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Guest Editors-in-Chief
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Arthur Harris

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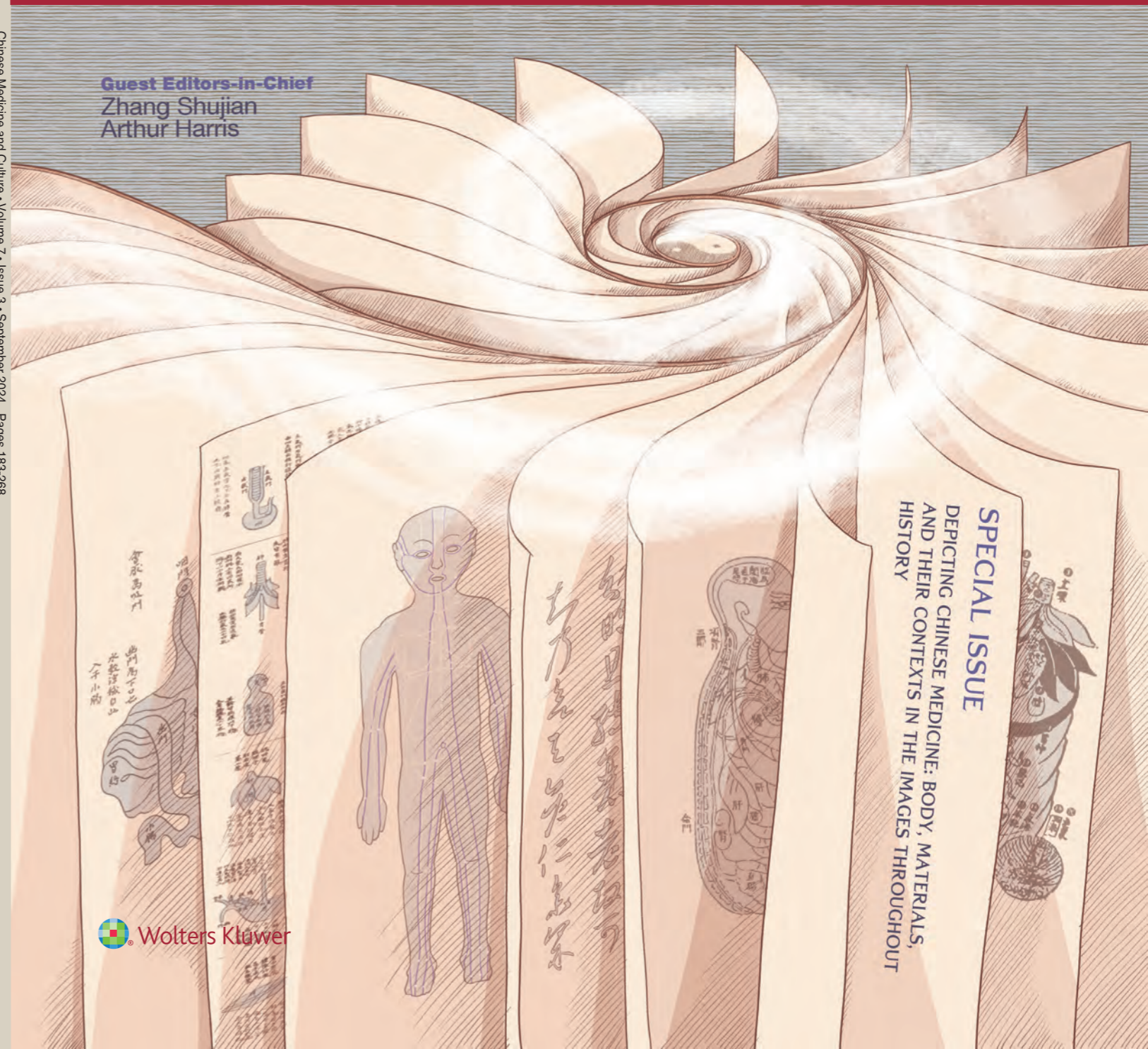
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SPECIAL ISSUE
DEPICTING CHINESE MEDICINE: BODY, MATERIALS,
AND THEIR CONTEXTS IN THE IMAGES THROUGHOUT
HISTORY



Chinese Medicine and Culture

中医药文化（英文版）

Special Issue: Depicting Chinese Medicine: Body, Materials, and Their Contexts in the Images Throughout History

Guest Editors-in-Chief:



张树剑 ZHANG Shujian

ZHANG Shujian is a professor at Institute of Acupuncture and Moxibustion of China Academy of Chinese Medical Sciences. He used to be a visiting scholar at the Department of History and Philosophy of Science in Cambridge University, and Jao Tsung-I Academy of Sinology of Hong Kong Baptist University. He serves as a council member of the China Society for the History of Science and Technology and the executive editor-in-chief of *Chinese Medical Literature and Culture* (《中医典籍与文化》). He is one of the leading scholars in history of Chinese medicine, especially on academic history of acupuncture and moxibustion. He has published more than ten books such as *Rethinking Chinese Acupuncture: A History of Ideas* (《中国针灸思想史论》), and more than 60 articles in academic journals.



