Ji Wo Yu Chao* (《溯洄集倭语钞》*Japanese Annotated Edition of the “Retrospective Compilation”*).

3. The book was written in 1731 and published in 1804, after Kitetsu's death. The preface to the book was written by a famous Confucian scholar of the Edo period, Dazai Shundai (太宰春台).

4. Tokugawa Yoshimune not only embraced Chinese medical knowledge, but also actively adopted medical practices from Korea. For example, the Korean medical text *Dongui Bogam* (《东医宝鉴》*Principles and Practice of Eastern Medicine*), published in 1613 during the Joseon Dynasty, was highly valued by Yoshimune, who ordered a Japanese edition of the text to be published in 1724. This book had a significant influence on the development of herbology in Japan.

5. Zhou Qilai also recommended the Ming dynasty medical treatise on pediatrics, *You Ke Zhe Zhong* (《幼科折衷》*Balanced Discussions on Pediatrics*), to the Kumamoto domain and helped to publish it in Japan.

6. According to Asada's record in *The Biography of Japan's Great Physicians*, Konzan spoke highly of Jinsai thus: “I aspire to be a Confucian, but it is difficult to surpass Ito Jinisai.”¹⁴

7. Tōyō's reprinting of *Wai Tai Mi Yao Fang* played an important role in the treatment of beriberi and cholera, which were prevalent in the 18th and 19th centuries in Japan.

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Ethical approval

This study does not contain any studies with human or animal subjects performed by the author.

Author contributions

XIANG Jingjing did the research and wrote the paper.

Conflicts of interest

The author declares no financial or other conflicts of interest.

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Observing Images to Identify Herbs: A Study of Materia Medica Images from Early to Mid-Edo Japan

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Abstract

The transmission of *Ben Cao Gang Mu* (《本草纲目》 *The Grand Compendium of Materia Medica*) to Japan in the early 17th century significantly influenced the development of Japanese herbalism. Inspired by materia medica illustrations in this work, herbalists during the Edo period (1603–1867) recognized the importance of images in herbal literature and created a series of illustrated texts. In the early Edo, materia medica illustrations primarily imitated or referenced Chinese illustrations. Singular picturing techniques, a lack of accuracy, and a reliance on limited object references characterized these works. However, starting in the 18th century, with the support and promotion of the Edo Shogunate, herbalists, naturalists, and illustrators conducted field surveys and picturings of natural products in Japan and neighboring nations. This effort led to a trend of picturing based on nature. As a result, the illustrations in herbal literature from the mid-Edo period began to exhibit a distinct realistic painting style. This development became essential for verifying names and realities in Japanese herbal studies. Furthermore, the knowledge of botany and natural history during this time influenced the creation of herbal illustrations, paving the way for the differentiation of Japanese herbalism in the later Edo period.

Keywords: Edo period; Materia medica images (药图); Picturing style herbal medicinal materials

1 Introduction

The Edo period (1603–1867) marked the peak of Japanese herbalism, the time span stretches over 260 years. Early Edo period, following the transmission of *Ben Cao Gang Mu* (《本草纲目》 *The Grand Compendium of Materia Medica*) to Japan (before 1604), apart from the Jinling edition (金陵本, 1593), subsequent editions such as the Jiangxi edition (江西本, 1603), the Hangzhou Qian Weiqi edition (钱蔚起本, 1640), and the Hefei Zhang Shaotang edition (张绍棠本, 1885) were also subsequently disseminated to Japan. Japanese physicians and scholars not only directly studied the original text

of *Ben Cao Gang Mu* but also continuously reprinted, translated, and used the book as a blueprint to compile their own medical works. According to incomplete statistics, between 1637 and 1714, Japan reprinted *Ben Cao Gang Mu* no less than ten times, and subsequently published full Japanese translations and abridged versions. The academic content, research methods, and the many fields covered by the *Ben Cao Gang Mu* greatly inspired Japanese scholars. They drew insights from various perspectives, incorporating the compendium's taxonomy, botany, and natural history concepts into their own writings.

At the same time, during the Edo period, herbalists increasingly emphasized the importance of medicinal plant illustrations in herbal literature. They acknowledged that compiling herbal literature with text and images could enhance the practicality and artistry of herbal documents. Therefore, illustrating the book became an essential aspect of herbal book compilation during the Edo period in Japan. According to the survey by Manayagi Makoto (真柳诚),¹ there were 154 botanical and natural history books in the Edo period. The author's statistics show 21 works with botanical illustrations, including picture books and woodblock-printed books, and 11 (Note 1) from the early to mid-Edo period (1603–1779) (Note 2). Only a few scholars have paid attention to these images in the past (Note 3).

Compare the illustrations in herbal texts from the early, middle, and late periods of the Edo period, they

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will find a remarkably evolutionary process in the image composition, picturing style, and iconographic information of the images in the herbal works of the Edo period. In the early Edo period, illustrations of Japanese herb books show clear traces of imitation of Chinese herbal images. In contrast, the middle Edo period saw a shift towards creating illustrations based on natural specimens of medicinal materials. This transition reflects the pragmatic academic style of Japanese herborology, emphasizing the practical examination of the origin and morphology of medicinal substances. In the late Edo period, with the increasing influence of Western botany, the Japanese herbalist community diverged between natural history and botany. With the improvement of the picturing skills of herbalists and painters, some herbal illustrations began exhibiting a style close to scientific ones. Due to the lengthy duration of the Edo period, this article focuses on the illustrations in early to mid-Edo herbal works, analyzing the images in *Zukaihonzō* (『図解本草』 *Illustrated Materia Medica*), *Yamatohonzōshohinzu* (『大和本草諸品図』 *Illustrated Pharmacopoeia of Yamato*), and *Shomotsurusuisanzuyoku* (『庶物類纂図翼』 *Wing of the Compilation of Common Objects*), in order to explore the transformation of illustration techniques and the historical context behind them (Note 4).

2 The transmission of *Ben Cao Gang Mu* (《本草綱目》 *The Grand Compendium of Materia Medica*) illustrations in Japan

The emphasis of Edo period herbalists on the illustrations of materia medica in herbal literature is related to the transmission of *Ben Cao Gang Mu* to Japan at the beginning of the 17th century.² Following its transmission, *Ben Cao Gang Mu* had a broad and profound impact on the intellectual class and various fields of knowledge

in the Edo period (Note 5). The study, adaptation, and teaching of *Ben Cao Gang Mu* continued throughout the Edo period, giving rise to many scholars and schools. The influence of illustrations is also significant in transmitting *Ben Cao Gang Mu* to Japan. The “one ancestor, three branches” version system of *Ben Cao Gang Mu* was successively introduced to Japan, namely the Jinling edition (1593), Jiangxi edition (1603), Qian Weiqi edition (1640), and Hefei edition (1885), each with its own set of medicinal illustrations, with the Jinling edition containing 1109 illustrations. Among the illustrations, the Jinling and Jiangxi editions are the most similar. In contrast, the woodblock carvers redrew the Qian Weiqi and Hefei editions, showing significant differences from the Jinling and Jiangxi editions.³ Japanese booksellers began reprinting it to meet the needs of the Japanese intellectual class to study *Ben Cao Gang Mu* (Note 6).⁴ In 1637, the earliest Japanese woodblock print of *Ben Cao Gang Mu*, also known as the “Kan’ei edition (寛永本)”, appeared, based on the Ming dynasty Shih-Chu Pavilion edition (石渠閣本, belonging to the Jiangxi edition system). Following the Kan’ei edition, various other versions such as the “Jouou edition (承應本)” “Matsushita edition (松下本)” “Kaibara edition (貝原本)”, and “Jakusui edition (若水本)” were published successively.⁵ According to statistics, *Ben Cao Gang Mu* was reprinted more than 21 times in Japan over the 230 years following 1637 (Note 7), indicating the immense influence of *Ben Cao Gang Mu* during the Edo period. The following table shows the publication details of the five main Japanese woodblock prints of *Ben Cao Gang Mu*, four of which include medicinal illustrations (Table 1).

The chart revealed that: (1) The “Kan’ei edition” uses the Shih-Chu Pavilion edition as the basis for both text and illustrations. The text is consistent with the Shih-Chu Pavilion edition. However, the illustrations from the first two volumes of the Shih-Chu Pavilion edition have

Table 1 Medicinal illustrations in the Japanese woodblock editions of *Ben Cao Gang Mu* (《本草綱目》 *The Grand Compendium of Materia Medica*)

Engraving Year	Book Title	Volumes	Engraver	Base Manuscript	Medicinal Illustrations
1637 (Kan’ei 14)	<i>Ben Cao Gang Mu</i>	52	Noda Yajiemon (野田弥次右卫门)	Jiangxi edition (江西本)	At the beginning of each volume
1653 (Jouou 2)	<i>Ben Cao Gang Mu</i>	52	Noda Yajiemon (野田弥次右卫门)	Text-Jiangxi edition, Illustrations-Hangzhou edition (杭州本)	At the beginning of each volume
1669 (Kanbun 9)	Revised <i>Ben Cao Gang Mu</i> , commonly known as “Matsushita edition”	52	Fuyuzo Souzaburou (风月庄左卫门)	Hangzhou edition	At the end of the entire book
1672 (Kanbun 12)	Commonly known as “Kaibara edition”	52	Ekiken Kaibara, who annotated and re-engraved based on the Hangzhou edition	Hangzhou edition	No illustrations
1714 (Shoutoku 4)	Commonly known as “Jakusui edition”	52	Karakura Ya Yarobee (唐本屋八郎兵卫), Yorozu no Miya Sakuemon (万屋作右卫门), and others	Text-Jiangxi edition, Illustrations-Hangzhou edition	At the end of the entire book

been split and correspondingly inserted before the text from Volume 8 to Volume 51.⁶ (2) The “Jouou edition” takes the text from the “Kan’ei edition”. The illustrations are replaced with those from the Hangzhou edition, which are also split and attached before the text of each respective volume (Note 8). (3) The “Matsushita edition”, revised by the Confucian physician Matsushita Kenrin (松下见林), uses the Hangzhou edition for both text and illustrations, and the illustrations are relocated to the end of the book. (4) The “Kanbun edition” was re-engraved by the herbalist expert Ekiken Kaibara (贝原益轩, 1630–1714), based on the Hangzhou edition with added Japanese readings. The text part is a reprint from the Hangzhou edition, and does not include illustrations. At the end of this book, there are additional volumes titled *Ben Cao Gang Mu Pin Mu* (《本草纲目品目》 *Catalogue of Materia Medica*) and *Ben Cao Gang Mu Ming Wu Fu Lu* (《本草纲目名物附录》 *Appendix to the Grand Compendium of Materia Medica*), and each volume also includes a “Japanese-Chinese Name Translation Table”. (5) The “Jakusui edition” was re-engraved by the herbalist expert Inō Jakusui (稻生若水), based on the Jouou 2nd year (1653) edition.⁷ Its text is the same as the Jouou edition, both based on the Jiangxi edition, while the illustrations are replaced with those from the Hangzhou edition. This edition has corrected Japanese readings, referred to *Zheng Lei Ben Cao* (《证类本草》 *Classified Materia Medica*) for the collation of *Ben Cao Gang Mu* text. It includes four volumes of the collator’s works *Honzōzuyoku* (『本草図翼』 *Illustrated Classic of Materia Medica*) and *KetsuBoukyoBetsuShuu* (『結髦居別集』 *Collected Writings from the Studio of Tied Elegance*), titled *Honzōkoumokusshinkousei* (『本草綱目新校正』 *New revision of Compendium of Materia Medica*).

From the changes in the position of the illustrations in the Japanese woodblock editions, it is not difficult to discern that the herbalist community in Japan during the Edo period generally believed that the illustrations from the Hangzhou edition were superior to those in the Jiangxi edition. For the convenience of reading, the content of the illustrations was once split and attached at the beginning of each volume. However, starting from the ninth year of the Kanbun era (1669), there was a shift in the importance placed on the illustrations of the *Ben Cao Gang Mu* by Japanese herbalists, who either placed the illustrations at the end of the book or abandoned them altogether. This topic must be analyzed alongside the changes in Japanese materia medica painting style and methods from early to middle Edo.

3 Illustrations of the Japanese materia medica influenced by *Ben Cao Gang Mu*

After the 17th century, *Ben Cao Gang Mu* became one of the primary sources of knowledge for Japanese herbalism. During the Edo period, scholars, while studying *Ben Cao*

Gang Mu, placed particular emphasis on the issue of the names and realities of medicinal substances. Initially, the materia medica illustrations of *Ben Cao Gang Mu* were helpful in understanding the specific categories of medicines, which was also the main reason for the retention, replacement, and adjustment of the positions of medicinal illustrations in the Japanese woodblock editions of *Ben Cao Gang Mu*. Influenced by the medicinal illustrations of *Ben Cao Gang Mu*, Japanese medical practitioners in the early Edo period recognized that herbal illustrations could make up for the shortcomings of textual descriptions, so they began to try to add herbal illustrations when compiling and printing herbal books. *Zukaihonzo* (Fig.1) written by the Kyoto physician Shimotsu Genchi (下津元知), is a representative of such herbal books.

Zukaihonzo was completed in the eighth year of the Enpō era (1680) and consists of 10 volumes. According to Shimotsu Genchi’s preface, the original purpose of compiling the book was to reduce errors in clinical medication.⁸ He believed that doctors should pay attention to the shape of the medicine before using it to prevent the misuse of other medicines, which could lead to treatment errors. Therefore, each drug in the book is accompanied by an illustration, visually presenting the drug’s basic features and form. The book features 257 illustrations, and the Japanese names for each medicine are listed individually. Shimotsu Genchi was very familiar with the herbal documents of both China and Japan and referred extensively to Chinese herbal documents in his textual discussions. During the Ming and Qing dynasties in China, the primary herbal literature containing medicinal illustrations were *Zheng Lei Ben Cao*, *Jiu Huang*



Figure 1 *Zukaihonzo* (『図解本草』 *Illustrated Materia Medica*) (source with permission from: National Diet Library)

Ben Cao (《救荒本草》 *Herbal Medicine for Famine Relief*), *Ben Cao Gang Mu* and *Ben Cao Yuan Shi* (《本草原始》 *Original Materia Medica*), and more. After these literatures were introduced to Japan, they directly impacted the picturing style of herbal illustrations in the early Edo period. For the picturing of medicinal illustrations, *Zukaihonzō* also referred to the herbal illustrations in documents such as *Zheng Lei Ben Cao* and *Ben Cao Gang Mu*. At the same time, Shimotsu Genchi had practical experience in picking and observing local medicines and found that the situation of the same name but different substances of medicinal materials in China and Japan was quite common. For example, there are two kinds of Chinese Clematis Root (威灵仙) (Fig. 2), Japanese and Tang, which are drawn separately in the book to show their differences, as mentioned: “There are two kinds of Chinese Clematis Root, Japanese, and Tang. Are they not black in Japan but dependent on the land? Japanese Chinese Clematis Root, as described by Shizhen, ‘the color is not black and can be used,’ right! For those from Tang, the color is black, which is correct and can be used”.⁸ While this book references *Ben Cao Gang Mu*, the author emphasizes the significance of local medicinal experiences and the actual observation of medicines. *Zukaihonzō* is a book with both text and illustrations, which is helpful for medical practitioners in selecting, recognizing, identifying, collecting, and using medicines. In analyzing the materia medica illustrations in the book, such as those of Chinese Clematis Root and *Vespa Nidus* (露蜂房), it becomes evident that there are clear traces of imitation from *Ben Cao Gang Mu* and *Zheng Lei Ben Cao*. The illustrations demonstrate a significant influence of Chinese illustrations in composition, brushwork, style, and more. The materia medica

illustrations in *Zukaihonzō* have intuitiveness that textual descriptions do not have, which enhances the practical value of herbal books and is favored by booksellers and readers at that time.

4 The emergence of materia medica illustrations in a realistic painting style

During the middle Edo period, herbalists focused on pharmacological knowledge and emphasized on natural history. This academic purpose was reflected in the creation of botanical illustrations. Some herbalists began to move away from traditional drawing methods based on Chinese herbal illustrations and started to create illustrations based on natural specimens. This approach aimed to enhance the accuracy of the illustrations and minimize the distortions that can happen when images are created without direct reference to the specimens. As a result, these illustrations exhibited distinct botanical and natural historical features, notably different from the medical emphasis found in Chinese herbal illustrations (Note 9). It is worth noting that since the 18th century, the Edo Shogunate has actively begun to promote surveys of natural products and medicines in Japan and neighboring nations.⁹ For example, the eighth shogun of the Tokugawa Shogunate (徳川幕府), Tokugawa Yoshimune (徳川吉宗, 1684–1751), implemented a series of measures around the domestic production of medicinal materials during the Kyoho era (1716–1744) (Note 10). Under this policy, Japanese herbalists, naturalists, and illustrators participated in numerous surveys of products from various countries, focusing on standardizing medicinal materials.¹⁰ They created a vast number of illustrations based on natural specimens, some of which are preserved in *Shokoku Sanbutsu Chō* (『諸國産物帳』 *Product Accounts of Various Countries*) for each domain. As picturing techniques improved, these illustrations, grounded in natural specimens, became crucial for identifying different types of products and varieties of medicinal materials. They also played an essential role in analyzing the names and realities of herbal medicines. These illustrations are an essential element that cannot be ignored in developing Japanese herbalism. In this context, works such as *Yamatohonzōshohinzu* and *Shomotsurusanzuyoku* emerged.