Arthur Harris

Dr. Arthur Harris is Lloyd-Dan David Research Fellow at the Needham Research Institute and Darwin College, Cambridge. He completed his B.A. in Classics at Oxford and his M.Phil. as well as Ph.D. in History and Philosophy of Science at Cambridge. He also holds a B.Sc. in Mathematics from the Open University. He has broad interests in ancient science and medicine, and has focused especially on mechanics and medicine in the ancient Greco-Roman world, as well as on comparisons between ancient Greek and early Chinese medicine. His publications include *New Diseases and Sectarian Debate in Hellenistic and Roman Medicine* (Apeiron, 2022), *Quantification and precision: a brief look at some ancient accounts* (Annals of Science, 2024), and *The spectrum of health in ancient Greek medicine and philosophy* (Classical Quarterly, forthcoming), as well as several forthcoming book chapters. His second major project takes a comparative approach to medicine in ancient Greece and early China. In connection with this, he has been a visiting researcher at the Institute for the History of Medicine and Medical Literature, China Academy of Chinese Medical Sciences. He has co-organized two conferences at Cambridge on comparative approaches to ancient thoughts and is co-editing with Jingyi Jenny Zhao (赵靖仪) the volume *Comparative Explorations*.

Purpose of the Issue

Images that originated earlier than language always play an irreplaceable role as the carrier of knowledge, serving as important historical research materials, but they have not received the attention and interpretation they deserve. Fortunately, in recent years, images have gradually attracted more and more sights as a new historical perspective and research method, from scholars in traditional Chinese medicine (TCM) literature and history research. Interpreting and studying TCM images can not only trace the background and knowledge of the image era, but have important value in sorting out the composition and evolution of medical theory and investigating the current theoretical form, which will broaden the research of history of Chinese medicine and push the traditional images of TCM from philology research to a new stage of historical research.

More importantly, in the multidisciplinary perspectives, the study of TCM images has continuously been beyond medical images and begun to focus on finding elements that examine medicine itself in non-medical materials. At the same time, the focus has also shifted to a wide range of background fields behind medicine, involving interdisciplinary research such as sociology and anthropology. Breaking the boundary between internal and external history will undoubtedly become a trend in TCM research in the future. It is hoped that several cases selected in this special issue can provide reference for academic circles to study the materials and methods of history of medicine from the perspective of images.

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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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EDITORIAL OFFICE

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1200 Cailun Road, Pudong New Area, Shanghai 201203, China
Tel: 86-21-51322295
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A New Perspective in the Study of Medical History through Visuals

ZHANG Shujian^{1,*}

In pre-modern cultural history, both textual and visual documentation played crucial roles, each possessing its own narrative logic. Historically, text has been a dominant medium for cultural documentation, whereas images, which predate text, have often been undervalued. In fact, visual materials always play an irreplaceable role that textual knowledge cannot, serving as more intuitive historical mirrors with strong visual transmission. The traces preserved in images, whether descriptive or metaphorical, can corroborate textual records. More importantly, images can not only correct textual inaccuracies but also present details and atmospheres that text cannot capture. Thus, as a form of visual data, images do not serve as narrative media independently. They can be narratives themselves, constituting significant historical research materials.

Research on the history of traditional Chinese medicine (TCM), primarily based on transmitted or excavated texts, has seen depth in exploration and innovation but struggled in broadening its scope. Introducing a visual perspective into the field of TCM history provides new avenues for exploration in the field of TCM literature research. Recently, the academic community has increasingly recognized the value of images as a historical perspective and research method. The rise of medical image history research has seen more disciplines recognizing the value of images and incorporating specialized image research methodologies. The complementary relationship between text and images in TCM literature enhances the classical background and constructs its theoretical framework. Image studies in medical history can rediscover previously unnoticed materials or reinvigorate familiar

text through meticulous visual details. Interpreting and researching traditional Chinese medical images can help to trace the historical background and knowledge. More significantly, it can present various values in theoretical framework construction and evolution as well as their contemporary manifestations.

The field of image medical history research offers vast potential, providing a different perspective for studying TCM and anticipating diverse insights. This broadens the research subjects of Chinese medical history and facilitates a better examination of contemporary TCM development, advancing the study of traditional medical images from philological research to historical research.

The foundational focus of historical investigations into medical images involves the examination of images utilized and referenced by the medical field, such as various anatomical depictions and medical instruments. In the discussion of anatomical depictions, there are two articles focusing on images of the spleen in TCM from different perspectives: Gu Xiaoyang analyzes the impact of the translation of “pancreas” on the imagery and knowledge construction of the spleen; Li Lan discusses the significance of organs in Chinese anatomical images by analyzing the spleen’s central position in East Asian anatomical cosmology. Another discussion on medical instruments includes two typical tools in acupuncture: the human model and needles. Zhou Qi analyzes the Tianhui (天回) lacquered meridian figure to showcase the development and evolution of early meridian systems; Wu Kai et al. discuss a set of late Qing dynasty acupuncture needles to provide new insights into the evolution and global dissemination of acupuncture instruments.

Moreover, as multidisciplinary perspectives have been incorporated, Chinese medical image research has transcended disciplinary boundaries, extending beyond medical images to examine medical elements in non-medical materials. These studies compare Chinese medical imagery with visual knowledge from other fields, and explore the medical background from the perspectives of the public and society. For example, this issue includes two studies comparing Chinese medical images with religious images: Zhang Xinyue discusses the spiral shapes in Daoism and medical human body images, examining the underlying body concepts through different cultural representations of the body; Yi Bao et al.

¹ Institute of Acupuncture and Moxibustion, China Academy of Chinese Medical Sciences, Beijing 100700, China

* ZHANG Shujian, E-mail: njrb@163.com
ORCID: 0000-0003-3216-722X

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discuss the cultural expressions of plague prevention through the depiction of the Five Plague Gods (五瘟神) in Shuilu murals (水陆壁画). Additionally, there are discussions on the relationship between society and medicine through folk paintings: Jiang Shan discusses the metaphorical uses and customs reflected in moxibustion practices in Japanese ukiyo-e; Wang Li examines the medical awareness and behaviors presented in the Song dynasty *Jiu Ai Tu* (灸艾图 *The Moxa Treatment*) for treating sores, providing a glimpse into folk medical techniques and ecology. This expanded perspective has been presented in Zhang Shujian's *History of Chinese Image Culture: Medical Imagery Volume* (《中华图像文化史·医药卷》), with Wei Ran's review highlighting the book's contributions to image medical history research by breaking object, content, and disciplinary boundaries. It expands the research scope to non-medical literature, offering in-depth interpretation and comparative research on the content, academic theories, and cultural, social backgrounds of medical imagery literature, with diversified interpretations of medical content.

The convergence of medical and non-medical images reflects the breaking of internal historical boundaries in Chinese medical research, fostering a more comprehensive and coherent vision through their collision and integration. Transcending internal and external historical boundaries holds significant implications in today's multidisciplinary research and will undoubtedly become a trend in the development of future TCM research.

Peter Burke's concept of "using images as historical evidence" emphasizes the role of visual materials in corroborating textual materials. On one hand, images can corroborate text, correcting errors and omissions; on the other hand, when texts are lost or difficult to interpret, images can fill in the gaps. For instance, Wang Li's interpretation of the Song dynasty *Jiu Ai Tu* verifies the depiction of folk acupuncture activities and sore treatment techniques with medical texts.

In the above research endeavors, images mainly play a supplementary role. However, as an independent form of documentation, images carry information that can reveal new historical facts and corroborate text. For instance, Wu Kai et al. discovered a phase of needle development reflecting aesthetic beauty in rarely seen needle images from the late Qing dynasty; Zhou Qi's discussion of visual materials from unearthed artifacts highlights the impact of these findings on the long-standing meridian theories of the Chinese medical classics, leading to a reevaluation of their legitimacy.

Images possess unique characteristics distinct from text, providing intuitive and detailed information that text cannot encompass. Notably, image research prompts questions about the authenticity of historical accounts, offering unique insights for historical reflection and even challenging previous studies to develop new understandings. This issue includes discussions on human body images that address differences between

Western anatomical diagrams and Chinese medical images, reflecting on the anatomical significance in Sino-Western medical exchanges: Gu Xiaoyang discusses the process of knowledge transformation and production, revealing the reshaping and reconstruction of medical images and theories during Sino-Western medical integration; Li Lan and Zhang Xinyue investigate the "authenticity" in anatomical images, affirming the significant role of metaphorical Chinese medical practices in the history of science. They strive to uncover hidden realities in pre-modern anatomical records, avoiding the tendency to regard biomedical anatomy as universally truthful, thus maintaining a critical distance from the search for modern ideas in pre-modern texts.

Studying the history of medicine through images requires focusing not only on the medical images but also on the broader background knowledge of medical practice. This involves discussing the conflicts, integrations, and changes in the development and solidification of TCM theories. This approach involves incorporating sociological, anthropological, and other perspectives. Its significance lies in seeking the truth about the history and culture of Chinese medicine, and in reflecting on past knowledge and theories of TCM in a contemporary context. Through selected examples in this special issue on "Depicting Chinese Medicine: Body, Materials, and Their Contexts in the Images Throughout History", we want to offer different insights into materials and methods for the community of medical history from an imagery perspective.

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Ethical approval

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

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ZHANG Shujian drafted and revised the manuscript.

Conflicts of interest

ZHANG Shujian is an Editorial Board member of *Chinese Medicine and Culture*. He also serves as 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 Editorial Board member and their research groups.