4.1 Image analysis of the book

Yamatohonzōshohinzu (『大和本草諸品図』 *Daiwa Materia Medica*)

In the ninth year of the Shoutoku era (1715), the posthumous works of Ekiken Kaibara, *Yamatohonzōshohinzu* (Fig. 3) and *Yamato honzōfuroku* (『大和本草附録』 *Yamato Materia Medica Appendix*) were published in Kyoto at the same time. The former is an illustrated supplement to *Yamatohonzō*, and the latter is a supplement to the book. *Yamatohonzōshohinzu* includes



Figure 2 A *Ben Cao Gang Mu* Jiangxi edition illustration of Chinese Clematis Root (source with permission from: National Diet Library); B *Zukaihonzō* comparison illustration of Chinese Clematis Root in Japanese and Chinese (source with permission from: National Diet Library)



Figure 3 *Yamatohonzo Shohinzu* (『大和本草諸品圖』 Illustrated Varieties of the Yamato Honzo) (source with permission from: National Diet Library)

illustrations of 132 plant species and 119 animal species, totaling 251 species, each with an accompanying illustration. Each item is marked with Japanese and Chinese names and briefly described. Although *Yamatohonzo* retains the five elements in its classification, it differs significantly from the classification system of *Ben Cao Gang Mu*, highlighting its popular and practical characteristics, dividing the materia medica into 37 categories such as water, fire, metal, jade, soil, stone grains, brewing, vegetables, medicine, civil use, fruit trees, medicinal trees, river fish, sea fish, aquatic insects, terrestrial insects, aquatic birds, and mountain birds, recording the origin, shape, and usage of each item. *Yamatohonzo* is the pioneering work of Japanese herbal studies, marking the formation of a uniquely Japanese style. Ekiken Kaibara emphasized the importance of on-site observation,

believing that actual observation is as important as documentary records. Therefore, he combined personal experience with literature, shifting the focus from the text to the actual observation of medicinal substances, a characteristic also reflected in *Yamatohonzo Shohinzu*.¹¹

The style and composition of the illustrations in this book are quite different from those in *Zukaihonzo*. The images of fish and shellfish are similar in style to those in the *Shokoku Sanbutsu Chō* of various domains, while the images of birds draw more on the techniques of traditional Japanese realistic painting. Among the 132 plant images, some depict the entire plant form, but most focus on highlighting the local shapes and characteristics of the plant's flowers, stems, leaves, and roots, with delicate and vivid depictions. For instance, the flowers and leaves of plants such as the *Tu Mi* (酸漿 *Ligustrum Lucidum*), *Tuo Wu* (橐吾 *Radix seu Herba Ligulariae Japonicae*), *Gua Lou Ren* (瓜蒌仁 *Semen Trichosanthis*), *Lian Qiao* (连翘 *Fructus Forsythiae*), *Qiu Mu Dan* (秋牡丹 *Anemone tomentosa*), *Jin Deng Hua* (金灯花 *Corydalis Edulis*), *Bai Xian* (白苋 *Amaranthus Albus*), and *Ku Cai* (苦菜 *Youngia Japonica*) are drawn separately. Ekiken Kaibara deliberately abandoned the traditional compositional perspectives of herbal illustrations, choosing to focus on the parts of the plant, which may be related to his exposure to the then-influential Rangaku, emphasizing the identification of specific forms of flowers, leaves, stems, and roots. It is noteworthy that some of the images of Chinese medicinal substances in *Yamatohonzo Shohinzu* are not based on natural specimens but are redrawn based on the illustrations from *Ben Cao Gang Mu*. Take the example of the plant known as *Ze Qi* (泽漆 *Herba Euphorbiae Helioscopiae*) (Fig. 4); the Hangzhou edition's illustration of *Ze Qi* has made changes from the Jiangxi edition, highlighting the whorl leaves and depicting the terminal umbel inflorescence. *Yamatohonzo Shohinzu* refers to the Hangzhou edition's local characteristics of *Ze Qi*'s flowers, stems,

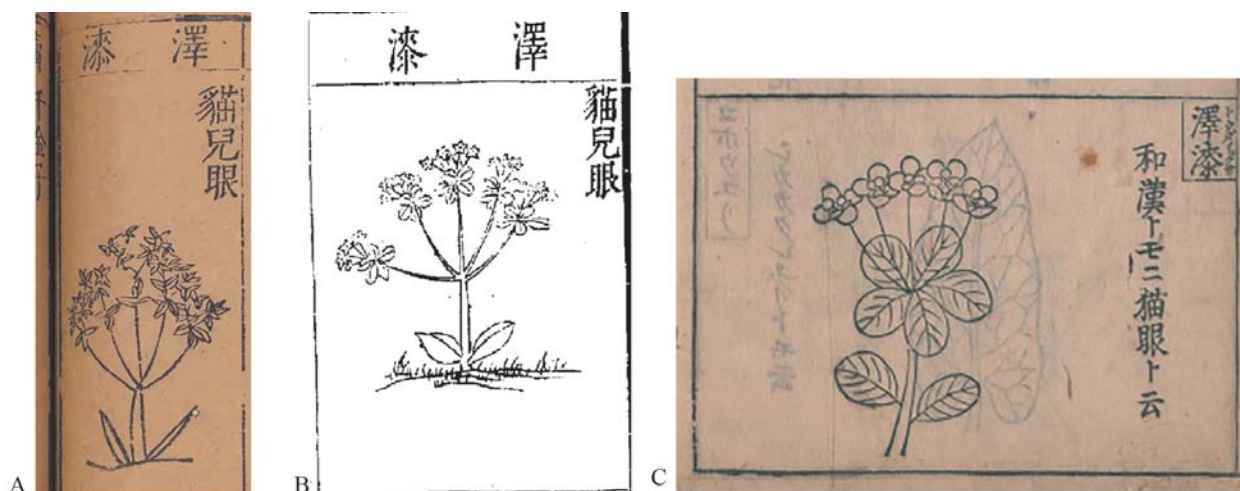


Figure 4 A Jiangxi edition illustration of Sun Euphorbia Herb (source with permission from: National Diet Library); B Hangzhou edition illustration of Sun Euphorbia Herb (source with permission from: National Diet Library); C *Yamatohonzo Shohinzu* illustration of Sun Euphorbia Herb (source with permission from: National Diet Library)

and leaves. He embellishes them and highlights the terminal umbel inflorescence with five umbel pedicels and five whorl leaves (actually leaf-like bracts) at its base. However, the finely serrated edge in the middle of the *Ze Qi*'s leaves. The division of the umbel pedicels is not depicted. Conversely, ovate bracts of the umbel branches are incorrectly drawn as four pieces (seemingly like petals). The oval-shaped fruit capsule in the picture also does not represent the actual plant. The reason for this phenomenon may be that Ekiken Kaibara himself did not see the original plant. Additionally, a few plant picturings only depict leaves, such as *He Shou Wu* (何首乌 *Radix Polygoni Multiflori*), *Ze Lan* (泽兰 *Herba Lycopi*), and *Shan Qin* (山芹 *Oenanthe javanica*), possibly because other parts of these plants were not observed.

4.2 Image analysis of the book

Shomotsuruisanzuyoku (『庶物類纂図翼』 *Wing of the Compilation of Common Objects*)

Shomotsuruisanzuyoku (Fig. 5) is a color-illustrated manuscript, a collection of medicinal plant illustrations presented by Toda Sukeyuki (戸田祐之, 1723–1779)¹² to the Edo Shogunate (Note 11). The Edo Shogunate commissioned this book as illustrations for *ShomotsuRuizan* (『庶物類纂』 *Compilation of Miscellaneous Species*), intended solely for the reading of high-ranking officials of the shogunate, with a limited distribution range. *Shomotsuruisanzuyoku* comprises a central collection of twenty-five volumes, supplemented by two volumes and further including an additional volume¹³, containing approximately 529 (over 300 species) color illustrations, with the version cited here being from the 8th year of the An'ei reign (1779) (Note 12). The primary collection's medicinal illustrations correspond to the herbs, fruits, grains, and vegetables sections of *Ben Cao Gang Mu*; each illustrated item carries a Chinese title on the front and its Japanese name on the back. The supplementary volumes contain medicinal substances not included in

Ben Cao Gang Mu.¹² *Shomotsuruisanzuyoku* indicates the origin and source of the medicinal materials, such as *Fang Feng* (防风, of Chinese origin, produced in Japan), *Qiang Huo* (羌活, of Chinese origin), *Da Huang* (大黄, of Chinese origin), *Huo Xiang* (藿香, produced in Japan), *Ling Ling Xiang* (零陵香, produced in Japan), *Bei Wu Wei Zi* (北五味子, of Chinese origin), *Tu Fu Ling* (土茯苓, of Chinese origin, and from the Ryukyu Islands), *Yang Ti* (羊蹄, of Chinese origin), *Bai Lian* (白蔹, of Chinese origin), *Chang Shan* (常山, of Chinese origin) and *Fu Zi* (附子, of Chinese origin), which helps to distinguish the differences between Chinese and Japanese medicinal substances.

The illustration style of *Shomotsuruisanzuyoku* is distinctly different from that of the *Ben Cao Gang Mu* medicinal illustrations. Taking the “licorice root (甘草)” illustration as an example (Fig. 6), it can be observed that the picturing technique of *Shomotsuruisanzuyoku* is meticulous and vivid, lacking the rigid and lifeless feel of woodblock print images, with prominent local features of the plant's leaves, stems, flowers, and roots. Moreover, many of the images in *Shomotsuruisanzuyoku* are drawn based on natural specimens, such as the two illustrations of “ginseng (人参)” at different growth stages in the book (Fig. 7), which are detailed and realistic. Both images show differences in root shape, leaf color, and flowering conditions, with meticulous depictions of leaf shape, leaf arrangement, and leaf margins, highlighting the contrast and three-dimensionality of the leaves. One of the illustrations even specifically depicts the upper part of the ginseng, which is likely drawn based on an actual ginseng plant. Considering this pictorial information, the illustrators of *Shomotsuruisanzuyoku* have developed unique insights into dealing with herbal illustrations using sophisticated picturing techniques. However, the influence of Chinese herbal illustrations can still be discerned. These herbal illustrations provide direct iconographic evidence for determining the origin of Chinese and Japanese medicinal substances at the time.

In the middle Edo period, the styles of herbal illustrations in different documents exhibited significant variations, and compared with the illustrations from the early Edo period, the picturing style also showed a gradual change trend. Although there are still references to Chinese herbal illustrations, life painting of natural specimens has become the primary method of creating herbal illustrations. Rangaku was gradually influenced in Japan in the 17th century, and Western botany began to be introduced to Japan.¹³ During the Tokugawa Yoshimune era, the botanical survey and the translation of the Dutch botanical works *Rembertus Dodoens* (*Herbal Spectrum*) were carried out, and in the process, they came into contact with the western botanical drawings, which influenced the paradigm of the drawing of the Japanese materia medica images. The original book *Rembertus Dodoens* was the second edition in Dutch (published in 1618) of *Cruydt-Boeck*



Figure 5 *Shomotsuruisanzuyoku* (『庶物類纂図翼』 *Wing of the Compilation of Common Objects*) (source with permission from: National Diet Library)



Figure 6 A *Ben Cao Gang Mu* Jiangxi edition licorice root illustration (source with permission from: National Diet Library); B *Shomotsuruisanzuyoku* licorice root illustration (source with permission from: National Diet Library)



Figure 7 *Shomotsuruisanzuyoku* ginseng illustration (source with permission from: National Diet Library)

(*Herbal Spectrum*), an exhaustive herbal book on the properties of plants and their medicinal values written by the Belgian naturalist Rembertus Dodoens (1517–1585), which was introduced to Japan in the Edo period. Based on extracts and translations from this book, Noro Genjō (野呂元丈) and others prepared *Orandahonzouwage* (『阿蘭陀本草和解』 *A Japanese Interpretation of Dutch Materia Medica*) from the first year of Kuanpo (1741) to the third year of Kuanyan (1750), under the instructions of Tokugawa Yoshimune. In addition, on the orders of Matsudaira Toshinobu (1758–1829), Ishii Dōkō (石井当光), Yoshida Masakyo (吉田正恭), and others began work on the translation of the entire book, and this translation was largely completed around the sixth year of Bunsei (1823). Carl Peter Thunberg (1743–1828), a Swedish botanist and disciple of Linnaeus, began collecting plant specimens in Japan in 1775, and was followed by Siebold (Philipp Franz Balthasar von Siebold, 1796–1866) brought the Linnaean taxonomy to Japan.¹⁴

For example, Ono Ranzan's *Kai* (『花彙』 *Encyclopedia of Flowers and Plants*) (1759) and Iwasaki Gonen's *Honzōzufu* (『本草図譜』 *Materia Medica Chart*) (1828). It can be regarded as a stage in the quest for realistic paintings of materia medica in which the Japanese materia medica community groped itself. Some of the images of materia medica took on the characteristics of botanical illustrations, foreshadowing the intellectual differentiation within Japanese materia medica that continued until the late Edo period.

5 Conclusion

The study of herbal illustrations is an interdisciplinary field that involves herbalism, natural history, botany, art history, and more. Previous discussions on the development of herbalism during the Edo period have not given sufficient attention to the content of illustrations. By collecting and analyzing the Japanese woodblock editions of *Ben Cao Gang Mu*, the placement of the materia medica illustrations was modified to integrate text and images better, enhancing the overall reading experience. The Japanese woodblock editions of *Ben Cao Gang Mu* from the mid-to-late Edo period prioritized reproducing the Hangzhou edition's illustrations. The herbal illustrations published in the early Edo period mainly imitated the styles found in documents such as *Zheng Lei Ben Cao* and *Ben Cao Gang Mu*. In the middle Edo period, driven by Tokugawa Ietsuna's policy of investigating and surveying products, herbalists began to emphasize life painting when creating illustrations, leading to a style in herbal imagery that focused on depicting detailed characteristics. At the same time, compared to printed images, manuscript illustrations' picturing techniques were more exquisite and artistic levels higher, although their dissemination was limited. Additionally, during the middle Edo period, the influence of Chinese

herbal illustrations did not wholly disappear, and some details from Chinese herbal illustrations continued to be referenced and borrowed. It was not until the late Edo period that this influence truly waned.

Although *Ben Cao Gang Mu* is a natural history book, it primarily focuses on pharmacological content. During the early Edo period, illustrations of materia medica focused on accurately identifying herbs. It was crucial to avoid confusion between names and their corresponding realities to prevent medication errors. In the middle Edo period, the style of Japanese materia medica illustrations shifted; the emphasis moved from identifying substances to a focus on natural history. Over time, creators began to downplay the pharmacological aspects of herbal illustrations, marking a significant change in the evolution of herbalism during the Edo period.

Notes

1. These include *Kinmōzui* (『訓蒙図彙』 *The Illustrated Catalogue of the Materia Medica*), *Noudokuzushō* (『能毒図鈔』 *The Illustrated Catalogue of Poisons*), *Zukaihonzō* (『図解本草』 *Illustrated Materia Medica*), *Orandahonzōzūkyō* (『和蘭陀本草図經』 *Hollander's Icones Plantarum Medicinalium Rariorum*), *Wa-Kan sansaizue* (『和漢三才図會』 *Illustrated Sino-Japanese Encyclopedia of the Three Realms*), *Honzōzuyoku* (『本草図翼』 *Illustrated Wings of Materia Medica*), *Yamatohonzōshohinzu* (『大和本草諸品図』 *Daiwa Materia Medica*), *OrandaKinjuuChyuugyozuWaikai* (『阿蘭陀禽獸蟲魚図和解』 *Illustrated Dutch Zoology with Japanese Commentary*), *Nipponsankaimibutsuzue* (『日本山海名物図繪』 *Illustrations of Famous Places in Japan's Mountains and Seas*), *Bikousoumoku* (『備荒草木図』 *Illustrated Catalogue of Plants for Famine Relief*), *Rikushisoumokuchojuuchuugyosozukai* (『陸氏草木鳥獸蟲魚疏図解』 *Luk's Illustrations of Herbs, Trees, Birds, Animals, Insects and Fish*), and *Shomotsuruisanzuyoku* (『庶物類纂図翼』 *Wing of the Compilation of Common Objects*). This article mainly focuses on the images in the category of herbal knowledge. Illustrations in primers and encyclopedias, illustrations of famous objects and natural history books, illustrations of foreign herbal books, and illustrations in agricultural books will be discussed separately in the future.
2. The periodization of the early, middle, and late phases of the Edo Period is based on the method proposed by Okanishi Tamenin (岡西為人), which divides the Edo Period as follows: Early Edo Period (1603–1709), Middle Edo Period (1710–1779), and Late Edo period (1780–1867). See Okanishi T. *Honzō Gaisetsu* (本草概説). Tokyo: Sougensha; 1985.p.390. Japanese.
3. For example, Kano Hiroyuki (狩野博幸) noted the relationship between the transmission of *Ben Cao Gang Mu* to Japan and the prosperity of herbal images and natural history paintings in the Edo period, see Kano

H, ed. *Edo's Animal and Plant Atlas* (江戸の動植物図譜). Tokyo: Kawade Shobo Shinsha, 2015. Japanese. He Huiling mainly discussed the *Honzōzufu* by Iwasaki Kan'en (岩崎灌園) and believed that the book made a beneficial supplement to the medicinal illustrations of *Ben Cao Gang Mu*, see He HL, Xiao YZ, Li J. *Ben Cao Gang Mu* influenced *Ben Cao Tu Pu* (『本草綱目』影响下的『本草图谱』). *Journal of Chinese Medical Literature*, 2013,(6):4–6. Chinese. Zhang Fang pointed out that the images and annotations used in *Honzōzuyoku* by Inō Jakusui (稻生若水) were basically from *Honzō Genshi*, see Zhang F. Changes in and Influence of the Images in the *Bencao Yuanshi* (『本草原始』的生物图像流变及其启示). *Studies in the History of Natural Sciences*. 2015;34(3):289. Chinese. Yabe Ichiro introduced the emergence of botanical atlases in Japan, delving into the characteristics of herbal illustrations featured in the two books, *Honzōzufu* and *Sōmoku-zusetsu* (『草木圖説』 *Plants & Trees, Illustrated & Explained*), see Yabe Y. *Edo's Materia Medica: Pharmacology and Natural History* (江戸の本草: 薬物学と博物学). Tokyo: Science; 1984. p. 197–202. Japanese. Ueno Masuzo (上野益三) pointed out that following the publication of *Yamato Honzō*, there was a surge in the publication of various botanical atlases, which also spurred the development of botanical illustration techniques. Representative works from this period include *Zukai Honzō* and the Japanese woodblock-printed edition of *Jiu Huang Ben Cao*. The illustrations in these books are all life drawings based on actual specimens, see Ueno M. *A History of Japanese Natural History* (日本博物学史). Tokyo: Heibonsha; 1973. p. 41–58. Japanese.

4. In the late Edo period, with the influx of Western botanical illustrations and the development of Japanese ukiyo-e, the style of herbal illustrations became more diverse. Due to space limitations, The author will write a separate article to discuss the development and changes of herbal illustrations in the late Edo period.

5. Ueno Masuzo believes that: “A book on medicinal substances like *Ben Cao Gang Mu* is also rich in natural history content. This book was an important reference for our country's herbal and natural history scholars throughout the Edo period. It replaced the *Zheng Lei Ben Cao* since the medieval period, and its influence extended over two and a half centuries. It greatly contributed to developing our country's herbalism and even natural history,” see Ueno M. *A History of Japanese Natural History* (日本博物学史). Tokyo: Heibonsha; 1973. p. 42. Japanese.