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The Implantation and Transmission of Plague Culture by the Five Plague Gods in Shuilu Murals

Yi Bao^{1,*}, ZHOU Qian¹, SHI Honglei¹

Abstract

The Five Plague Gods (五瘟神) in the Shuilu (水陆) murals from the Ming and Qing dynasties exemplify a distinctive manifestation of plague gods image developed under the pedigree of Taoist gods. As a significant system for expelling disasters in Shuilu, the depiction of the Five Plague Gods prominently merges human beings and livestock. This shape form to a large extent, draws on the image of *Nuo* (傩), a figure reflecting an imagination of the host of plague pathogens. In terms of the numbers of gods, it aligns with the conceptual framework of *Wu Xing* (五行 the five elements), a foundational principle in traditional Chinese medicine. The internal cultural connection highlights the means of plague prevention and control in China, as well as the external reflection of plague culture. Through multi-dimensional interpretations with the double proof method, this article dissects the formation, core elements, and cultural characteristics of the beliefs in the Five Plague Gods reflected in the Shuilu murals, and transcends mere visual semantics, offering a deeper understanding of these complex cultural symbols.

Keywords: Shuilu murals; Five Plague Gods; Plague culture; Traditional Chinese medicine; *Wu Xing*; Religion

1 Introduction

The rise of plagues accompanied the formation of human societies. Specifically, the birth of agricultural civilization led to significant changes in the human environment. Cities rose, and clusters of large population provided ample sources of food for pathogens. When humans were smugly satisfied with their effective transformation of the land, irrigated agriculture further provided a breeding ground for the spread of pathogens, leading to the sweep of blood flukes and malaria across Eurasia. In particular, the promotion of livestock breeding and animal husbandry accelerated the spread of pathogens. At this time, mankind was unable to prevent the invasion of invisible pathogenic bacteria. In addition to relying on the experience gained from death to prevent and control plagues, the idea of Ritual Omnipotence (祭祀万能, which means sacrifice as a basic religious ritual has unlimited functions) began to play a role. Although Brahminism (婆罗

门) takes the idea of Ritual Omnipotence as a religious manifesto, it can be found that no matter in the East or West, people who made a living by agricultural civilization were powerless in front of such terrible plagues. Ritual Omnipotence became a means of psychological adjustment, and religious images implied worships out of the fear and for the sake of eliminating epidemics. Based on the psychological origin and the pathogenic symptoms observed, the belief in the Plague Gods (瘟神) was developed in different cultures. In the existing studies, the first author of this paper Yi Bao (伊宝)¹ analyses the folklore characteristics of images of the Five Plague Gods (五瘟神) in Shanxi temple murals and concludes that the images of the Plague Gods are epitomized by different regions. The author Shi Honglei (史宏蕾)² explores the relationship between the images of the Five Plague Gods on the mural paintings of the Shuilu temples in Shanxi and the diversified religions as well as folk cultures by discussing the origins and evolution of the plague culture. Zhuang Hengkai (庄恒恺)³ explores the rituals of welcoming gods and sailing festivals, and reveals that sailing is centered on the belief in the Five Plague Gods, demonstrating that the belief in Gods of Plagues in Fujian and Taiwan is characterized by both *Nuo* (傩) and rituals. This paper attempts to use cross-validation and other theoretical methods to investigate the Five Plague Gods and host images, so as to explore the medical relationship between the Five Plague Gods and yin-yang (阴阳) as well as *Wu Xing* (五行 the five elements). We also point out the implications for building a preventive strategy against pandemic to achieve sustainable development in modern context.

¹ Institute for History of Science and Technology, Shanxi University, Taiyuan 030006, China

* Yi Bao, E-mail: yibao1127@163.com

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2 The modelling system of Five Plague Gods in the murals of Shuilu Temple in Shanxi

Early Chinese beliefs in the plague gods include “three ghosts” (三鬼) and “five ghosts” (五鬼), whose images are mostly water ghosts, which were incorporated into the system by Taoism during the Northern and Southern Dynasties. The Five Plague Gods and Seven Plague Gods (七瘟) were recorded in *Tai Shang Dong Yuan Shen Zhou* (《太上洞渊神咒》 *The Most High Scripture of Divine Incantations of the Abyssal Caverns*), and each with its own group and followers. The Five Plague Gods were finally confirmed in *Sou Shen Ji* (《搜神记》 *Stories of Immortals*) and *San Jiao Yuan Liu Sou Shen Da Quan* (《三教源流搜神大全》 *Complete Collection on Searching Gods by the Three Religions*). The five gods performed their duties respectively and remained unchanged ever since. It is believed in *Tai Shang Ling Bao Jing Ming Tian Zun Shuo Yu Wen Jing* (《太上灵宝净明天尊说御瘟经》 *Wondrous Scripture on Resisting Plagues*) of the Song and Yuan dynasties that plagues and diseases were mainly controlled by ghosts and gods, and were used to punish those who committed evil deeds. Therefore, the plague was exorcised through Taoist talismans, mantras, and rituals. In *Jiang Xi Tong Zhi* (《江西通志》 *Jiangxi General Chronicles*) of the Ming dynasty, it is said that, “Taoism therefore believes that the king was appointed as the marshal of the Plague Department by the Jade Emperor, who clearly observed the good and evil of the people and clearly rewarded and punished (道家者流遂谓王受命上帝为瘟部帅察民善恶而赏罚焉).”⁴ According to the inscriptions on *Chong Xiu Wu Wen Shen Miao Bei* (《重修五瘟神庙碑》 *Renovating the Five Plagues Gods Temple Monument*) in Taizhao village of Wanrong County (万荣县), Shanxi in Qing dynasty, people who irritated heaven were said to suffer from the plague. It can be concluded that the Plague Gods could not only bless good people, but also bring mishaps to evil people, reflecting the Plague Gods’ double-sided character.

The introduction of the Five Plague Gods in Buddhism is mainly reflected in the Shuilu paintings. They are hung or specially painted when the Shuilu Dharma Meeting (水陆法会) passes on the dead, and are derived from the Sorrowful Confessions Act (悲忏法). *Fa Jie Sheng Fan Shui Lu* (《法界圣凡水陆》 *Dharma Realm of Saint Van Water and Land*) in the Song and Yuan dynasties and *Tian Di Ming Yang Shui Lu Yi Wen* (《天地冥阳水陆仪文》 *Ceremony Texts of Water and Land on Heaven and Earth Yin-yang*) in the Ming and Qing dynasties, are both texts for the Shuilu Ceremony. As a Buddhist ritual, it combines chanting, mantra, image invocation and other forms, and includes the gods of the three realms and the spiritual lords of the three religions in the depiction of the gods. It is a comprehensive Buddhist ritual based on the pure land of Han Buddhism, integrated with the ideas of *Hua Yan* (华严), *Fa Hua* (法华), and

guided by tantric Buddhism. The origins of these rituals are complex. *Tian Di Ming Yang Shui Lu Yi Wen* was popular and became the ritual text commonly used in most parts of the northern China, and the existing inscriptions are basically Taiyuan (太原) version or Wenshui (文水) version in Shanxi Province. The image arrangement in the Shuilu murals, on the one hand, must follow the order of the text. In the specific composition, the layout often follows the order of the heaven, earth, human beings and ghosts, which are reflected in the ritual text as the rightful gods (正位神祇), heavenly gods (天仙神祇), heavenly immortals and gods (下界地祇), the gods of the underworld (冥界诸神), the spirits of the past (往古人伦), the ten categories and five families of orphaned souls (十类五姓无主孤魂), and so on. This schema structure is a Buddhist interpretation of the Small Thousand Worlds (小千世界). The images of the Five Plague Gods are parts of the Avalokitesvara (观世音菩萨摩訶萨) section, in which all images are about ghosts in hell except Ananda (阿难) and the Facing Ghost King (面然鬼王 an incarnation of the Guanyin bodhisattva), so the inclusion of the Five Plague Gods images makes the composition abrupt. Therefore, their positions in the specific paintings vary according to time and place. In the Qinglong Temple in Jishan county (稷山县青龙寺), they are placed on the west side of the southern wall closely after the Rain Dragon King (五方行雨龙王), which is a typical depiction of the earth spirits of the lower realms. In the Yunlin Temple in Yanggao county (阳高县云林寺), they are represented on the lower west wall after the Five Supervisors of Good and Evil (五道监斋善恶二部), which command the Kings of the Underworld (十殿冥王众). And in Yong’an Temple in Hunyuan county (浑源县永安寺), they are painted at the lower part of the west wall after the group images of the Qijiao God, the Facing Ghost King and other (启教大士面然鬼王等众), which is part of the Avalokitesvara section. Three schema structures are represented, and the multiple identities not only show folk beliefs’ different interpretation beyond the ritual texts but also manifest the influenced by different regional cultures.

Four major types are represented in the group images. The first type is found in Qinglong Temple, Baoning Temple (宝宁寺), and Pulu Temple (毗卢寺). The five gods are depicted as strong men and half-beast men. The images in Qinglong Temple are under the title of Five Plague Gods. On the lower right is a chicken-headed God. Above it are the tiger-headed and bird-headed gods. On the right are a horse-headed god and a strong man respectively. Iron line drawing techniques are used to outline the five images, with forceful strokes and gentle lines. In particular, the birds and animals are painted by using the silk hair method, which fully expresses the texture of the fur. The five gods hold banana palm fans, tiger-skinned wind bags, spoons, hammers and other magical wapons in their hands, and their postures are either front views or side views, enhancing the expressive

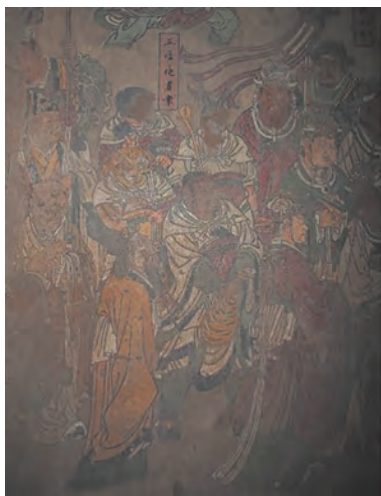


Figure 1 The Five Plague Gods depicted in Shuilu murals from Qinglong Temple (source with permission from: photo from Qinglong Temple by the authors).