6. It is also related to the decrease in the number of Chinese medical books introduced after the third shōgun, Tokugawa Iemitsu (徳川家光), implemented the Sakoku policy in 1636.

7. According to Watanabe Kozo's (渡辺幸三) statistics, there were eight known printings of the Japanese woodblock editions of *Ben Cao Gang Mu*, with a total of

13 editions, including those with unknown publication years.

8. The main text content of the current edition has been corrected based on the Hangzhou edition. See Watanabe K. *Research on Materia Medica* (本草書の研究). Osaka: Kōyū Shoten; 1987. p. 138. Japanese.

9. In the early to mid-Edo period, encyclopedic and categorized books in Japan also featured a similar imitation style in their illustrations.

10. Chinese herbal illustrations mainly depict the morphology of medicinal substances (medicinal origins and medicinal materials), the process of medicine preparation and equipment, as well as other content related to medicinal substances (such as ecological environment, place of origin, application, folklore, and more.), see Sun QW. *A Study on the Illustrations in Ancient Chinese Herbal Books* (中医本草古籍图像研究). Beijing: China Academy of Chinese Medical Sciences; 2013. p. 35. Chinese.

11. Toda Sukeyuki (戸田祐之) was a samurai and herbalist during the mid-Edo period, also known as Tosa Youjin (戸田要人).

12. These series books are as follows: Volumes 1 to 25 cover the Herbs Section from the first to the twenty-fifth (referring to plants included in *Ben Cao Gang Mu*; Volumes 26 to 27 depict the Extra Volume Upper and Lower (depicting plants not included in *Ben Cao Gang Mu*; Volume 28 is an additional book (introducing the process of creating *Shomotsuruisanzuyoku* and its presentation to the Edo Shogunate).

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Ethical approval

This study does not contain any studies with human or animal subjects performed by any of the authors.

Author contributions

ZHOU Min wrote the first draft and the abstract in English and Chinese, revised the paper, checked the references, supplemented the information, and revised the format. HU Yingchong proposed the main research objectives, responsible for conceptualizing, designing, and implementing the study, writing and revising the paper, as well as controlling and reviewing the quality of the article at a later stage. Both authors contributed equally to the manuscript.

Conflicts of interest

The authors declare no financial or other conflicts of interest.

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From Korea to Japan: The East Asian Transmission and Localization of Zhu Quan's *Huo Ren Xin*

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Abstract

Since ancient times, humans have endeavored to maintain their health. These methods are collectively referred to as “*Yang Sheng* (养生)” or health preservation practices. The concept of *Yang Sheng* originated and was nurtured in ancient China. By the Ming dynasty, this practice had transcended the elite scholarly class and began to garner the attention of the general populace. With the development of the publishing industry, a large number of *Yang Sheng*-related books were created, disseminated, and widely read. Zhu Quan (朱权), a representative literatus of the Ming dynasty and a member of the imperial family, left behind a vast body of writings across multiple fields, including *Yang Sheng*, medicine, Daoism, history, drama, and phonology. Among these, his works on *Yang Sheng* and medicine were also transmitted to Korea and Japan, exerting an influence on East Asian *Yang Sheng* culture. Previous studies have largely lacked a systematic examination of Zhu Quan's thought on *Yang Sheng* and have paid little attention to the transmission of this thought in Korea and Japan. This study begins with an analysis of his *Yang Sheng*-related text *Huo Ren Xin* (《活人心》 *Enlivening the Human Heart*), and through an exploration of the core ideas in this work as well as its dissemination and reception in Korea and Japan, it attempts to shed light on the modes of transmission and exchange within East Asian *Yang Sheng* culture. First, the paper investigates the formation of Zhu Quan's thinking by examining his life and intellectual background. It then analyzes the compilation, content, and conceptual features of *Huo Ren Xin*, and explores its transmission in Korea and Japan based on extant editions. Finally, through an examination of medical texts and literary works by scholars in Korea and Japan, the study further elucidates the acceptance and transmission of Zhu Quan's *Yang Sheng* thought across East Asia.

Keywords: Zhu Quan; *Huo Ren Xin* (《活人心》 *Enlivening the Human Heart*); *Yang Sheng* (养生 health preservation); Daoism; Transmission in East Asia

1 Introduction

Zhu Quan (朱权, 1378–1448)(Note 1) was the 17th son (or 16th)¹(Note 2) of Zhu Yuanzhang (朱元璋, 1328–1398), the founding emperor of the Ming dynasty, and is esteemed as one of the foremost literati of Ming. Zhu Quan adopted the pseudonym “Quxian (臞仙)”, but he was also known by alternative titles such as “Han Xu Zi (涵虚子)” and “Danqiu Xiansheng (丹丘先生)”. In 1391, he was enfeoffed as the Prince of Ning and

resided in Daning [currently, in Ningcheng county (宁城县), Chifeng city (赤峰市), Inner Mongolia]. After the death of Zhu Yuanzhang, the Jianwen (建文) Emperor revoked Zhu Quan's princely title, and he was relocated to Nanchang (南昌) during the Yongle (永乐) Emperor's reign. Subsequently, Zhu Quan concealed his talents and immersed himself in a world of hobbies. As a cultural figure, he bequeathed numerous works on Daoism, health preservation, and drama.

As an important literatus of the early Ming dynasty, Zhu Quan exerted significant influence in the fields of Daoism, medicine, and drama, and his works have long attracted scholarly attention. However, due to the large number of writings attributed to Zhu Quan—particularly those related to *Yang Sheng* (养生 health preservation) and Daoism, many of which remain uncollated and understudied—the nature of his thinking on health preservation and its transmission in East Asian societies has yet to be fully understood. Zhu Quan's contributions to the field of medical health preservation are preserved in works such as *Huo Ren Xin* (《活人心》 *Enlivening the Human Heart*), *Shen Yin* (《神隐》 *Divine Concealment*), *Shou Yu Shen Fang* (《寿域神方》 *Divine Prescriptions for the Realm of Longevity*),

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Qian Kun Sheng Yi (《乾坤生意》 *The Vitality of Heaven and Earth*), and *Yun Hua Xuan Shu* (《运化玄枢》 *The Pivot of Transformation*). Additionally, his editorials and published medical books include *Shen Ying Jing* (《神应经》 *The Canon of Divine Responses*), *Shi Yao Shen Shu* (《十药神书》 *The Ten Divine Medicines Book*), *Su Wen Bing Ji Qi Yi Bao Ming Ji* (《素问病机气宜保命集》 *Compilation of Basic Questions on Disease Mechanisms and Preserving Life*), and *Xiao Er Ling Mi Fang* (《小儿灵秘方》 *Secret Prescriptions for Children's Health*). His Daoist-related works include *Tian Huang Zhi Dao Tai Qing Yu Ce* (《天皇至道太清玉册》 *Jade Fascicles of Highest Clarity on the Ultimate Dao of the Celestial Sovereign*), *Geng Xin Yu Ce* (《庚辛玉册》 *The Jade Records of Gengxin*), and *Jiu Ming Suo* (《救命索》 *The Life-Saving Cord*). Besides these, he also influenced various fields with his writings on tea in *Cha Pu* (《茶谱》 *Classic of Tea*), music and drama in *Shen Qi Mi Pu* (《神奇秘谱》 *The Mysterious Secret Manual of Divine Music*) and *Tai He Zheng Yin Pu* (《太和正音谱》 *The Perfect Harmony Canon of Orthodox Sounds*), and phonetics in *Qiong Lin Ya Yun* (《琼林雅韵》 *The Elegant Rhymes of Wonderland*).

In China, Ye Minghua's (叶明花) doctoral thesis, *A Study of Zhu Quan's Medical Health Preservation Literature* (《朱权医药养生文献研究》, 2009), comprehensively introduced Zhu Quan's life and works, giving particular emphasis to his contributions to medical health preservation. Ye Minghua, together with Jiang Lisheng (蒋力生), compiled and published his eight medical books in *The Complete Medical Works of Zhu Quan* (《朱权医学全书》, 2016). Nonetheless, Ye's research primarily focuses on bibliographic studies and creating literature lists from the perspective of traditional medicine, thus lacking a systematic analysis of Zhu Quan's ideologies.

In South Korea, some research projects have also examined the relationship between Zhu Quan's *Huo Ren Xin* and Yi T'oegye (李退溪). In Japan, Miki Sakae (三木荣) introduced bibliographic information on the Korean edition of Zhu Quan's *Huo Ren Xin* in his *Chôsen isho shi* (『朝鮮医書誌』 *Korean Medical Bibliography*). *Huo Ren Xin Fa* was included in the first collection of the *Chinese Yangsheng Series*, with a commentary by Ishida Hidemi;² however, other research on Zhu Quan's medical and health preservation ideologies remains scarce. Notable studies that focus on Zhu Quan's non-health preservation works include Takahashi Tadahiko's (高桥忠彦) exploration of his tea book *Cha Pu* and Sasaki Takeshi's (佐佐木猛) investigation of his phonetic work *Qiong Lin Ya Yun*.

This paper centers on *Huo Ren Xin*, one of Zhu Quan's representative works on *Yang Sheng*. It begins by examining the development of Zhu Quan's thinking through a study of his life and experiences. It then analyzes the compilation, content, and intellectual features of *Huo Ren Xin*, followed by an investigation of

its dissemination in Korea and Japan based on surviving editions. Finally, through an exploration of Korean and Japanese medical texts and literati writings, this study sheds further light on the acceptance and transmission of Zhu Quan's *Yang Sheng* thought across East Asia.

2 On Zhu Quan's (朱权) life

2.1 His circumstances and the policy toward princes

According to the records in *Ming Shi* (《明史》 *History of the Ming Dynasty*),³ Zhu Quan was the seventeenth son of Taizu (太祖). In the twenty-fourth year of the Hongwu (洪武) reign, he was enfeoffed as the Prince of Ning, and his fief was allotted in Daning. The conditions in Daning are described as follows: "There were eighty thousand armored soldiers and six thousand chariots (带甲八万, 革车六千)", "the cavalymen were all valiant and excelled in battle (骑兵皆骁勇善战)",⁴ indicating that Zhu Quan possessed substantial military power to protect the borders. In fact, during the Yan Rebellion, the Prince of Yan feared the military strength of the Prince of Ning the most.⁵

During the Jingnan Campaign, the Prince of Yan promised Zhu Quan "half of the empire". However, after the chaos subsided, Zhu Quan's requests to be enfeoffed in Suzhou (苏州) and Qiantang (钱塘) were both denied. Eventually, he was relocated to Nanchang (南昌). Shortly after his move, there was an incident where Zhu Quan was accused of practicing witchcraft, a false charge reported to the Yongle Emperor. Although these accusations were proven baseless, this incident marked the beginning of Zhu Quan's withdrawal from public life: "From that day, he concealed his status and talents, constructed a hermitage, and spent his time playing the *Qin* (琴) and reading books".⁶ Zhu Quan continued to live a life of seclusion during the Yongle Emperor's reign. After the Yongle Emperor's death and during the reigns of the Hongxi (洪熙) and Xuande (宣德) Emperors, Zhu Quan petitioned for the restoration of his title and land irrigation projects but instead faced reprimand from the Xuande Emperor. Consequently, "Zhu Quan associated with literary scholars, aspired to the immortal realm, and referred to himself as Quxian",⁷ living this way until his death in 1448.

In the early Ming dynasty, Taizu implemented the "policy toward princes", which aimed to appoint his descendants as feudal lords to fortify critical defense positions while using their military and some political power to strengthen central authority and ensure the stability of the nation. However, fearing that the power of the princes could threaten the central regime, successive emperors from the Jianwen Emperor onwards pursued a gradual "policy of restricting the princes" over four generations. The military and political power of

the princes was increasingly limited, and they were frequently denounced and punished.

With few opportunities to demonstrate their talents in governance, the princes turned to literature and religion, leaving numerous works behind. Denied chances to apply their abilities in statecraft, they turned to artistic and spiritual pursuits as an outlet for their frustrations. In other words, the princes' strong interest in religion and their "reclusive" stance can be seen as efforts to avoid political pressure and ensure their own safety by feigning political disinterest.

2.2 Relationship with Daoism

Zhu Quan was actively involved in Daoist activities, constructing the *Nan Ji Chang Sheng Gong* (南极长生宫 Southern Polar Longevity Palace) at Xishan (西山) (Note 3),⁸ a site associated with Xu Xun (许逊), the patriarch of *Jing Ming Dao* (净明道 Jingming sect of Daoism). In his youth, Zhu Quan was "widely conversant with both Buddhism and Daoism"⁹ and was particularly fond of Daoism, earning praise from Emperor Taizu for having "an immortal's nature".¹⁰ In his later years, he aspired to "ascend to immortality like a Daoist immortal",¹¹ and in 1438, he petitioned to build his own tomb while alive and constructed the *Nan Ji Chang Sheng Gong*. After his death, he was posthumously conferred the title "Changsheng Miaodao Zhenjun of the Nanji Concourse".¹² Richard G. Wang, in *The Ming Prince and Daoism*, "suggests that Zhu Quan might have received transmission and become a Jing Ming Daoist".¹³ However, beyond records related to *Jing Ming Dao*, there are scant details about Zhu Quan's activities as a Daoist. Nonetheless, it is plausible that his transition from a prince to a Daoist, who devoted himself to Daoist teachings and writings, served as beneficial publicity for *Jing Ming Dao* at the time.

Furthermore, Zhu Quan recompiled and published *Chong Bian Hai Qiong Xian Sheng Wen Ji* (《重编海琼先生文集》 *Recompiled Collected Works of Master Haiqiong*) in his later years, claiming in the preface that Bai Yuchan (白玉蟾) had "become Tianzhen (天真)", and Zhu Quan had met him twice, receiving tens of thousands of words in poetry and prose. He worried that they might be "buried in the annals of time and not transmitted to the world"; thus, he decided to republish the collection.¹⁴ Bai Yuchan, the fifth patriarch of Nanzong, engaged in various religious activities, and close exchanges with Daoist at Xi Shan.¹⁵ Although direct evidence linking Zhu Quan with *Jing Ming Dao* is lacking, his devout Daoist beliefs are well documented.

Tian Huang Zhi Dao Tai Qing Yu Ce preserved in Ji Daozang, was compiled by Zhu Quan. In its opening chapter, "*Yuan Dao* (《原道》 *The Original Way*)", it states that "Our Daoist ancestor Yellow Emperor received the Mandate of Jiu Huang and commanded the Six Dragons to govern Heaven, establishing the Pole in

place of Heaven to define San Cai", and "The Daoist ancestor Yellow Emperor first created writing, clothes, palaces, and utensils".¹⁶ This emphasizes the high status of the teachings of Huang-Lao. Zhu Quan quoted chapter 13 of *Dao De Jing* (《道德经》 *The Book of the Way*), "Therefore, value oneself as the world, as if one could be entrusted with the world. Cherish oneself as the world, as if one could be relied upon to safeguard the world (故贵以身为天下、若可寄天下。爱以身为天下、若可托天下)", in interpretation. While Zhu Quan advocated a rapport between Daoism and Confucianism, extolling the "unity of Confucianism and Daoism", he repeatedly dismissed Buddhism as "foreign heresy", referring to Buddhist scriptures as "books of evil".

3 Structure and ideology of *Huo Ren Xin* (《活人心》 *Enlivening the Human Heart*)

3.1 The editions of *Huo Ren Xin*

Huo Ren Xin stands as Zhu Quan's representative work on health preservation, though its exact date of authorship remains uncertain. The book, spanning approximately 20,000 characters, is divided into two volumes. The first volume focuses on *Zhi Wei Bing* (治未病 treating a disease before it arises), comprising seven sections: *Zhong He Tang* (中和汤 Harmony-regulating Decoction), *He Qi Wan* (和气丸 Harmonizing Qi Pill), Methods of *Yang Sheng* (养生之法), Treating the heart (治心), *Dao Yin* techniques (导引法), Nurturing the spirit (保养精神), and Supplementing and nourishing through diet (补养饮食). The second volume is dedicated to "*Zhi Yi Bing* (治已病 treating illness)", listing various medicinal prescriptions under two headings: *Yu Ji Er Shi Liu Fang* (玉笈二十六方 Twenty-six formulas of the jade cabinet) and *Jia Jian Ling Mi Shi Ba Fang* (加减灵秘十八方 Eighteen formulas of the secret with additions and deletions), detailing 26 and 18 types of formulas, respectively.

Currently, two Ming editions, two Korean editions, one Japanese edition, and one Japanese manuscript are extant. Upon investigation, two different Ming editions have been identified. One is kept at the Fu Sinian Library (傅斯年图书馆) at the Academia Sinica in Taiwan, China. The edition is believed to be a later reprint of the initial edition, with 14 prescriptions from the second volume missing and numerous sections being difficult to decipher because of damage. The other Ming edition is housed at the Kyo-U Library (杏雨书屋) of Osaka, and it was formerly part of the Fukui Suran Kan (福井崇兰馆) collection. Based on ongoing research, recent exhibition records, and the studies of Ikeda Hitoshi (池田寿),¹⁷ this edition likely represents one of the earliest prints from the Ming dynasty. As a newly discovered edition, this version holds significant literary value. Below, the



Figure 1 *Huo Ren Xin* (《活人心》) Enlivening the Human Heart, Ming dynasty edition (source with permission from: Academia Sinica, Taiwan, China)

author will explain the edition details of the above two Ming editions.

The first edition consists of two volumes bound in thread-bound format (两卷两册, 线装). The half-frame measures (半框) 19.5 cm × 13.7 cm, with double-bordered margins surrounding (四周双边有界) the text (except for the preface, which has no border) with black-mouthed double-fish-tail (黑口双鱼尾). Center of the page bottom (版心) records the number of pages and includes the character “*Huo* (活)”. The preface contains five lines per half-leaf, with eleven characters per line (半叶五行行十一字). The main text has eight lines per half-leaf, with eighteen characters per line (半叶八行行十八字). Annotations are provided in double-line small print (双行小注). Japanese reading marks (训点) are present, and additional notes appear at the top margin (天头). The first page of the preface bears two book collection seals, but their origins are indiscernible. The beginning of the first volume features three book collection seals: Rare Book Collection of the Institute of History and Philology (史语所藏珍本图书), Fu Sinian Library, Library Collection of the Eastern Culture Enterprise General Committee (东方文化事业总委员会藏图书).

The title at the beginning of this book (卷头书名) is “*Huo Ren Xin*”. It includes a preface (Self-preface by Zhu Quan) but lacks a table of contents. The final page has an added later inscription, stating “*Xin*, Volume Two: The End (心卷下终)”. This edition is incomplete. After folio 31 of the volume 2, the text is missing from the latter half of the “*Xiao Chai Hu Tang* (小柴胡汤 Minor Bupleurum Decoction)” formula onwards.

Another Ming printed edition of *Huo Ren Xin* appears in the Fukui Suran Kan collection. The existing Fukui Suran Kan collection consists of a total of 154 medical books spanning from the Southern Song dynasty to the Qing dynasty, as well as the Joseon period. In 2018, during the 40th anniversary exhibition of Kyo-U Library,



Figure 2 *Huo Ren Xin*, Ming dynasty edition (source with permission from: The Agency for Cultural Affairs, Japan)

a portion of these medical texts, including *Huo Ren Xin*, was publicly exhibited for the first time. In 2020, the collection was designated as a National Important Cultural Property of Japan.

This edition of *Huo Ren Xin* is a newly discovered source and has not been mentioned in previous research. Fukui Suran Kan was the residence of the Fukui family, a distinguished lineage of physicians in Kyoto. During the late Edo period, notable members of the family included Fukui Futei (福井枫亭, 1725–1792), Fukui Yotei (福井榕亭, 1753–1844), Fukui Teien (福井棣园, 1783–1849), and Fukui Kosai (福井恒斋, 1830–1900). In addition to their prominence in clinical medicine, these physicians were also avid book collectors, amassing a vast collection of medical texts. However, during the Taishō to Shōwa periods, a portion of their book collection was dispersed into the market.

At the beginning of this edition, there is a seal reading “Catalogue of the Sankaku Shi Library (三角氏图书记)”, indicating that this book was once part of the Sankaku family collection, another prominent family of Kyoto physicians. The Sankaku family had practiced medicine for generations, and by the time of Sankaku Ryokei (三角了敬, 1759–1824), they had accumulated a large collection of rare medical texts.

The Fukui Suran Kan edition of *Huo Ren Xin* is the only complete extant Ming printed edition, with clear printing and well-preserved text. Furthermore, according to the hypothesis of Ikeda Hitoshi, this edition is highly likely to be the original version published by the Ning Province (宁藩).¹⁸

There are two volumes in one book (两卷一册) (Note 4), thread-bound (线装). The half-frame size is 22.1 cm × 14.7 cm, with double-bordered on all sides (except for the preface, which has no border) and black-mouthed double-fish-tail. Folio numbers are recorded in the center of the page bottom, along with the book title “*Huo* (活)”. The preface has five lines per half-leaf, and eleven

characters per line. The main text has eight lines per half-leaf, and eighteen characters per line, with double-line small notes (双行小注). It includes Japanese reading marks, red underlines (红线标注), and top margin notes (天头注). Seal on the first page of the preface reads: “Catalogue of the Sankaku Shi Library”. Cover inscription is: “Written by Ming Ningxian Wang/Quxian’s *Huo Ren Xin*-Original Edition (明寧宁献王著/臞仙活人心原刻)”. Title at the beginning of the book is “*Huo Ren Xin*”. It includes a preface (Self-preface by Zhu Quan) but lacks a table of contents. The missing or worm-eaten sections have been supplemented with handwritten characters. Folio 37, 39, 44, and 54 were lost and later manually transcribed and inserted. After folio 65, two extra pages labeled “Another Sixty-five (又六十五)” were inserted. These contain formulas for “*Shen Xian Jia Wei Yan Shou Dan* (神仙加味延寿丹 Combined Longevity Elixir by the Immortals)” and “*Jia Wei Jin Hua Wan* (加味金花丸 Combined Golden Flower Pill)”. At the end of the volume, there is a handwritten note: “Respectfully Donated by Jiang Pucheng at the Guest House Outside Jubao Gate (聚宝门外来宾楼姜普成谨施)” (Note 5).

3.2 Titles of the book

It is pertinent to address the book’s title here. The commonly used title *Huo Ren Xin Fa* (《活人心法》 *Book of Revitalizing the Heart*) has variations such as *Huo Ren Xin*, *Huo Ren Xin Fang* (《活人心方》 *Formulas of Revitalizing the Heart*), *Xin Kan Jing Ben Huo Ren Xin Fa* (《新刊京本活人心法》 *New Edition of Book of Revitalizing the Heart Published in the Capital*), and *Qu Xian Huo Ren Xin Fa* (《臞仙活人心法》 *Book of Longevity Immortals Method of Revitalizing the Heart*). According to *Union Catalogue of Traditional Chinese Medical Classics* (《中国中医古籍总目》), the title *Xin Kan Jing Ben Huo Ren Xin Fa*, also known as *Qu Xian Huo Ren Xin Fang*, is listed. However, Zhu Quan himself, in his preface, stated: “Now I expound on the theories of these two schools, forming my own new discourse, and compile it into two volumes titled *Huo Ren Xin*, signifying the enduring mindset of saving people, wishing to preserve their lives, leading them together to the domain of longevity (今述其二家之说, 自成一家新话, 编为上下两卷, 目之曰活人心, 谓长存救人心, 欲全人之生, 同归于寿域也)”. This elucidates that the title was *Huo Ren Xin* embodying the meaning “A Heart to Save People”. Additionally, all references in *Bai Chuan Shu Zhi* (《百川书志》 *Bibliography from Collections of Baichuan*),¹⁹ *Guo Chao Xian Zheng Lu* (《国朝献征录》 *Records of Eminent Figures of the Current Dynasty*),²⁰ and *Jiang Cheng Ming Ji* (《江域名迹》 *Famous Sites of Jiangcheng*)²¹ list it as *Huo Ren Xin*, *Two Volumes*. Moreover, the Ming Yang Sheng books *Zun Sheng Ba Jian* (《遵生八笺》 *Eight Notes on Respecting Life*) and *Shi Se Shen Yan* (《食色绅言》 *The Restraint of Food and Desire*) cite this work as “*Huo Ren Xin Shu*

Yue (活人心书曰)” and “*Huo Ren Xin Yun* (活人心云)”. Given that the title on the cover page of the Ming edition is also *Huo Ren Xin*. This title will be used throughout this paper.

As the book was reprinted in various regions over time, changes in the title and volume counts emerged. Chronologically, the changes in the title and volume counts are as follows:

1. Cited as *Qu Xian Huo Ren Xin Fang* (《臞仙活人心方》 *Formulas of Longevity Immortals Method of Revitalizing the Heart*) in *Uibangyuchwi* (《医方类聚》 *Categorized Collection of Medical Formulas*).
2. The Korean An Hyun (安珰) Edition (1541) is in two volumes, titled *Xin Kan Jing Ben Huo Ren Xin Fa*.
3. The Korean Gyeongju Edition (1550) is in two volumes, titled *Huo Ren Xin Fa*.
4. The Japanese Waseda Edition (1653) is in three volumes, titled “*Huo Ren Xin Fa* by Quxian”.
5. *Qian Qing Tang Shu Mu* (《千顷堂书目》 *Catalogue of the Qianqing Tang Library*) lists it as *Huo Ren Xin*, *Three Volumes*. *Ming Shi Yi Wen Zhi* (《明史艺文志》 *Bibliographical Treatise of the History of Ming*) lists it as *Huo Ren Xin*, *Three Volumes*.
6. *Tian Yi Ge Shu Mu* (《天一阁书目》 *Catalogue of the Tianyi Ge Library*) lists it as *Huo Ren Xin Fa*, *Two Volumes*, *Ming Yuan Zhou Dao Ren Han Xu Zi, Jia Jing 29 Nian, Shan Xi Bu Zheng Si Ge Shou Li Chong Kan* (活人心法二卷, 明元洲道人涵虚子, 嘉靖二十九年, 陕西布政司葛守礼重刊).

3.3 Structure of *Huo Ren Xin*

The first volume opens with a preface that serves as a general introduction, in which Zhu Quan elucidates his fundamental understanding of health preservation. In this preface, he explains the origins of illness thus: “Although there are two methods of treatment, the source of illness is singular—it invariably arises from *Xin* (心 heart)”.

Zhu Quan asserts that the methods of treating illness include “treating *Xin* (治心) and cultivating oneself (修养)”, as well as using “medicine (药饵) and acupuncture treatments (砭熨)”. However, he emphasizes that the sole origin of all illnesses is *Xin*. In this context, Zhu Quan refers to the theories of “treating *Xin* and self-cultivation” and “medicine and acupuncture treatments” as the “two schools of thought”, which he has compiled into his own “new discourse”. The terms “one’s own discourse” and “new discourse” also frequently appear in Zhu Quan’s other works. Whether authoring his own books or re-editing those of others, Zhu Quan’s editorial approach is characterized by incorporating his own insights and making slight modifications or comments, thus transforming them into new “discourse”.

Toward the end of the preface, Zhu Quan discusses the purpose of his work as follows: “If a physician can discern the source of an illness and utilizes this book

effectively, then this book alone will suffice to achieve mastery in the medical field. If a layperson can adeptly practice the techniques of self-cultivation described in this book, then this book alone will suffice to attain the way of immortality. Certainly, it will bring about longevity, making this book indispensable for scholars”.²²

The sections “Methods of *Yang Sheng*” “*Dao Yin* techniques”, and “Nurturing the spirit” in the first volume are mostly extracts from *Xiu Zhen Shi Shu* (《修真十书》 *The Ten Books on Seeking the Truth*), a collection housed in the *Dong Shen Bu* (洞神部 Approaching to Spirit section) of *Dao Zang* (《道藏》 *A Collection of Daoist Classics*). Zhu Quan’s contributions based on his own knowledge are embodied in the sections “*Zhong He Tang*” “*He Qi Wang*” “Heart regulation”, and “Supplementing nutrition”. *Xiu Zhen Shi Shu* is a compilation of ten works on *Nei Dan* (内丹), and it was likely compiled by followers of Nanzong (南宗) Zhong-Lyu lineage during the early Yuan dynasty.²³

The content of the “Methods of *Yang Sheng*” section appears scattered and unsystematic but is, in fact, entirely derived from the “*Wei Sheng Ge* (《卫生歌》 Verse of preserving life)” by Xishan Xiansheng (西山先生) in the first book of the *Xiu Zhen Shi Shu*, that is, *Za Zhu Zhi Xuan Pian* (《杂着指玄篇》 *The Chapter on Pointing to the Mysterious*). However, individual lines from the “*Wei Sheng Ge*” have been abridged, and only the accompanying annotations have been copied verbatim.

The first part of “*Dao Yin techniques*”, including “*Ba Duan Jin* (八段锦)” “*Qu Bing Yan Shou Liu Zi Fa* (去病延寿六字法 Six-character verse to treat illnesses and pursue longevity)” and “*Si Ji Yang Sheng Ge* (《四季养生歌》 Verse on health preservation in the four seasons)”, are direct citations from the fourth book of *Xiu Zhen Shi Shu*, that is, *Za Zhu Jie Jing* (《杂著捷径》 *The Shortcut to Miscellaneous Compilations*), specifically the entire “*Zhong Li Ba Duan Jin* (钟离八段锦)” chapter (Note 6). The latter part, which discusses heart, liver, gall bladder, spleen, lungs, and kidneys, corresponds to excerpts from the tenth book, that is, *Huang Ting Nei Jing Wu Zang Liu Fu Tu* (《黄庭内景五脏六腑图》 *The Five Zang Organ and Six Fu Organ Diagram of the Inner Landscape of the Yellow Garden*). The final paragraph of the “*Dao Yin techniques*” section quotes “*Lyu Zhen Ren Xiao Cheng Dao Yin Fa* (吕真人小成导引法 *Dao Yin techniques with minor achievements from Perfected Person Lyu*)” from *Za Zhu Jie Jing*.

Regarded as the earliest source on “*Ba Duan Jin*”, the “*Dao Yin techniques*” described in *Huo Ren Xin* including illustrations, matching “*Zhong Li Ba Duan Jin*” from *Za Zhu Jie Jing*. *Xiu Zhen Shi Shu* details how Zhong Li (钟离) initially inscribes the “*Ba Duan Jin*” on a stone wall, allowing it to be passed down through the ages. The subsequent addition of the “Six-character Formula” by Dou Yinqing and the “*Lin Jiang Ci* (临江词)” by Xiaocui Xiansheng (小崔先生) is also

documented in this work. Furthermore, the “Nurturing the spirit” section directly cites “Nurturing the spirit (保精神)” from *Za Zhu Jie Jing*.

The second volume comprises two parts: “*Yu Ji Er Shi Liu Fang*” and “*Jia Jian Ling Mi Shi Ba Fang*”, listing 26 and 18 types of medicinal formulas respectively.²⁴ The title “*Jia Jian Ling Mi Shi Ba Fang*” appears in *Chao Shi Bao Wen Tang Shu Mu* (《晁氏宝文堂书目》 *Catalogue of the Chao Family’s Baowen Hall*) as *Ling Mi Shi Ba Fang Jia Jian* (灵秘十八方加减 Secret eighteen formulas with additions and deletions), indicating that the work is included in the Liulizhai medical books *Su Shen Nei Han Liang Fa* (《苏沈内翰良方》 *Su and Shen’s Excellent Prescriptions from the Imperial Academy*) and *Si Ku Quan Shu Cun Mu Cong Shu* (《四库全书存目丛书》 *Collection of Surviving Works from the Complete Library of the Four Treasuries*). A comparison of these two books reveals that the sections included in *Huo Ren Xin* are identical.

*Chao Shi Bao Wen Tang Shu Mu*²⁵ also lists “*Yu Ji Er Shi Liu Fang*”, but no other books under this title have survived. Therefore, it is unclear whether their content matches that of *Huo Ren Xin*.

Tracing the origins of “*Yu Ji Er Shi Liu Fang*” in *Huo Ren Xin*, a detailed comparison and investigation reveal that 19 out of the 26 formulas do not match any earlier medical texts, suggesting that Zhu Quan may have devised these prescriptions based on his own medical knowledge and clinical experience. The remaining seven formulas bear significant similarities to those in Song and Yuan dynasty pharmacological works such as *Tai Ping Hui Min He Ji Ju Fang* (《太平惠民和剂局方》 *Beneficial Formulas from the Taiping Imperial Pharmacy*), *Shi Yi De Xiao Fang* (《世医得效方》 *Effective Formulas from Generations of Physicians*), *Shi Zhai Bai Yi Xuan Fang* (《是斋百一选方》 *Selected Formulas from the Praiseworthy Studio*), *Xuan Ming Lun* (《宣明论》 *Treatise on the Elucidation of Clarity*), *Ji Jiu Xian Fang* (《急救仙方》 *Immortal Prescriptions for Emergency Relief*) (Note 7), and *Yu Yao Yuan Fang* (《御药院方》 *Formulary of the Imperial Medical Institute*). However, the names of the prescriptions and the quantities of the ingredients were sometimes different, so no complete matches were found. The comparisons are summarized in table 1 (Table 1).

3.4 Characteristics of *Huo Ren Xin*

At the beginning of the first volume, there is a preface that provides an overview of the content and emphasizes the theory that “illness arises from *Xin*, and deeds (业) are created by *Xin* (The mental system represented by the heart)”, underscoring that the root cause of diseases is the *Xin*. Despite distinguishing two types of diseases—“heavenly punishment ailments (天刑之疾)” and “self-inflicted ailments (自戕之疾)” —he asserts that both stem from *Xin*.²⁶

Table 1 List of formulas in “*Yu Ji Er Shi Liu Fang* (玉笈二十六方 Twenty-six formulas of the jade cabinet)”

Medicinal Effect	Formula Name	Origin	Change
General Use	<i>Zhi Sheng Lai Fu Dan</i> (至圣来复丹)	① <i>He Ji Ju Fang</i> Volume 5 ⁴⁸ ② <i>You You Xin Shu</i> ——Volume 9 ⁴⁹	① original name “来复丹” ② original name “古方至圣来复丹”
General Use	<i>Huan Yuan Dan</i> (還元丹)	創方	
Detoxification	<i>Yu Shu Dan</i> (玉枢丹)	① <i>Ye Shi Lu Yan Fang</i> Volume second (Note 12) ⁵⁰ ② <i>Bai Yi Xuan Fang</i> Volume 17 ⁵¹	① original name “圣授夺命丹” ② original name “神仙解毒万病丸”
Treating Sores	<i>Xuan Ling Dan</i> (玄灵丹)	Created by Zhu Quan	
Treating Sores	<i>Tian Jiang</i> (天浆)	Created by Zhu Quan	
Plaster (Severe Sores)	<i>Shen Shou Dong Hua Yi Suan Gao</i> (神授东华益算膏)	Created by Zhu Quan	
Calming the Spirit	<i>Gui Shen Dan</i> (归神丹)	<i>Shi Yi De Xiao Fang</i> Volume 8 ⁵²	from “二九丸至三九丸” to “二九丸至五九丸”
Feng Medication 風藥	<i>Bi Xun Ding Zi</i> (辟異錠子)	Created by Zhu Quan	
Feng Qi風氣	<i>Zhuo Hu Dan</i> (捉虎丹)	<i>Xuanming Lun</i> Volume 13 ⁵³	original name “一粒金丹” From “草乌头一斤” to “草乌一两半”、from “五灵脂一斤” to “五灵脂一两半”、from “木鳖子四两” to “木鳖子一两半”、from “白胶香半斤” to “白胶香一两半”、from “地龙四两” to “地龙一两半”、from “细墨一两” to “京墨一钱半”、from “乳香一两” to “乳香七钱半”、from “当归二两” to “当归七钱半”、from “没药二两” to “没药七钱半”、from “麝香一钱” to “麝香二钱半”
Gastric	<i>Jiu Xian Duo Ming Dan</i> (九仙夺命丹)	<i>Ji Jiu Xian Fang</i> (Note 13)	original name “九仙饼” From “人参两钱” to “人参一钱”、from “厚朴十五钱” to “厚朴五钱”
Accumulation過藥	<i>Ling Bao Dan</i> (灵宝丹)	Created by Zhu Quan	
Regulating Qi	<i>Si Chao Zhi Gu Wan</i> (四炒枳谷丸)	<i>Renzhai Zhizhi</i> Volume 17 ⁵⁴	From “每服三十丸” to “每服七十丸”
Diarrhea	<i>Gan Ying Dan</i> (感应丹)	<i>HejiJufang</i> Volume 3 ⁵⁵	original name “感应丸” From “新拣丁香一两半” to “丁香一钱”、from “男木香二两半” to “木香二钱半”、from “肉豆蔻二十个” to “肉豆蔻一个”、from “巴豆七十个” to “巴豆七个”、from “川干姜一两” to “干姜一钱”、from “杏仁一百四十个” to “杏仁七十个”、from “百草霜二两” to “百草霜一钱”
Throat	<i>Yu Guan Jin Yao Shi</i> (玉关金钥匙)	Created by Zhu Quan	
Throat	<i>Qing Long Dan</i> (青龙胆)	Created by Zhu Quan	
Throat	<i>Yu Ci Bing Gu Geng Zai Hou Zhe</i> (鱼刺并骨哽在喉者)	Created by Zhu Quan	
Tooth	<i>Yi Xiao San</i> (一咲散)	Created by Zhu Quan	
Tooth	<i>Shen Gong San</i> (神功散)	Created by Zhu Quan	
Eye	<i>Song Zhen Zong Huang Di Chi Feng Xu Ye Gao</i> (宋真宗皇帝敕封续液膏)	Created by Zhu Quan	
Heart	<i>Shen Ling Dan</i> (神灵丹)	Created by Zhu Quan	
Epilepsy	<i>Nan Ji Yan Sheng Tang</i> (南极延生汤)	<i>Yu Yao Yuan Fang</i> Volume 17 ⁵⁶	original name “牛黄泻心汤” From “大黄二两” to “大黄一两”
Swelling	<i>Dan Fang Qi Shu Bu Fu Yao Zi Qu Shui</i> (丹房奇术不服药自去水)	Created by Zhu Quan	
Male Medicine	<i>Jing Tian Xia Di Yi Xia Bu Yao</i> (精天下第一下部药)	Created by Zhu Quan	
Male Medicine	<i>Yu Lu Wan</i> (玉露丸)	Created by Zhu Quan	
Male Medicine	<i>Jin SuoDan</i> (金锁丹)	Created by Zhu Quan	
Women's Medicine	<i>Ji Yin Dan</i> (济阴丹)	Created by Zhu Quan	