power of the painting (Fig. 1). The second category is represented by the style of Taoist gods at Gongzhu Temple (公主寺) and Yuhuang Temple (玉皇庙), where the Five Plague Gods are all in human form. The kind of depiction is often found in the Shuilu silk paintings in Ming dynasty. The images in Gongzhu Temple are under the title of Five Plague Gods, and the five gods are depicted in more varied costumes, especially the God in red, with bare breasts as well as a strong waist and shoulders, reflecting the warriors' majesty. In order to better distinguish them, the five gods wear different headgears such as a soft-footed turban, a lion-faced helmet or a crown with hair tied back, as well as a ponytail braid. The colors of green and red are mainly used, mixed with white and purple to balance the color. Although the modelling is not as magnificent as that in the Qinglong Temple, technological advancement improves the haloing of the figures and more delicate skin texture is demonstrated (Fig. 2). The third category is depicted as five half-beast men and a Taoist priest holding a sword. After analyzing the image, we found that the special person is the Kuangfu True Person (匡阜真人) who subdued the

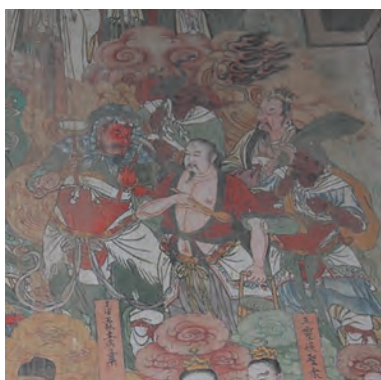


Figure 2 The Five Plague Gods depicted in Shuilu murals from Gongzhu Temple (source with permission from: photo from Gongzhu Temple by the authors).

Five Plagues. The representative paintings are found in Puguang Temple in Shouyang county (寿阳县普光寺) and Zishou Temple in Lingshi county (灵石县资寿寺). Although there is no title, it can be inferred from their characteristics that they are the Five Gods. The images are arranged in the style of Mandala. At the centre of the images is Kuangfu True Person surrounded by horses, cows, birds and tigers (Fig. 3). Compared to the previous two categories, the painting techniques are gentle, but the animals' expression is extremely vivid, reflecting the artists' great style and taste. The fourth type are images with ghosts and beasts, represented by those in the Yuanzhi Temple in Fancun town (范村镇圆智寺). In the painting, the Plague Gods sit in a circle, and they are represented by three types of animals: chicken, rabbit, and tiger. The other two are differentiated by their skin colour of green and red. Other gods are dressed in almost identical costumes. The magic weapons in their hands are mantles, which is a major change in the style (Fig. 4). Another representative of this category is the painting in Baofeng Temple in Changzhi city (长治市宝峰寺), where a magistrate is added, holding the Book of Life and Death in his hand. The other four are the Plague Gods. The animal images are also more vivid. In addition to birds, rabbits and tigers, there are also wild boar-like orcs. The characteristics of the beasts are fully



Figure 3 The Five Plague Gods depicted in Shuilu murals from Zishou Temple (source with permission from: photo from Zishou Temple by the authors).

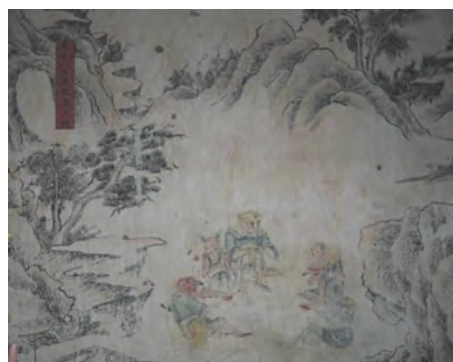


Figure 4 The Five Plague Gods depicted in Shuilu murals from Yuanzhi Temple (source with permission from: photo from Yuanzhi Temple by the authors).

expressed, and the combination of gods images is natural, without any incongruity.

From the image modelling analysis, it is clear that this style is derived from the description in the Taoist classic *San Jiao Yuan Liu Sou Shen Da Quan*. But in terms of the change in modelling, it seems that only the images in Gongzhu Temple and Yuhuang Temple are similar to the images in the classical text. The illustrations in the book depict five clerical gods, while in the Shuilu murals the images are either animal-headed or avian-headed. The combination of human and animal is not unique to the Five Plague Gods, but the reason why the Five Plague Gods changed into this style is not recorded in the text. However, the objects held in their hands are basically the same as those described in the textual descriptions. Before the Five Plague Gods were included by Taoism, their ghostly appearance was the original image, which was already deeply rooted in people's hearts. With the continuous ravaging of the plague and people's increasing fear, the images of "five ghosts" once again became the symbols of the plague gods, and also marked the shift of the plague culture from theology to religious interpretation. But its core expression was still based on the spread by using familiar Confucian classical figures. In addition, the number of "Five Plague Gods" varies from five to six, and the most common titles for the Five Plague Gods Images are the Ghost Kings in charge of Disease, and Five Plague Emissaries (主病鬼王五瘟使者) or Five Plague Emissaries (五瘟使者众). The title Ghost Kings in charge of Disease (主病鬼王) does not appear in the ritual text, which is the key to understand why the Five Plague Gods are listed in the underworld spirits.