Regarding the relationship between the “*Xin*” and the “*Dao* (道 way)”, he quotes the words of Taibai Zhenren (太白真人): “If you wish to heal the disease, you must first heal *Xin*, ensure *Xin* is righteous, and only then rely on the *Dao*.”²⁷ Furthermore, he states that “the *Dao* should be used to heal *Xin* and treat illness”, “*Xin* should be one with Heaven” and “*Xin* should be one with Earth”.²⁸ Additionally, about the relationship between the “*Xin*” and “Deities”, he says, “*Xin* is the dwelling of deities. Although it is empty inside and about an inch in diameter, deities resides within”.²⁹ He continues, “When *Xin* is calm, it can connect with Deities”.³⁰ Two medicinal formulations, “*Zhong He Tang*” and “*He Qi Wan*”, are proposed in *Huo Ren Xin* for the purpose of cultivating *Xin*. In “*He Qi Wan*”, he introduces his unique “Three Classics”, saying: “I have three classics, each comprising only six characters; although their texts are simple, the practice required is significant, and one must execute them with utmost sincerity. When someone asked about these characters, I said: the one-character classic is ‘endure (忍)’, the two-character classic is ‘be expedient (方便)’, and the three-character classic is ‘adhere to one’s role (依本分)’”. These three classics are not found in *Dao Zang* but lie within one’s heart. Everyone possesses them, regardless of wisdom or ignorance, literacy or illiteracy, and all can chant them”.

Zhu Quan’s approach to health preservation can be interpreted as emphasizing moral and character-based self-discipline, particularly the idea of “correcting *Xin* and cultivating the body”. Notably, his focus on endurance, adhering to one’s role, and being expedient in dealing with the world suggests an attitude of conformity and self-protection reminiscent of his own life circumstances. Regarding the Huang-Lao School (黄老学派), which flourished during the Han dynasty, Ikeda Shuzou notes: “The common foundation of techniques of Huang Di and the teachings of Laozi is health preservation the central theme. Laozi of the Later Han could fundamentally be considered a school of self-preservation and practical wisdom”.³¹ This evaluation correlates with Zhu Quan’s high regard for the teachings of Huang-Lao, as mentioned earlier.

Furthermore, regarding the effects of heart cultivation, Zhu Quan notes that “By firmly preserving vital energy (元气), preventing the intrusion of evil energy (邪气), reducing the likelihood of all diseases, ensuring long-term stability, and existing without regret”, and “if a person can wholeheartedly practice and uphold these techniques, they will not only avoid illness and disasters but also naturally acquire fortune. If fortune is not inherited by oneself, it will surely be passed down to descendants”.³² Beyond the common concept of physical health, this underscores a quest for longevity, fulfilling the desire for a long life, and achieving individual perfection. Moreover, *Huo Ren Xin* aims for “*Jiu An Chang Shi* (久安长世)” — prolonged safety and prosperity,

untroubled by illness and disaster—that extends good fortune to future generations. The book’s preface categorizes these practices under “immortal techniques (仙术)” and “immortal *Dao* (仙道)”, suggesting that Zhu Quan’s notion of “immortal techniques” diverges from the traditional pursuit of physical immortality.

As noted in table 1, the medicinal formulas in the second volume are fundamentally basic prescriptions aimed at ordinary diseases encountered in daily life. Whether derived from previous medical texts or developed by Zhu Quan himself, they employ readily available ingredients. This indicates his intention to make medical treatment more accessible, aiming to popularize health preservation practices among all people, regardless of social status.

4 The transmission of Zhu Quan's thinking in Korea and Japan

This chapter examines the dissemination of health-preservation texts and related ideas across early modern East Asia, with a particular focus on the transmission of Zhu Quan’s writings on self-cultivation and medicine.

4.1 Zhu Quan's works in *Uibangyuchwi* (『医方类聚』 Categorized Collection of Medical Formulas)

As previously noted, two Korean editions of *Huo Ren Xin* were published. One of these editions includes a colophon written by the elite official An Hyun, providing clear evidence of the work’s circulation in Korean society. Furthermore, Zhu Quan’s writings were cited in *Uibangyuchwi*, the comprehensive state-sponsored medical encyclopedia of the Korean dynasty. It has also been confirmed that the eminent Confucian scholar Yi T’oegye transcribed *Huo Ren Xin* by hand, attesting to its reception and significance in scholarly circles.

Uibangyuchwi was a state-sponsored medical encyclopedia compiled during the Korean Joseon dynasty under the orders of King Sejong. According to entries in *Joseon wangjo sillok* (『朝鮮王朝實錄』 Veritable Records of the Joseon Dynasty), the compilation of *Uibangyuchwi* began in 1443 and was completed in 1445, consisting of a total of 365 volumes. Subsequently, in 1459, King Sejo ordered the scholar-official Yang Seongji (梁誠之) to revise the manuscript,³³ and in 1477, 30 fascicles were printed.³⁴ This monumental work comprises 266 volumes bound in 264 fascicles, containing approximately 50,000 prescriptions and over 9.5 million characters. It draws upon and organizes content from over 150 Chinese medical texts dating from the pre-Qin period to the early Ming dynasty.³⁵ Because *Uibangyuchwi* quotes directly from original texts, it serves as a valuable source for reconstructing the contents of medical works that have since been lost. Moreover, based on the quoted passages in *Uibangyuchwi*, more than 30 reconstructed editions, collectively referred to as *Uibangyuchwi Cai Ji Ben*

(《医方类聚采辑本》 *Revised Edition of Uibangyuchwi*), were compiled in Japan during the Edo period.

It is said that an original printed edition of *Uibangyuchwi* was brought to Japan during the Imjin Wars (1592–1593, 1598–1599),³⁶ and the only extant Korean edition is currently preserved in the Archives and Mausolea Department in Japan (Note 8). In the late Edo period, Kitamura Naohiro (喜多村直宽, 1804–1876) reprinted the text using woodblock movable type, supplementing the missing twelve volumes of the Korean edition with content from other manuscript copies. Later editions published by the Korean College of Oriental Medicine and the People's Medical Publishing House in China are all based on this reprinted version, with editorial revisions applied.³⁷

In *Uibangyuchwi*, *Huo Ren Xin* is cited in twenty-nine instances, appearing under the categories of “Wind disorders section (诸风门)”, “Cold damage section (伤寒门)”, “Eye disorders section (眼门)”, “Dental disorders section (齿门)”, “Throat disorders section (咽喉门)”, “Blood disorders section (血病门)”, “Heart and abdominal pain section (心腹痛门)”, “Edema section (水肿门)”, “Red and white turbidity section (赤白浊门)”, “Dysentery section (诸痢门)”, “Detoxification section (解毒门)”, “Carbuncles and ulcers section (痈疽门)”, “Plaster and ointment section (膏药门)”, “Miscellaneous diseases section (杂病门)”, “Nurturing life section (养性门)”. Of these references, nine are drawn from the upper volume of *Huo Ren Xin*, and eighteen from the lower volume. Since two of the quotations appear in duplicated form, the total number of unique citations is twenty-nine.

Citations from the first volume of *Huo Ren Xin* include a range of health cultivation techniques such as Bo decoction, methods of *Yang Sheng*, *Zhong He Tang*, *He Qi Wan*, treating the heart, Dao Yin techniques, and *Qu Bing Yan Shou Liu Zi Fa*. In contrast, the second volume is primarily cited for medicinal formulas found in the “*Yu Ji Er Shi Liu Fang*”, including *Pi Xun Ding Zi* (辟巽锭子), *Zhuo Hu Dan* (捉虎丹), *Song Zhen Song Huang Di Chi Feng Qiong Ye Gao* (宋真宋皇帝敕封琼液膏), *Shen Gong San* (神功散), *Yu Guan Jin Yao Shi* (玉关金钥匙), *Shen Ling Dan* (神灵丹), *Dan Fang Qi Shu Bu Fu Yao Zi Qu Shui* (丹房奇术不服药自去水), *Tian Xia Di Yi Bu Yao* (天下第一部药), *Yu Lu Wan* (玉露丸), *Jin Suo Dan* (金锁丹), *Gan Ying Dan* (感应丹), *Xuan Ling Dan* (玄灵丹), *Tian Jiang* (天浆), *Shen Shou Dong Hua Yi Suan Gao* (神授东华益算膏), *Zhi Sheng Lai Fu Dan* (至圣来复丹), *Gui Shen Dan* (归神丹), and *Ling Bao Dan* (灵宝丹). Additional citations include formulas from the *Jia Jian Ling Mi Shi Ba Fang*, such as *Jia Jian Xuan Wu Tang* (加减玄武汤) and *Wu Ling San* (五苓散).

Two noteworthy features characterize these citations. First, the “Nurturing life” Section in *Uibangyuchwi* contains numerous quotations from the first volume of *Huo Ren Xin*, particularly those related to health preservation practices. Second, both the “Detoxification section”

and the “Nurturing life section” cite the first volume’s “*Yang Sheng Zhi Fa*”. It is especially notable that the latter section does not reproduce the original text in full. Rather, it appears that selections were made at the level of paragraphs and sentences, quoting only those passages deemed relevant. This editorial decision offers valuable insight into the perceived boundary between health cultivation and medicine in the context of early modern East Asian medical compilation.

By contrast, the medical formulas cited in *Uibangyuchwi* appear to rely heavily on the “*Yu Ji Er Shi Liu Fang*”. Since these formulas were largely created by Zhu Quan based on his own medical knowledge,³⁸ their inclusion suggests that Zhu Quan’s medical thinking was highly regarded in the compilation of *Uibangyuchwi*.

Next, using the Ming printed edition of *Huo Ren Xin* formerly held in the Fukui Suran Kan collection, we compared textual discrepancies with the cited passages in *Uibangyuchwi* (Note 9). A total of seven points of variation were identified, as outlined below (Table 2):

Based on the comparison between the Ming printed edition and *Uibangyuchwi*, it can be observed that items 1, 2, and 4 represent omissions of small-character annotations; item 3 appears to be an editorial insertion resulting from collation with *Shou Yu Shen Fang*. Items 5, 6, and 7 are examples of textual variants.

As previously noted, aside from the Ming printed edition of *Huo Ren Xin*, two Korean editions also exist. These two editions differ from the Ming edition in approximately 200 instances,³⁹ suggesting that they either drew upon a different base text or were intentionally modified versions of the Ming edition. In contrast, the citations found in *Uibangyuchwi* exhibit relatively few discrepancies. This strongly suggests that the Ming printed edition was used as the primary source during the compilation of *Uibangyuchwi*, and that it was quoted with a high degree of fidelity.

On the other hand, apart from *Huo Ren Xin*, *Shen Yin*, *Shou Yu Shen Fang*, and *Yun Hua Xuan Shu* are also cited in *Uibangyuchwi*. *Shou Yu Shen Fang* is a book of prescriptions that includes internal medicine, surgery, gynecology, and pediatrics, and many of its prescriptions are included in *Uibangyuchwi*. Specifically, citations appear in sections such as “Various wind disorders”, “Stroke disorders”, “Tetanus disorders”, “Paralysis”, “Red and white vitiligo”, “Leprosy and scabies”, “Cold damage”, “Eye disorders”, “Dental disorders”, “Throat disorders”, “Bone stuck”, “Accidental ingestion”, “Blood disorders”, “Heart pain”, “Abdominal pain”, “Rib pain”, “Edema”, “Red and White turbidity”, “Seminal emission”, “Carbuncles and abscesses treatment”, “Ulcers and boils”, “Women’s health”, and “Children’s health”. When citing prescriptions from each section of *Shou Yu Shen Fang*, omissions are frequently made, clearly indicating the selectivity applied in the compilation of *Uibangyuchwi*. As for *Shen Yin*, only the section titled “The way of nurturing life (摄生之道)” is quoted in the

Table 2 A comparison of *Huo Ren Xin* and the quotations found in *Uibangyuchwi* (【医方类聚】 *Categorized Collection of Medical Formulas*)

	<i>Huo Ren Xin</i>	<i>Uibangyuchwi</i>	Note
1	牙疳 (Small characters) 神功散	Dental Disorders Section III, vol. 73 神功散	Omitted
2	咽喉 (Small characters) 玉关金钥匙	Throat Disorders Section IV, vol. 76 玉关金钥匙	Omitted
3	玉关金钥匙淮乌三钱 (Small-character annotation)	Throat Disorders SectionIV, vol. 76 玉关金钥匙 淮乌三钱, 寿域神 二钱 (Small-character annotation)	Corrected based on textual collation
4	心疼 (Small characters) 神灵丹	Heart and Abdominal Pain Section III, vol. 94 神灵丹	Omitted
5	感应丹前三味另研	Dysentery Section VI, vol. 141 感应丹前三味别研	Discrepancy
6	灵宝丹乳香各半钱	Miscellaneous Diseases SectionIII, vol. 197 灵宝丹乳香各半两	Discrepancy
7	荣卫混乱	Nurturing Life SectionIII, vol. 201 荣胃混乱	Discrepancy

“Nurturing life section” of *Uibangyuchwi*. In addition, *Yun Hua Xuan Shu* is currently lost, and its contents cannot be clearly identified; however, from its citation in *Uibangyuchwi*, it is known to have included monthly health preservation methods.

According to the preface of *Uibangyuchwi*, “The various formulas are organized by chronological order of generations and classified into sections, without subdividing into detailed categories (诸方以世代先后,分门编入, 不分细目).

If the same medicine appears multiple times within the same section, and there are no differences in the symptoms treated, the medicinal ingredients, or the method of administration, it is noted at its first occurrence with the remark “same as the previous method”. If there are slight differences, the variations are listed separately. If there are major differences with minor similarities, the complete formula is appended in full (一门内一药重出, 而治症, 药材, 服法无加減, 则于初见处, 书某法同, 大同小异, 则其异者分附。小同大异, 则全方附录。)”.

In other words, *Uibangyuchwi* cites texts in roughly chronological order. Within the overall structure, *Huo Ren Xin* is positioned before *Yun Hua Xuan Shu*, *Shou Yu Shen Fang*, and *Shen Yin*.

In addition, regarding the third textual discrepancy mentioned above, In the formula *Yu Guan Jin Yao Shi*, the dosage for the ingredient *Huai Wu* (淮乌 Radix Polygoni Multiflori Praeparata cum Succo Glycines Sotae) is recorded as “3 qian (三钱)” in *Huo Ren Xin*, whereas in another of Zhu Quan’s works, *Shou Yu Shen Fang*, it is given as “2 qian”. Following chronological order, *Uibangyuchwi* cites *Huo Ren Xin* and appends *Shou Yu Shen Fang* as a supplementary reference. This editorial approach further suggests that *Huo Ren Xin* predates *Yun Hua Xuan Shu*, *Shou Yu Shen Fang*, and *Shen Yin*.

As demonstrated above, it is evident that *Huo Ren Xin* was completed earlier than the aforementioned three works. Since the compilation date of *Shen Yin* is clearly stated as the 6th year of the Yongle reign (1408),⁴⁰ the completion of *Huo Ren Xin* must have occurred prior to that—at the latest by 1408. It is generally believed that Zhu Quan composed most of his Daoist and medical writings after relocating to Nanchang in the 1st year of Yongle (1403).⁴¹ Moreover, the signature found in *Huo Ren Xin*, “*Xuan Zhou Dao Ren Han Xu Zi* (玄洲道人涵虚子)”, was used by Zhu Quan only after his move to Nanchang, unless it was added later. Therefore, it is highly plausible that *Huo Ren Xin* was written sometime between the 1st and 6th years of the Yongle reign (1403–1408).

4.2 On the hand-copied *Huo Ren Xin* by Yi T’oegye

After *Huo Ren Xin* was cited in *Uibangyuchwi*, Yi T’oegye, a Confucian scholar of the time and a renowned synthesizer of Zhu Xi’s (朱熹) Neo-Confucianism, also made a hand copy of *Huo Ren Xin*. As Yi T’oegye had suffered from “heart ailments (心疾)” since his youth and was physically weak,⁴² he studied health preservation and medicine, during which he became interested in *Huo Ren Xin* and hand-copied the first volume of the text. Today, the manuscript titled *Yi T’oegye’s Posthumous Writing: The Remaining Calligraphy of Li T’oegye Huo Ren Xin Fang* (【李退溪遗墨活人心方】) is housed in the Gwangmyeongdang of Sang-gye (上溪光明堂). It is a large-format book, measuring approximately 45.5 cm × 29.5 cm, and a facsimile edition has been published by the T’oegye Studies Institute (Note 10).

Based on an examination of textual variants using Yi T’oegye’s hand-copied manuscript, it is the closest to the Ming printed edition. Regarding the fact that Yi T’oegye copied only the first volume of *Huo Ren Xin*, further investigation is needed to determine whether he

was interested solely in the health cultivation methods of the first volume [particularly the idea of “nourishing the mind (养心)], or whether the second volume was already lost at the time of transcription (Note 11).

Throughout his life, Yi T'oegye resigned from official positions multiple times due to illness, and eventually returned to his hometown, where he established the Dosan Seowon and devoted himself to scholarship and education. He had an interest in poetry from an early age, published *Xin Jing Fu Zhu* (《心经附注》 *The Classic of the Heart with Annotations*) at the age of 33, *Zhu Xi Wen Ji* (《朱熹文集》 *Collected Works of Zhu Xi*) at 43, and studied *Yan Ping Da Wen* (《延平答问》 *Questions and Answers of Yanping*) at 52. Tomoeda Ryutaro points out that “it has become clear that while advocating the practices of self-cultivation, introspection, and the investigation of principle, he particularly emphasized and embraced the psychological dimension of Zhu Xi’s philosophy”.⁴³ Moreover, in the realm of health cultivation, he paid close attention to the idea of “regulating the mind”, and highly valued the reclusive life. Thus, his attraction to *Huo Ren Xin*, a text rich in content on “nourishing the mind”, is understandable.

Since Yi T'oegye’s hand-copied manuscript is believed to be written in his early years,⁴⁴ it appears to have been transcribed earlier than the so-called Korean An Hyon postscript edition and the Gyeongju edition of *Huo Ren Xin*. If it is true that the Ming printed edition was already incomplete at the time Yi T'oegye copied it (with only the first volume remaining), it can be assumed that the later An Hyeon postscript edition and the Gyeongju edition were compelled to seek and consult other, newer base texts.

As discussed in a separate paper,⁴⁵ compared to the Ming printed edition, the An Hyeon and Gyeongju editions appear to have incorporated clinical revisions particularly in the second volume’s section on medicinal prescriptions. In other words, in the effort to fully reconstruct the now fragmentary Ming edition, the An Hyeon postscript edition seems to have been compiled by collecting various surviving excerpts from the Ming edition, while also taking into consideration regional differences, including the distribution of medicinal plants, and incorporating insights gained through clinical experimentation.

In the early Joseon dynasty, diplomatic missions were frequently dispatched to the Ming court, and medical officials often accompanied these envoys. These medical officials observed the state of Ming medical practice on the continent and brought back medicinal materials and medical texts.⁴⁶ Given regional differences, it was likely very difficult to obtain the same medicinal ingredients used in the Ming dynasty within the natural environment of Korea. Although medical texts were imported from Ming China, it was often difficult to use the same medicinal substances or to apply them in the same dosages as described in the literature. Therefore, it is entirely

plausible that court physicians in Korea revised the formulas based on their own clinical experience. Moreover, An Hyeon—the compiler of the An Hyeon postscript edition—was an elite official with deep knowledge of medicine, and it is possible that he himself revised the prescriptions in *Huo Ren Xin*.

Accordingly, while the health cultivation methods of *Huo Ren Xin* were highly valued, its medicinal formulas were selectively incorporated into Korean medicine, where they were subjected to clinical application and revision. This process may be seen as a gradual adaptation and localization of the text within the Korean medical tradition.

4.3 Muromachi-period manuscripts and health-preservation texts

As noted above, in Japan, the Ming edition (original block print), Japanese editions, and Edo-period manuscript copies of *Huo Ren Xin* are extant. There is no doubt that *Huo Ren Xin* was transmitted to Japan during that time.

In *Compilation of Edo-period Bookstore Catalogues* (『江戸時代書林出版書籍目録集成』),⁴⁷ the catalogue is titled “Kanbun-era unrecorded edition book: three volumes of *Huo Ren Xin* (寛文无刊记书籍三册活人心)”. The title also appears in catalogues from Kanbun 10 (1670), Kanbun 11 (1671), Enpō 3 (1675), Genroku 5 (1692), Genroku 12 (1699), Tenna 1 (1681), Genroku 9 / Hōei 6 (1696 / 1709), and Shōtoku 5 (1715), all recorded as “Three volumes of *Huo Ren Xin*, compiled by Hanxuzizhi (三册活人心涵虚子编)”. It is unclear which textual version these editions followed, but it appears that *Huo Ren Xin* was published nine times or more between 1670 and 1715.

Since all of these editions bear the title *Huo Ren Xin*, it is likely that they retained the title of the Ming edition and possibly used it as the base text. However, given that all were printed as three-volume sets—and that only the Japanese edition consists of three volumes—it is also plausible that they were based on or referenced the Japanese edition. In any case, it is reasonable to conclude that during the approximately half-century from the Kanbun to Shōtoku eras, bookstores actively published and distributed *Huo Ren Xin* to meet the demands of a considerable readership.

Furthermore, Manase Dosan (曲直瀬道三, 1507–1594), who is regarded as the “reviver of Japanese medicine”, compiled *Kokan tekieshu* (『広観摘英集』 *An Observation on Picking the Essence*). This work excerpts and systematically organizes various forms of medical knowledge from Chinese medical texts. At the beginning of the text, under the heading “*Zhi Liao Qiao Zhuo* (治疗巧拙)”, it states: “*Huo Ren Xin* states: The divine physicians of ancient times were able to heal a person’s heart, preventing them from falling into illness. Today’s doctors only know how to treat diseases, but

they do not understand how to heal the heart (活人心曰古之神医能疗人之心、预使不致于有疾、今之医惟知疗人之疾、而不知疗人之心矣)". This indicates that *Huo Ren Xin* had already come into the hands of Manase Dosan at the time, and moreover, that Zhu Quan's idea of "nourishing the mind" was valued and incorporated into medical literature.

Additionally, *Doinsan'yo* (『導引纂要』 *A Guide and Summary to Daoyin*), a treatise on *Dao Yin* and health cultivation written by Funabashi Hidekata (舟橋秀賢, 1575–1614), also includes citations from *Huo Ren Xin*. *Doinsan'yo* discusses practices of nourishing life, *Dao Yin* techniques, and breathing methods, referencing Chinese medical texts. It is currently housed in the Seike Bunko collection at Kyoto University. In the middle section of the work, approximately twelve folios beginning with the phrase "*Huo Ren Xin* states" and ending with "Must not be neglected" are directly copied from the first volume of *Huo Ren Xin*, specifically from the section on "Methods of *Yang Sheng*". This includes passages on "*Dao Yin* techniques". Collation of textual variants reveals that the characters used in the quoted passages correspond to those in edition—the An Hyeon postscript edition. This suggests that *Doinsan'yo* was composed with reference to the An Hyeon edition of *Huo Ren Xin*.

Subsequently, *Yojozokukaishu* (『養生俗解集』 *Compilation on Health Preservation*), written by Matsuo Doeki (松尾道益, dates unknown) during the Kanbun era, presents theories of health preservation in clear and accessible language. In the first chapter, we find a passage that reads: "First, one should heal their body and correct their heart. Only then, with no doubts in the mind, should one reflect on past misdeeds and errors, repent, and let go of delusional thoughts. When one's actions align with the principles of Heaven, one will ultimately connect with the divine. With a pure and clear mind, illnesses will naturally be cured (先其身ヲ治メ、其心ヲ正メ、然後心中疑ナク、平生ナス処ノ、過惡ヲ改メクヒ、妄念ヲ放下ス、ナストコロノワザ、天理にカナフトキハ、ツイ二神二通シ、心意清淨ニス、疾病自然ニ安痊也)". Furthermore, in the second chapter, it becomes apparent that this work offers a simplified interpretation of *Huo Ren Xin*'s theories of "regulating the mind" and the *Dao Yin* section, especially the *Baduanjin*.

From these observations, it is clear that unlike in Korea, where medicinal formulas were emphasized, in the Japanese context, almost none of the texts engage with Zhu Quan's pharmacological content. Instead, greater attention is paid to the notion of "regulating the mind", maintaining mental tranquility, and to *daoyin* practices. In particular, the fact that each text carefully illustrates *Ba Duan Jin* indicates that, rather than focusing on medical formulas, Japanese readers and compilers placed emphasis on theories and practices of health cultivation.

5 Conclusion

As we have seen throughout this paper, Zhu Quan's challenging life circumstances served as a motivation for his writings. His works not only described the ideal health-preserving lifestyle he envisioned but also reflected his own state of mind.

In Zhu Quan's health preservation books, the methods and practices are not solely aimed at achieving longevity or attaining immortality but also focused on maintaining physical and mental well-being, leading a peaceful life, and ensuring the well-being of future generations. Furthermore, he introduces the concepts of mental and spiritual cultivation, practical health practices, and lifestyle choices suited for the general populace. This places "cultivating *Xin* (修心)" as both a means and an end, positioning Zhu Quan as a pioneer in the health preservation trend of the Ming dynasty.

Through the examination of *Huo Ren Xin*, it has been found that multiple versions of the text exist in both Korea and Japan. The only known original printed edition is preserved in the Fukui Suran Kan collection in Japan. Additionally, *Huo Ren Xin* is extensively cited in Korea's official medical compendium, *Uibangyuchwi*. The text incorporates many of Zhu Quan's original medicinal formulas, particularly valuing his theory of "regulating the mind". Yi T'oegye, the renowned Confucian scholar and systematizer of Neo-Confucianism in Korea, hand-copied the first volume of *Huo Ren Xin* and personally practiced its teachings on nourishing the mind. These facts clearly demonstrate that Zhu Quan's health preservation thought—especially the emphasis on mental cultivation—was received, valued, and practiced by Korean literati and elites. Furthermore, the citations found in *Uibangyuchwi* provide a basis for a more precise inference regarding the date of *Huo Ren Xin*'s compilation, which has long remained uncertain.

On the other hand, *Huo Ren Xin* was transmitted across the sea from Korea to Japan, where it was published and reprinted multiple times by commercial publishers. It was also cited in works such as *Doinsan'yo* and *Yojozokukaishu*, indicating its broad circulation among the populace. Notably, Japanese medical texts rarely cite the medicinal prescriptions found in *Huo Ren Xin*. Similar to *Ishinpō* (『医心方』) a medical text compiled in the Heian period, Japanese readers placed greater emphasis on practices related to health preservation, longevity, and sexual cultivation, which reflect strong Daoist cultural influences. Zhu Quan's thought on health cultivation and Daoist ideals took on different forms in their reception and transmission in Korean and Japanese medical traditions, respectively.

Notes

1. My previous research, please refer to: Liu Q. The spread of HUO REN XIN by Zhu Quan in Korea and

Japan-comparative study based on various versions-(朱権『活人心』の朝鮮と日本における伝播-諸本の比較を通して-). *Journal of Human and Environmental Studies, Graduate School of Human and Environmental Studies*. 2018;27:237-254. Japanese. Liu Q. The formation and development of Zhu Quan's yangsheng thought: focusing on HuorenXin and Shenxin (朱権の養生思想の形成と展開-『活人心』『神隠』を中心に-). *The Journal of Eastern Religions*. 2021;(135):1-19. Japanese. This paper incorporates newly discovered Ming printed editions of *Huo Ren Xin* and significantly revises and expands upon my previous research. At the same time, building on earlier studies, it further explores the transmission of *Huo Ren Xin* in Korea and Japan.

2. The original document is held by Columbia University, but since it is inaccessible, quotations are rearranged from the above compilation.

3. The following content is organized based on my actual investigation and the aforementioned paper by Ikeda Hitoshi.

4. "Sun Zhen Ren Si Ji Xing Gong Yang Sheng Ge (《孙真人四季行工养生歌》 Health preservation song for life and labor in the four seasons by Perfected Person Sun)" in the *Xiu Zhen Shi Shu* are referred to as "Si Ji Yang Sheng Ge" in *Huo Ren Xin*. The description is slightly different, but the content is essentially the same.

5. Since *Ji Jiu Xian Fang* has been lost, the quotations from *Uibangyuchwi* were organized and compared.

6. The copy of *Uibangyuchwi* held by the Archives and Mausolea Department consists of 250 volumes in 252 fascicles (out of the original 266 volumes and 264 fascicles; some are missing).

7. The copy of *Uibangyuchwi* held by the Archives and Mausolea Department consists of 250 volumes in 252 fascicles (out of the original 266 volumes and 264 fascicles; some are missing).

8. Volume 63 of *Uibangyuchwi* is missing, and volume 129 could not be collated due to poor condition. Variants of graphic forms are not counted in the current collation.

9. The Remaining Calligraphy of Li T'oegye Huoren Xin Fang is preserved at Gwangmyeongdang, Sang-gye. It is a large-format manuscript (approx. 45.5 cm × 29.5 cm), and a facsimile edition has been published by the T'oegye Studies Institute. The facsimile includes the study introduction to *Huo Ren Xin* by Yi Gawon (李家源).

10. Facsimile editions are currently held at the National Library of Korea, Yonsei University, Dankook University, and the Academy of Korean Studies.

11. Original confirmed through: Takeda T. Shennong Festival Memorial Lecture: panacea in East Asia (神農祭記念講演 東アジアの万能薬). *Shibun*. 2016;(128):58. Japanese.

12. The original text has been lost. The quote is taken from Research Institute of Traditional Chinese Medicine in Zhejiang Province, Huzhou Traditional Chinese Medicine Hospital. *Uibangyuchwi* (医方类聚). Vol. 9.

Beijing: People's Medical Publishing House; 1981. p. 620. Chinese.

13. The original text has been lost. The quote is taken from Research Institute of Traditional Chinese Medicine in Zhejiang Province, Huzhou Traditional Chinese Medicine Hospital. *Uibangyuchwi* (医方类聚). Vol. 9. Beijing: People's Medical Publishing House; 1981. p. 620. Chinese.

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Ethical approval

This study does not contain any studies with human or animal subjects performed by the author.

Author contributions

LIU Qing was responsible for the entire study and wrote the paper.

Conflicts of interest

The author declares no financial or other conflicts of interest.

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Dao Zang Tong Kao: The Interpretation of the Medical Literature of Dao Zang in European Daozang Project

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1 Introduction

Dao Zang (《道藏》 *The Daoist Classic Collection*) is an important portrayal of Daoist thought, teachings, and doctrines. The version that has been passed down to the present day is *Dao Zang* written in the Ming dynasty [*Zheng Tong Dao Zang* (《正统道藏》 *Dao Zang in the Zhengtong Era*) and *Wan Li Xu Dao Zang* (《万历续道藏》 *The Supplement of Dao Zang in the Wanli Era*)], which contains more than 1,400 types of literature with an all-encompassing content. Therefore, in the study of ancient Chinese culture, *Dao Zang* is a topic that cannot be neglected, and it has attracted the attention of scholars at home and abroad. At the beginning of the 19th century, with the increasing cultural exchanges between China and the West, European scholars began to develop a strong interest in traditional Chinese culture. As an important component of Chinese culture, Daoism and its classic literature, *Dao Zang*, became the focus of attention for European scholars. Against this backdrop, a research craze for Daoism gradually emerged in Europe, giving rise to a number of influential scholars and research achievements. The works included the French sinologist Maxime Kaltenmark's (康德谟) *Legend of the Immortal: Biography of the Ancient Daoist Immortal* (《列仙传: 古代道教仙人的传说传记》, 1953), John Lagerwey's (劳格文) *Supreme Secret: Overview of*

Daoism in the Sixth Century (《无上秘要: 六世纪的道教总汇》, 1981) from the Far Eastern Academy of France, and *Chronicle of Daoist Studies in the West* (《西方道教研究编年史》, 1989) edited by French scholar Anna Seidel, to name a few.

Among the researches during this period, the most notable one was the *Daozang* Project led by Kristofer Schipper (施舟人) and his research team. The *Daozang* Project has systematically examined and written abstracts for the 1,478 types of classics and documents included in *Dao Zang*, along with medical literature. This has laid an important foundation for discussing the perspectives of European scholars on the study of Daoist medicine and the cultural exchanges of medicine between Europe and Asia. The project gave birth to *Dao Zang Tong Kao* (《道藏通考》 *The Taoist Canon: A Historical Companion to the Daozang*), which was a major achievement of Western scholars in studying *Dao Zang* (Fig. 1). Various parts of the manuscript were originally written in French, German, English, and Italian, and were finally published in English by the University of Chicago Press in 2004. Twenty-nine editors participated in the compilation, with a total of 3 volumes. In 2005, it won the "Most Important Research Book Award", the highest academic award of the American Academy of Religion.

The research perspective, classification, and interpretation of the literature in *Dao Zang Tong Kao* were innovative, especially the extremely rich medical literature in *Dao Zang* been systematically verified, providing worthy reference. With *Dao Zang* as the carrier, European sinologists conveyed their interpretation of medical documents and understanding of medical knowledge in it, which is of great significance for the mutual learning of medical knowledge in Europe and Asia. Human medical civilization is closely related to the maintenance of human life and health, and the dissemination and mutual learning of medical knowledge is undoubtedly an important part of Eurasian cultural exchanges.

In recent years, more and more researchers have combined and studied the medical literature of *Dao Zang*, but such research has paid less attention to the foreign literature, especially to the literature compiled in English like *Dao Zang Tong Kao*. To understand the

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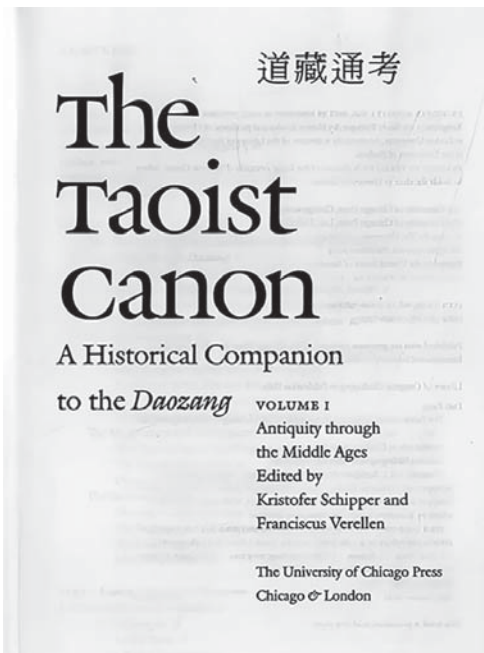


Figure 1 Book cover of *Dao Zang Tong Kao* (《道藏通考》) *The Taoist Canon: A Historical Companion to the Daozang* (source with permission from: *Dao Zang Tong Kao*¹)

local culture, it is especially necessary to combine the perspective of the other. The other is the central subject of the intercultural communication, and the actual participant in the interaction between local culture and heterogeneous culture. Its position in intercultural communication is self-evident.² Domestic academic circles make little use of the research results of foreign scholars in this field. If scholars in the field of history and culture can pay more attention to and learn from the research results of *Dao Zang* by European scholars, it is bound to play a certain role in promoting the study of Daoist culture in China. This paper reviews *Dao Zang Tong Kao*, and analyzes the understanding of European *Dao Zang* researchers on the medical literature of *Dao Zang* from two perspectives: firstly, from the framework and arrangement of the content of it, including the classification of the medical literature; and secondly, from its textual research and interpretation of the medical literature.