3 The image of the Plague Gods and imagination on pathogen host

Images of the Five Plague Gods are combined with human and animals including birds, wild animals and livestock. In addition, there are also some images with dragon heads and tiger heads. In the world mythological gods system, this kind of "beast-shaped man" combining human and animal appearances is very common. For example, the god of the forest in Greek mythology is half-human and half-beast, and Anubis in Ancient Egypt is also of this type. The Greek philosopher Empedocles hypothesized that humans might had evolved from the accidental combination of different animal bodies. In the 1st century A.D., Lucretius refuted the possibility of such a dual life origin, and Gouverneur in the 18th century argued against the absurdity of such a hypothesis. The naturalist Jean Baptiste was intrigued by the beast man's life wholeness and supported it. This also shows that the "beast man" not only has a long history in the world's mythological systems, but also has a place in biological evolutionary theory.

From the perspective of the overall life evolutionary process, the cause of this "heresy" may be inspiration

from the deformed creatures, and the highly unique characteristics of different creatures are also a key factor for understanding the grafting. In China, the creation of the half-human, half-beast images originated from the ancient times, and even the Neolithic Age witnessed similar images patterns. Since the Qin and Han dynasties, the development of the immortality idea has also led to the creation of the creature combinations, such as Fuxi (伏羲) and Nüwa (女娲), whose human heads and snake bodies represented the worship of reproduction. The most representative was the numerous records in the *Shan Hai Jing* (《山海经》 *Classic of Mountains and Seas*), in which Zhu (鸪) and Jingwei (精卫) represented the combination of man and bird. The combination of tiger head and human body was called *Qiang Liang* (强良), human head and cow ears called *Zhu Jian* (诸犍), human body and dragon head called *Ci* (祠). This kind of half-beast modeling became an important modeling approach for the ghost images in *Shan Hai Jing*. In view of mankind's struggling against nature and harmonious coexistence with it, the creation of gods was not only the figuratively worshipping the unknown and uncertain, but a means of grafting to strengthen their ability to face the natural risks. The modelling of Five Plague Gods followed this logic of god-creation, but the Taoist system did not bring this god-creation means into its genealogy. Instead, a human Taoist ruler was represented, which was the reason why the animal appearance features were hard to be found in Taoist literature. However, whether the Five Plague Gods are included in Buddhism or Taoism, their origin of ghosts and gods has been rooted in folklore for more than a thousand years. In Shuilu murals, the type in *Shan Hai Jing* was adopted since the images' visual tension fits the mass imagination on plague, which made it a classic and popular style.

From another point of view, are the most common animals of chicken, tiger, bird, horse, and ox used as modelling images to cater to the identity of the gods? This hypothesis can obviously be confirmed by a large number of popular illustrations. The images of the plague gods were created in the first place with two considerations. The first was to highlight its identity, and to show its power by its special appearance. According to *Shan Hai Jing*, Xiwangmu (西王母) had the image of Tigeress Godness. Tiger bone is a traditional Chinese medicine. According to *Ming Yi Bie Lu* (《名医别录》 *Miscellaneous Records of Famous Physicians*), the tiger bone can be used to remove pathogenic qi, kill ghosts, propulsion and poison, stop palpitations, treat serious sores and cure rodent fistula. The skull bone is especially good (虎骨, 主除邪恶气, 杀鬼疰毒, 止惊悸, 治恶疮, 鼠瘻, 头骨尤良).⁵ Therefore, the combination of tiger and human was also a metaphor of the tigeress' ferocity and the relationship between human and epidemics. The second reason was to express the virtue of saving the people. Although the plague gods were portrayed as ghost kings, they were actually healers. They were bodhisattvas with

terrible appearances. This depiction was similar to that of the Facing Ghost King in the Shuilu murals. In the early days of Buddhist theology, there was one god, but after Mahayana, one god with many bodies became the main expression. The Dharma body, incarnation, or retribution as ten million bodies represents the change of Buddhist philosophical structure from one to infinity. Undoubtedly, the Five Plague Gods represent more than five ghosts and they are based on tens of thousands of people. The number three, five or seven is just a symbolic number.