2 An analytical overview of *Dao Zang Tong Kao* (《道藏通考》) *The Taoist Canon: A Historical Companion to the Daozang*

Dao Zang is a very important database representing Chinese culture. Since 1926, *Dao Zang* of the Ming dynasty in Baiyun Temple (白云观) of Beijing has been published by *Han Fen Lou* (涵芬楼) in Shanghai (a total of 5,485 volumes), and *Dao Zang* has since flowed into the society and been made public to the world, which is the main original materials for the study of Daoism by scholars at home and abroad. After this, the scientific aspects of *Dao Zang* studies began in Japan, France

and other European countries.³ Subsequently, Chinese scholars also studied this important set of materials from a scientific perspective. In 1976, the first European Sinological Congress was held in Paris, France, where Kristopher Schipper, a Daoist of Chinese Zhengyi Daoism (正一教) who specialized in cultural research in China for more than 20 years, advocated the Daoist research and launched a large-scale academic activity called the *Daozang* Project, which initiated the systematic textual research work of *Dao Zang* classics by Western scholars. Kristopher Schipper and French scholar Franciscus Verellen (傅飞岚) led the editors-in-chief, and 29 European Daoist scholars participated in the compilation. It took 30 years to complete the work (3 volumes) from then on (Fig. 2). In 2004, *Dao Zang Tong Kao* was formally published.⁴ The compilers were mainly engaged in oriental history, oriental language and civilization, Chinese religions, Chinese culture, Chinese language and literature, Chinese political thought and ideology, inner alchemy, Daoist studies, Chinese traditional health and longevity techniques, history of religions, Chinese medical anthropology, Dunhuang (敦煌) manuscripts, etc., and their working institutions included universities, research institutes, libraries and so on. Kristopher Schipper was a very influential coordinate scholar in the contemporary international academic circle who studied Daoist culture. In the process of studying Daoist culture, he always stressed the important value of the study of *Dao Zang*. John Lagerwey, the secretary of *Daozang* Project, was a specialist of the history of Daoist ritual and the ethnographic study of local religion and society in southeast China. Franciscus Verellen, whose research was in the fields of medieval Daoism and the history of Chinese regional culture, has published numerous articles on the works and thought of Du Guangting (杜光庭) and a series of studies on the ritual and communal organization of the early Heavenly Master movement. The academic background and resource background of the project team members were mostly related to Daoist studies including Daoist medicine, which was a sufficient guarantee for the compilation of *Dao Zang Tong*

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Figure 2 List of compilers of *Dao Zang Tong Kao* (source with permission from: *Dao Zang Tong Kao*¹)

Kao, and has also laid a solid foundation for Eurasian cultural exchanges.

Dao Zang Tong Kao conducted a systematic textual research on the authors, dates of publication, and values of the 1,478 kinds of classics collected by *Dao Zang*, as well as synopses of *Dao Zang* literature. It also broke the traditional classification method of *Dao Zang* of Three Caverns, Four Supplements and Twelve Categories (三洞四辅十二类), and divided them into three major parts in accordance with the age of the canonical documents. Although the participants of the project were mainly European sinologists, the final presentation of *Dao Zang* in English greatly facilitated the circulation of *Dao Zang* and attracted more attention, establishing its status in the field of Daoist studies. The translation process of *Dao Zang* by both Chinese and European scholars fully reflected the exchange and mutual learning of Eurasian knowledge, which was not only the conversion of different languages, but also an important collision between Eurasian cultures. Japanese scholar Maruyama Hiroshi (丸山宏) has claimed that, “This study of Daoism by Kristopher Schipper has made *Dao Zang* a usable document for modern academic research and has brought a bright future for the research in the entire history of Daoism”.⁵ In the introductory section of *Dao Zang Tong Kao*, the editors stated in their introduction to the book’s “Structure and Content” that “The Companion can be read as a historical guide to Daoist literature or as a classified and annotated bibliography of individual works”.¹ From the perspective of philology, *Dao Zang Tong Kao* was a bibliography of the literature in *Dao Zang*.

Since its publication, the book has attracted widespread attention in the academic world. At present, the domestic research on *Dao Zang Tong Kao* mainly focuses on two aspects: one is translation research, such as translation reports made by Jiang Zhixin (蒋志新)⁶, Ren Jingjing (任晶晶)⁷, and Su Zhuyun (苏竹筠).⁸ The reports have analyzed the difficulties encountered by translators in the process and the solutions in combination with different translation principles and theories in order to provide references for relevant translation practice and teaching. On the other hand, there are book reviews of *Dao Zang Tong Kao* by Fan Xin (樊昕)⁹ and Zhao Yi (赵益)¹⁰, etc. These book reviews mainly introduce the compilers of *Dao Zang Tong Kao*, the background and process of its compilation, evaluate the content structure and the method of categorizing the Daoist literature, and affirm the value of *Dao Zang Tong Kao*, in the field of Daoist studies. Unfortunately, there exists no discussion of the medical literature or the classification of medical literature in *Dao Zang Tong Kao*. In view of the importance of this major achievement to the study of Daoism and the close relationship between Daoism and medicine, *Dao Zang Tong Kao* allows us to understand Daoism and Daoist medicine from a different perspective. Therefore, this book review analyzes the

classification of *Dao Zang Tong Kao* on the basis of its medical content, combining the different perspectives of traditional Chinese medicine (TCM), religion, and communication, and focuses on the editors’ understanding of the medical content of *Dao Zang*, especially medical works.

3 Innovative content arrangement and medical literature classification of *Dao Zang Tong Kao*

In the process of men’s understanding and transforming the world, classification is not only one of the most basic methods, but also the basis of all research, which can reflect certain intentions. For example, the ancient Chinese bibliography constructed an academic system by classifying the books.¹¹ The classification of *Zheng Tong Dao Zang* of the Ming dynasty, in which the literature included was divided into Three Caverns, Four Supplements and Twelve Categories according to the different origins and teaching systems, reflected not only the teaching system of the Daoist scriptures but also the actual content of the Daoist books and the characteristics of Daoist teachings. As for some books related to *Dao Zang*, *Dao Zang Ti Yao* (《道藏提要》 *The Synopsis of Dao Zang*) compiled and edited by Ren Jiyu (任继愈), follows the classification of the Ming *Zheng Tong Dao Zang*. *Zhong Hua Dao Zang* (《中华道藏》 *The Chinese Dao Zang*) takes the Ming *Zheng Tong Dao Zang* and *Wan Li Xu Dao Zang* as its foundation, maintains the basic framework of Three Caverns and Four Supplements, and classifies the scriptures other than the Three Caverns and Four Supplements according to different contents. The whole collection is divided into seven categories: Three Caverns scripture, Four Supplements scripture, Daoist collected works, Various Daoist techniques, Daoist rituals, History of the immortals preaching Daoism, and Catalogue index. For the scriptures collected in each category, they are queued according to the origin of Daoism and times.¹² *Dao Zang Fen Lei Jie Ti* (《道藏分类解题》 *The Classification and Notes of Dao Zang*) is a classic cataloguing must-read treatise in Daoist research. Influenced by the classification of modern disciplines, it changes the complex classification of the old Daoist scriptures and conforms to the classification habits of present people, dividing the canonical books in *Dao Zang* into fifteen categories, including philosophy, law, military, culture, sports, language, literature, art, geography, chemistry, astronomy, medicine and health, industrial technology, and comprehensive books.¹³

As a result of the research and interpretation of the Chinese Daoist classics by Western Daoist scholars and sinologists, the analysis and study of *Dao Zang Tong Kao* was a dialogue between different cultural systems.⁴ In the process of researching and interpreting *Dao Zang*

literature, European scholars analyzed the entire *Dao Zang* in a unique way by reclassifying its contents.¹⁰ *Dao Zang Tong Kao* consists of three parts. The first part is an overview in the first volume of the book, which mainly includes the compilation history of *Dao Zang* and the introduction to the *Daozang* Project. The second part classifies and solves more than 1,400 classic types of *Dao Zang*, which are distributed in the first and second volumes of the book. The third part of the book includes the appendix, the catalogue, and the index, which is the third volume of the book. The classification and description make the main part, and the 1,487 kinds of classics of *Dao Zang* are divided into three stages in a chronicle order, namely, Eastern Zhou to Six Dynasties, Sui, Tang and Five Dynasties, and the Song, Yuan and Ming Dynasties. Each period is further divided into “Texts in General Circulation” and “Texts in Internal Circulation” (Fig. 3). The editors of *Dao Zang Tong Kao* explained this as follows: “Within these chronological divisions, the classification follows a typological scheme that applies roughly the same structural pattern across the different periods. In each period, the first distinction is made between texts in general circulation (A), and texts in internal circulation (B). For category A, the texts are classified according to the theme, whereas in category B the framework is determined by the time sequence, schools or literature inheritance characteristics”.¹ The method is highly innovative. Zhao Yi from the Institute of Classical Literature of Nanjing University commented on this classification and arrangement method in his book review of *Dao Zang Tong Kao* as follows: the division of time periods is definitely a wise and intelligent realization, and its significance is not only to reflect a certain “historical” or “evolutionary” point of view, but more importantly, to reflect a certain essence of Daoism, which is characterized by “stage” and “process” in its development.¹⁰

The classification of *Dao Zang* reflects the Daoist doctrine. *Dao Zang* is divided into three parts, namely, *Dong Zhen* (洞真 Approaching to Authenticity), *Dong Xuan* (洞玄 Approaching to Mystery) and *Dong Shen* (洞神 Approaching to Spirit), which is a major feature of

Chinese thoughts. The three parts of the literature are mainly divided according to different sources: the documents of *Dong Zhen* section are the classics said by Yuanshi Tianzun (元始天尊), the documents of *Dong Xuan* section are the classics said by Lingbao Tianzun (灵宝天尊), and the documents of *Dong Shen* section are the classics said by Laozi (老子). Under the category of three parts, they are further divided into twelve categories, that is, text (本文), divine symbol (神符), incantation (玉诀), spiritual figure (灵图), Daoist story record (谱录), precepts (戒律), dignity (威仪), methods (方法), various techniques (众术), biography (记传), praise (赞颂), and memorials (章表), which is the embodiment of Daoist knowledge. There are also discussions and studies on the classification of *Dao Zang* in China, such as trying to classify *Dao Zang* documents according to the modern subject classification system, or combining the original classification system of *Dao Zang* with the modern subject system classification. In comparison, the classification method proposed in *Dao Zang Tong Kao* has its unique value. It conducts textual research on a single book and classifies it according to the dynasties, showing the overall characteristics of the period from the historical stage. At the same time, it is divided into general circulation text and internal circulation text. Both historical characteristics and cultural characteristics of Daoist literature are taken into account. For the medical literature in *Dao Zang*, *Dao Zang Tong Kao* categorizes it as “Texts in General Circulation”, which means that the medical literature was distinctly separated from the internal literature of Daoism and had universal circulation. The medical texts included in this collection have the following three themes: Medicine and Pharmacology, *Yang Sheng* (养生 health preservation), and Alchemy.

The categorization of medical literature in *Dao Zang Tong Kao* pays attention to minor differences. For example, in the second period of the Sui, Tang and Five Dynasties, the literature on *Yang Sheng* was subdivided into “Miscellaneous Practices” and “Respiratory Techniques”. The former was a combination of various types of health maintenance methods, while the latter mainly discussed health maintenance through breath regulation.¹ In the third volume of *Dao Zang Tong Kao*, *Tai Qing Tiao Qi Jing* (《太清调气经》 *Great Purity Qi-regulating Classic*) and other classics in the Sui and Tang dynasties were listed as representatives of “Miscellaneous Practices”, which combined guiding techniques with breathing methods, reflecting the health logic of “external movement and internal static, mutual conversion of physique and qi”. On the other hand, *Fu Qi Jing Yi Lun* (《服气精义论》 *Treatise on the Essence of Consuming Qi*) and other documents on the conception of breath have systematically constructed the theoretical framework of the Daoist internal cultivation system through the methods of “holding Qi and preserving the spirit” and “collecting breath and returning to *Dan Tian* (丹田 elixir field)”. Cross-cultural studies of such texts can be seen from the

Figure 3 Part of catalogue of *Dao Zang Tong Kao* (source with permission from: *Dao Zang Tong Kao*¹)

comparative analysis of the Tang dynasty *Dan Dao* (丹道) breathing method by the researchers of *Dao Zang Tong Kao*. The interpenetration of multiple practices and theories of health preservation literature in this period not only reflected the deepening development of Daoist “combined cultivation of body life and inner nature” in the Sui and Tang dynasties, but also provided interdisciplinary dialogue resources between traditional exercises and respiratory regulation for contemporary psychosomatic medical research. The alchemy was subdivided into “Laboratory Alchemy” and “Inner Alchemy”, which was also explained in *Dao Zang Tong Kao*: “We know from history that alchemy enjoyed great popularity during the Tang period, and this popularity is borne out by the large number of texts found in this section”. Daoism achieved a prominent political status in the Tang dynasty, leading a trend of alchemy and elixir consumption that lasted for hundreds of years and had a profound influence across all social strata. Not only did emperors, generals and ministers take elixirs, but also common people. The literary works of the Tang dynasty also reflected the widespread elixir consumption in society.¹⁴ The distinction between operative laboratory alchemy and contemplative inner alchemy has been so universal since Tang times that the two were usually presented as separate categories, in spite of some unresolved uncertainties with respect to the classification specific works.¹ In the Song, Yuan, and Ming dynasties, *Nei Dan* (内丹 internal alchemy) and *Yang Sheng* was a category subdivided into General Works and Manuals (一般文献), Zhong-Lyu Tradition (钟吕丹道), *Wu Zhen Pian* (《悟真篇》 *Treatise on Perception of Life*) and *Nan Zong* (南宗 the Southern School), as well as Other *Nei Dan* Traditions (其他丹道), while the category of Laboratory Alchemy was listed separately, alongside “*Nei Dan* and *Yang Sheng*”. The number of entries in the three categories of Medicine and Pharmacology, *Yang Sheng* and Alchemy for the three periods is shown in Table 1 (Table 1).

4 Comprehensive compilations of medical writings in *Dao Zang Tong Kao*

Dao Zang Tong Kao further reflected the understanding and interpretation of medical literature by European Daoist researchers through the notes of the works of Medicine and Pharmacology, *Yang Sheng* and Alchemy in *Dao Zang Tong Kao*. First of all, as a whole, through

the above categories of medical literature, European scholars were more systematic and meticulous in their research on the medical literature of *Dao Zang*, especially in the detailed examination and classification of the literature on *Yang Sheng*, Laboratory Alchemy, and Inner Alchemy, which was more reflective of the characteristics of Daoist medical science and innovative compared to the classification of the literature in Chinese medical writings and Chinese medical catalogues. As can be seen from the annotations in *Dao Zang Tong Kao* on classics such as *Tai Qing Jin Ye Shen Dan Jing* (《太清金液神丹经》 *Supreme Purity Golden Liquid Divine Elixir Classic*), European scholars paid particular attention to the technological history dimension of the mineral properties in external alchemy literature, placing alchemy within the framework of the exchange of chemical knowledge across Eurasia and revealing the theoretical differences between it and European alchemy. This interdisciplinary interpretation highlighted the uniqueness of Daoist medical literature in “proving the *Dao* through techniques”. From the viewpoint of Eurasian civilization exchange, European scholars have studied Chinese Daoist culture from the perspective of the other and combine their own cultural characteristics to further communicate with Chinese scholars. Kristofer Schipper has ever invited Chinese scholar including Qian Zhongshu (钱锺书) and Xia Nai (夏鼐) to visit France during the decades of compiling *Dao Zang Tong Kao*, and Chinese famous Daoist scholar Ren Jiyu has also invited him to the Chinese Academy of Social Sciences to jointly study Daoist culture. Language, as an important carrier and expression form of culture, is an important way to understand other cultures and an important tool for cross-cultural communication. The following section further analyzes the research and cataloging characteristics of the medical works by the editors of *Dao Zang Tong Kao* from three aspects.

4.1 Innovative categorization methods

“Medicine and drugs have been part of Daoist practice since early times”.¹ The sentence directly identifies the relationship between Daoism and medicine, and it also elaborates on the value of the existence of this category of writings in *Dao Zang Tong Kao*. The fact that it lists the categories of “*Yang Sheng*” and “Alchemy” rather than placing them in the category of “Medicine

Table 1 Distribution of medical literature in *Dao Zang Tong Kao* (《道藏通考》 *The Taoist Canon: A Historical Companion to the Daozang*)

Period	Number of Medicine and Pharmacology	Number of <i>Yang Sheng</i>	Number of Alchemy
Eastern Zhou to Six Dynasties	3	7	7
Sui, Tang and Five Dynasties	8	54 (Miscellaneous Practices 34, Respiratory Techniques 20)	50 (Laboratory Alchemy 33, Inner Alchemy 17)
Song, Yuan and Ming	9	99	28

and Pharmacology” also reflects the characteristics of Daoist literature. These two types of literature in *Dao Zang* were large in number and form different systems of their own, which was the practice and accumulation of the Daoists in the process of exploring life, and most of them have not been inherited by Chinese medicine. Daoism attaches particular importance to health preservation, and the ideal of Daoism is to become immortal, so *Sheng* (生 life existence) has an important position in Daoist thinking. The principle of health preservation is to understand the nature of life and conform to the law of endless operation of heaven and earth, which mainly comes from Laozi and Zhuangzi (庄子).¹⁵ Alchemy in China had a long history. As early as the Warring States Period, there was a saying that longevity was symbolized by the golden stone. In the Qin and Han dynasties, taking immortal medicine became a craze. People believed that eating gold could lead to immortality, and Daoism practitioners carried on the inheritance and further explanation of alchemy. For example, Wei Boyang (魏伯阳), a famous Daoist priest in the Eastern Han dynasty, Ge Hong (葛洪), a Daoist priest in the Eastern Jin dynasty, and others have discussed alchemy in their books.¹⁶ *Dao Zang Tong Kao* was dedicated to combing the literature of *Yang Sheng* and Alchemy, which further drew the attention of relevant scholars and is conducive to more in-depth research on them in the future.

Dao Zang Tong Kao had the following characteristics in the study of medical literature. First, the book fully retained the characteristics of Daoism, reflecting the fusion and tolerance between Eastern and Western heterogeneous cultures. For some of these terminologies, the combination of transliteration and free translation was adopted, “《上清经》” was expressed as “the Shangqing Canon” or “the Canonical Shangqing Scriptures”. When introducing Daoist belief and culture to Europe and even the whole world, the internal circulation literature and external circulation literature had different focuses to facilitate a comprehensive understanding of Daoism by recipients. The former primarily targeted Daoist believers, serving as a more specialized resource within the Daoist community. In contrast, the external circulation literature, which included medical literature, was to make Daoist culture more accessible to the general public. Secondly, the three types of literature, Medicine and Pharmacology, *Yang Sheng* and Alchemy were discussed separately, which was more conducive to the editor’s analysis of the characteristics of Daoism and Daoist medicine, and at the same time, it was also easier for the readers to recognize and understand the different systems of medical literature and Daoist medicine in *Dao Zang*.

4.2 Detailed textual research and description

Dao Zang Tong Kao conducted meticulous research and examination of basic information, content introduction, and expansion of information when recording medical

texts, and each work contained a heading, an article, a bibliography, and other entries. The description is as follows:

The bibliography of *Dao Zang Tong Kao* was a heading in the main body of each entry, which was in accordance to the introduction of the “Reader’s Guide” and in combination with the specific contents of the works. It covered the English titles (all titles were transliterated phonetically), the Chinese titles (in traditional characters, all Chinese characters appearing in the book are in traditional characters), the number of volumes of the canonical works, the author or editor information, and the index number of *Dao Zang Suo Yin* and the sub-volume coding of *Han Fen Lou’s Dao Zang*. In the case of *Huang Di Nei Jing Su Wen Bu Zhu Shi Wen* (《黄帝内经素问补注释文》 *Supplemented Annotations on The Yellow Emperor’s Inner Classic: Basic Questions*) (Fig. 4), the description item contained the following information: “*Huangdi neijing suwen buzhu shiwen* 黄帝内经素问补注释文 50 juan Commentary by Wang Bing, hao Qixuan zi 启玄子 (762), corrected by Lin Yi 林亿 (1058–1064) and others, and again by Sun Zhao 孙兆, I018 (fasc. 649–660)”. From the perspective of bibliographic works value, the information collected and listed by the editors of *Dao Zang Tong Kao* was comprehensive, including volume number, author or editor, retrieval information and other aspects, so as to facilitate users to understand and search the classics.

The summary first translated the names of the canonical books into English. “*Huangdi Neijing Suwen buzhu shiwen*” is translated as “*Questions on Initial Life, from the Inner Canon of the Yellow Emperor, Text and Annotations*”. Based on this translation, the summary organized the canonical sources, commencing with the discussion of Liu Xin’s (刘歆) *Qi Lue* (《七略》 *The Seven Catalogues*), progressing to the compilation and commentary by Quan Yuanqi (全元起), Wang Bing (王冰), Lin Yi (林亿), and others, and detailing the core ideas. The summary predominantly consisted of

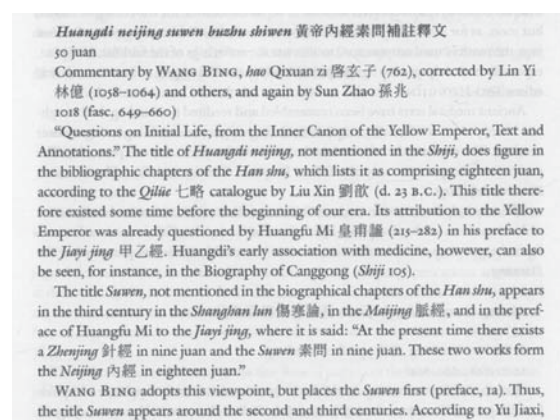


Figure 4 Entry of *Huang Di Nei Jing Su Wen Bu Zhu Shi Wen* (《黄帝内经素问补注释文》 *Supplemented Annotations on The Yellow Emperor’s Inner Classic: Basic Questions*) recorded in *Dao Zang Tong Kao* (source with permission from: *Dao Zang Tong Kao*)¹⁾

biographical information, which chronicled the life of the author without delving into their scholarly concepts.

The reference section included a concise list of materials by Chinese and international researchers to enhance readers' understanding of the classics in *Dao Zang*, and the specific information of the references was listed in Volume III of *Dao Zang Tong Kao* in detail for readers to refer to. This showed the diversified academic pedigree in the research field of *Dao Zang*, and made the study of classics not only rooted in the local tradition, but also obtains multi-dimensional interpretation space in the international perspective through cross-cultural academic dialogue.

In addition, *Dao Zang Tong Kao* has done textual research on the age of some classics. For the canonical books in *Dao Zang*, including medical canonical books, most of the time of writing was not clear. For example, when *Dao Zang Ti Yao* recorded the writings of *Dao Zang*, none of the writings with an unknown date of composition were discussed in the explanation of their specific dates. However, from the overall classification of the three periods of *Dao Zang Tong Kao*, all the literature is classified in the period from the Eastern Zhou to the Six Dynasties; Sui, Tang and Five Dynasties, or the Song, Yuan and Ming dynasties, which indicates that the date of the writings was initially determined. Literature carries various elements in the development process of human society, such as knowledge, culture, history and civilization, while Daoist literature carries the knowledge system, development process and culture of Daoism. The classics of different historical stages represent the characteristics of this historical period. From the vertical point of view, the inheritance between documents can reveal the law of the development of Daoism to a certain extent. Therefore, *Dao Zang Tong Kao* tried to trace the writing time of Daoist classics, which helped to further clarify the relationship between the source and flow of Daoist literature and analyze the characteristics of Daoist culture. By comparing the medical texts of the three periods, there has been a gradual increase in the number of medical writings, reflecting the characteristics of the historical development of *Dao Zang's* literature, as well as the development of traditional Chinese medicine (TCM). For instance, the Sui, Tang and Five Dynasties period "Medicine and Pharmacology" part stated that, "If a distinction can be made in the history of traditional Chinese medicine between an earlier period of Daoist medicine and a later period of Confucian medicine, the Tang (618–907) witnessed the final flourishing of the former. Both Sun Simiao (孙思邈), at the beginning of the dynasty, and Wang Bing, at its later stage, made immense contributions toward the preservation and the upgrading of traditional Chinese medicine".¹ The supplementary table 1 (<http://links.lww.com/CMC/A8>) is a list of the names of the "Medicine and Pharmacology" works in order to show the characteristics of the development of medical literature in different periods.

4.3 Extensive and detailed references

Dao Zang Tong Kao made a comprehensive study of the literature of *Dao Zang*, which combined different directions in the study of medical history literature research, such as history of the development of TCM, bibliography, edition and other methods, making the study of the canonical books of *Dao Zang* more in-depth and comprehensive. In order to ensure the accuracy of the viewpoints when addressing specific issues, *Dao Zang Tong Kao* referred to more than 1,000 kinds of literature, an extremely rich variety. In addition to Daoist literature, it also involved other types of literature, such as *Han Shu* (《汉书》 *History of the Han Dynasty*), *Hou Han Shu* (《后汉书》 *History of Latter Han Dynasty*), *Yi Wen Lei Ju* (《艺文类聚》 *Classified Excerpts from Ancient Writers*), *Si Ku Quan Shu* (《四库全书》 *Complete Library in the Four Branches of Literature*), *Ce Fu Yuan Gui* (《册府元龟》 *Prime Tortoise of the Record Bureau*), *Bi Song Lou Cang Shu Zhi* (《北宋楼藏书志》 *Catalogue of Collection in Bi Song Lou*), etc., and the Chinese medical classics such as *Ben Cao Jing Ji Zhu* (《本草经集注》 *Collective Commentaries on the Classic of Materia Medica*), *Chong Xiu Jing Shi Zheng Lei Bei Yong Ben Cao* (《重修经史证类备用本草》 *Revised Classified Materia Medica from Historical Classics for Emergency*), *Ming Yi Bie Lu* (《名医别录》 *Miscellaneous Records of Famous Physicians*). In addition, they noted where they directly cited the previous research, which helped readers combine these materials for a more in-depth understanding of *Dao Zang* medical classics. This was explained in the "Reader's Guide" at the beginning of the book, which suggested that readers can learn about each work through the references in the appendices. The sources of references were listed under each text, revealing that the researchers have cited a wide range of sources to ensure accuracy and depth, and to provide reliable information for future researchers. The range of references covers ancient books, research works by modern scholars, research papers, etc.

Based on the above characteristics, participants in *Daozang* Project made important contributions to the study of *Dao Zang* literature, including *Dao Zang* medical literature. However, on the other hand, there were some unclear points in the categorization and elaboration of medical literature by the scholars of *Daozang* Project. First of all, according to the analysis above, the classification of the medical literature involved in the three periods is not uniform. For example, regarding the concept of the word "Alchemy" in *Dao Zang Tong Kao*: from the Eastern Zhou to the Six Dynasties section, the seven kinds of works under the category of Alchemy were all Laboratory Alchemy works; in the part of the Sui, Tang, and Five Dynasties periods, the category of Alchemy included 33 kinds of works of Laboratory Alchemy and 17 kinds of works of Inner Alchemy; the transliteration word *Nei Dan* was used in

the Song, Yuan, and Ming dynasties section, and it was combined with *Yang Sheng* and *Nei Dan* into one category, while Alchemy was listed as a separate category, and here Alchemy undoubtedly refers to the writings of the Laboratory Alchemy. Despite some shortcomings, the results of this research became an important source of information for scholars at home and abroad to study *Dao Zang* after its release.

5 Discussion

As a comprehensive bearer of the essence of Daoist thought, *Dao Zang* shows significant pluralism because of its interdisciplinary knowledge pedigree. It covers the literature form of philosophy, medicine, religion and other multidisciplinary fields, which makes any single classification system difficult to avoid academic questions. As an important achievement in the field of Daoist research, *Dao Zang Tong Kao*'s innovative document classification system has dual academic value: it not only reveals the evolution logic of document collection in different historical stages through the diachronic dimension, but also constructs the dual analysis framework of general circulation text and internal circulation text at the synchronous level. This structural breakthrough provides us with a methodological demonstration. This paper holds that the academic enlightenment of this project is mainly reflected in the following three dimensions:

Firstly, *Dao Zang Tong Kao* establishes a framework for the dialogue of medical knowledge between Eurasian civilizations. From the perspective of Eurasian medical knowledge exchange, there has been limited research focusing on Daoist medicine. Taking *Dao Zang* as the research subject, *Dao Zang Tong Kao* has facilitated academic exchanges among Eurasian scholars and serves as a significant testament to the mutual learning between Eurasian civilizations. The findings will contribute to enhancing future domestic and international collaborative research efforts, promoting complementarity between the two sides, and advancing in-depth studies of Daoist medical literature. As Professor Chen Fenglin (陈奉林) emphasized in “The expansion of the ancient Eurasian exchange area and the development of the Eastern diplomatic circle (《古代欧亚交流区域的扩大与东方外交圈的发展》)”, it is neither feasible nor advisable to promote Eurasian studies by disregarding the cultural, historical, and systemic differences between the East and West. Similarly, over-emphasizing these differences and individualities while neglecting the overall integrity of Eurasia is also inappropriate. Different civilizations should engage in mutual learning, tolerance, and the exchange of strengths.¹⁷

Secondly, *Dao Zang Tong Kao* sets up a typical case of Eurasian cross-cultural interpretation. This project is a typical case of understanding Chinese traditional culture from the perspective of the other. The research of European scholars fully retains the characteristics of

Daoism, reflecting the integration and tolerance between Eastern and Western heterogeneous cultures. The project researchers of *Dao Zang Tong Kao* use their own language to think about Chinese culture and Daoist medicine, and the medical content elaborated in it fully reflects the editor's understanding of *Dao Zang* and Daoist medicine. Under the background of modern science and culture in the West, European scholars fully retained the characteristics of TCM and Daoist medicine, combined with specific literature to study and record medicine, health and alchemy works from a cultural perspective, reflecting their Sinology skills to a certain extent. This dual interpretation strategy provides a model for the dialogue between different cultures and provides important reference for the research of Chinese scholars.

Lastly, *Dao Zang Tong Kao* promotes new perspectives in Daoist studies. According to the current research, there has been no discussion on the medical literature and the classification of medical literature in *Dao Zang Tong Kao*. In view of the importance of this major achievement to Daoist research and the close relationship between Daoism and medicine, *Dao Zang Tong Kao* can help us to understand Daoism and Daoist medical literature from a different perspective. Literature is the product of the development of human culture to a certain stage, and it develops continuously with the progress of human civilization. Literature can make human knowledge break through the limitation of time and space and pass on for a long time. *Dao Zang Tong Kao* breaks through the boundary of time and space, making the dialogue between history and modern times and the collision between Eastern culture and Western culture. This kind of academic practice across time and space bridges cultural decoding, which is a cross-cultural academic dialogue and mutual learning of civilizations. This research paradigm is different from the one-dimensional research path, but forms a two-way academic ecology. Therefore, the construction of *Dao Zang Tong Kao* is not only an academic project of literature examination, but also a cognitive revolution of mutual learning among civilizations.

6 Conclusion

In conclusion, the sorting and analysis of medical classics in *Dao Zang Tong Kao* facilitates the understanding of medical literature and Daoist medicine within *Dao Zang*. Its research methods can also provide references and inspirations for our future studies on TCM culture. The core revelation lies in that truly effective cultural decoding not only requires in-depth textual research but also depends on establishing a meta-language system for dialogue among civilizations.

While demonstrating significant scholarly value, *Dao Zang Tong Kao* exhibits certain limitations. For example, what is the basis for the division of the three eras? It would make better references if it could be combined with the development of the Daoist history. Terminological

translations occasionally reveal interpretive ambiguities arising from cross-cultural conceptual disparities. Regarding subsequent research directions, while this study offers systematic documentation of textual materials, its engagement with Daoist metaphysical frameworks and philosophical discourses remains comparatively underdeveloped. Future scholarship could pursue interdisciplinary and multi-perspective research, such as combining Daoist studies with sociology, anthropology, culturology and other disciplines to explore the interaction between Daoist culture and society, politics, economy and art.

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Ethical approval

This article does not contain any studies with human or animal subjects performed by any of the authors.

Author contributions

LIU Shan put forward the concept and wrote the original draft. DUAN Xiaohua undertook the task of supervision.

Conflicts of interest

The authors declare no financial or other conflicts of interest.

Appendix

Appendix Table: The classics catalogue of medicine and pharmacology in *Dao Zang Tong Kao*

Periods	Medicine and Pharmacology
Eastern Zhou to Six Dynasties period	<i>Huang Di Su Wen Ling Shu Ji Zhu</i> (《黄帝素问灵枢集注》) <i>Collected Commentaries on the Yellow Emperor's Basic Questions and Spiritual Pivot</i> <i>Huang Di Nei Jing Su Wen Bu Zhu Shi Wen</i> (《黄帝内经素问补注释文》) <i>Supplemented Annotations on The Yellow Emperor's Inner Classic: Basic Questions</i> <i>Ge Xian Weng Zhou Hou Bei Ji Fang</i> (《葛仙翁肘后备急方》) <i>Emergency Formulas to Keep Up One's Sleeve by Immortal Sage Ge</i>
Sui, Tang and Five Dynasties period	<i>Sun Zhen Ren Bei Ji Qian Jin Yao Fang Mu Lu</i> (《孙真人备急千金要方目录》) <i>Catalogue of Important Formulas Worth a Thousand Gold Pieces for Emergency by Perfected Person Sun</i> <i>Sun Zhen Ren Bei Ji Qian Jin Yao Fang</i> (《孙真人备急千金要方》) <i>Important Formulas Worth a Thousand Gold Pieces for Emergency by Perfected Person Sun</i> <i>Su Wen Liu Qi Xuan Zhu Mi Yu</i> (《素问六气玄珠密语》) <i>Secrets on the Mysterious Alchemy of the Six Qi in Basic Questions</i> <i>Tai Shang Zhou Hou Yu Jing Fang</i> (《太上肘后玉经方》) <i>The Supreme Daoist Formulas to Keep Up One's Sleeve</i> <i>Shen Xian Fu Shi Ling Cao Chang Pu Wan Fang Zhuan</i> (《神仙服食灵草菖蒲丸方传》) <i>Formula of Sweet Flag Pills: The Divine Herb Consumed by Daoist Immortals</i> <i>Bai Yun Xian Ren Ling Cao Ge</i> (《白云仙人灵草歌》) <i>Song of the Divine Herbs by the White Cloud Immortal</i> <i>Zhong Zhi Cao Fa</i> (《种芝草法》) <i>Way to Plant Ganoderma and Herbs</i> <i>Shang Qing Ming Jian Yao Jing</i> (《上清明鉴要经》) <i>Essentials of Illuminating Reflections of the Supreme Purity</i>
Song, Yuan and Ming dynasties period	<i>Tu Jing Yan Yi Ben Cao</i> (《图经衍义本草》) <i>Illustrated Classic of Extension of Materia Medica</i> <i>Tai Shang Ling Bao Zhi Cao Pin</i> (《太上灵宝芝草品》) <i>Examination of the Supreme Treasure Ganoderma and Herbs</i> <i>Huang Di Nei Jing Ling Shu Lue</i> (《黄帝内经灵枢略》) <i>Essentials from The Yellow Emperor's Inner Classic: The Spiritual Pivot</i> <i>Su Wen Ru Shi Yun Qi Lun Ao</i> (《素问入式运气论奥》) <i>Discussion of the Ru Style Qi Movement from Basic Questions</i> <i>Huang Di Ba Shi Yi Nan Jing Zuan Tu Ju Jie</i> (《黄帝八十一难经纂图句解》) <i>Illustrations and Explanations of The Yellow Emperor's Classic of Eighty-one Difficult Issues</i> <i>Huang Di Nei Jing Su Wen Yi Pian</i> (《黄帝内经素问遗篇》) <i>Scattered literature of The Yellow Emperor's Inner Classic: Basic Questions</i> <i>Ji Jiu Xian Fang</i> (《急救仙方》) <i>Prescriptions for Emergency from Immortals</i> <i>Xian Chuan Wai Ke Mi Fang</i> (《仙传外科秘方》) <i>Secret Formulas on External Medicine Inherited from Immortals</i> <i>Xiu Zhen Mi Lu</i> (《修真秘箓》) <i>Secret Records for Seeking Truth</i>

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