During plague transmission, animals are a major source of plague pathogens. After dealing with various kinds of epidemics, people gradually discovered that animals are the main plague bearers. It was triggered by agricultural development and animals' captive breeding, so that chickens, cows, horses are the most common animals in the images. The ritual text said, when there was plague, medicines and decoctions were not effective and sufficient (病时少药少汤). The plague spread so rapidly that it was difficult to find special medicines to treat the disease. The ancient people did not know bacteria and viruses caused diseases. However, with the current advanced medical technologies, in the face of the SARS and COVID-19, we still had difficulty in dealing with them. When facing plagues, humans, with intuitively pathological judgment, gradually recognized that the inter-transmission between human and animals was an important factor leading to plague. It is obviously claimed in *San Jiao Yuan Liu Sou Shen Da Quan* that the plague is the punishment by heaven and can not be cured. The people's helplessness reflected the plague's strong infectiousness and fatality. In addition to the spread between man and animals, the spread among the animals was even more horrible. Ancient China was an agricultural society, where large animals served as the strongest productivity power of families or villages, and were fundamental to agricultural economy. The emergence of animal plague revealed that an epidemic was out of control in a large area. In northern China, people have been using the term *Chuan* (传 transmission) to depict the epidemic. The word *Chuan* implies rapid, uncontrollable and massive deaths, for example transmitting among chickens, among pigs, and among cows. In addition, the birds were the most common images in the paintings of Five Plague Gods, because birds could fly and their migration increased the likelihood of carrying pathogens. To search for food, domesticated birds often had to contact with wild birds, which was one of the direct causes of the chicken plague.

The images of tigers and dragons in the Shuilu murals were not based on the assumption of a pathogen host, but rather on the fact that two sacred animals were totemic symbols of the Chinese civilization. The image of the Dragon God, in particular, became the main symbol of the earth spirit in the Shuilu murals, and the Water Palace Gods were the internalized images of the Dragon

God. This unique expression had a Chinese feature. The first change took place in the Song dynasty when dragon paintings, representing supreme power and status, became a special school. The dragon images tended to show various and folk style, so that the Dragon God gradually became a divine god to dispel the plague. According to *San Jiao Yuan Liu Sou Shen Da Quan*, the function of the Five Plague Gods was divided into two stages. In the first stage, they were assigned the task to come to the human realm and spread the plague. In the second stage, Emperor Wen of Sui (隋文帝) set up a shrine and worshiped the Five Plague Gods, assigning them the task of safeguarding the people. They were subdued by Kuangfu Ture Person, and the Five Plague Gods became plague-relief deities. This textual structure was a common device used by Chinese myths in the process of creating gods, which meant that the Five Plague Gods not only caused and spread the plague, but also became the healers of the plague. The dual identity could also be found in the images of ghost mother and son, the group of Rakshasa Gods, and so on. In traditional Chinese medicine (TCM), the theoretical knowledge on plague pathogens was promoted in the 17th century. In the Ming dynasty, Wu Youxing (吴有性) in his *Wen Bing Lun* (《温病论》 *Treatise on Plague*) put forward a new pathological theory. Through his experience accumulation and examination, he proposed the *Li Qi* (戾气 vicious qi) hypothesis, which emphasized that people and animals had constraints on the *Li Qi*, and also linked *Li Qi* to surgical septic infections.⁶ In his time, the microscope had not been invented, so his ideas on pathogens, based on his own practical deduction, showed his unusually far vision in medical science.

4 The Five Plague Gods and the ancient Wu Xing medical system

Plagues have taken place on a large scale throughout the ages. For example, 167 serious plagues were recorded in the Song dynasty, in which 63 were triggered by natural disasters. There were plagues caused by water, fire, drought, famine, and earthquakes.⁷ The plague caused by these calamities obviously exceeded the spread between animals and the sick. In the process of the creation of the Five Plague Gods, their images were often latent. These details were mainly reflected by the artifacts held by the Five Plague Gods, as recorded in *San Jiao Yuan Liu Sou Shen Da Quan*: spoon and jar, leather pouch and sword, fan, hammer and jug. The most representative depictions in the mural paintings were the fire gourd, spoon and bucket, plantain leaf, cloth pocket, hammer and chisel. Although there might be some differences in terms of artifacts between the images and the texts, they actually served the same function. The objects represented different plagues like fire plague, water plague, drought plague, famine plague and earthquake plague. The objects and their symbolic meanings were not just

a coincidence. Its core lay in *Wu Xing* in Chinese medicine. The five elements co-exist with one another but also contradict with one another.

The highest level of understanding and interpretation on the natural world is the exploration of the universe. Both the early Indian philosophy and the later Mahayana thought in Han dynasty applied and integrated the cosmology. Confucianism and Taoism also addressed the issue. The Four Quadrant (四象限) and the Central Palace Partition Ideas (中宫分区说) represented astronomical thought system based on celestial observation. The fusion with the three religions, the further development of the doctrine of geomancy and the Western missionaries' influence in the 17th century further developed this thought system. The formation of Chinese medicine was the formation of a holistic system after numerous trials and failures. From a practical point of view, Chinese medicine forms a systematic network through clinical practice, that is, the five viscera as a whole. Its basic theory is the application of yin (阴) and yang (阳) as well as *Wu Xing* for the understanding nature. *Wu Xing* was used to explore the complicated relationship among the five organs, five bowels and five sense organs with the laws of universe and nature. From the perspective of the generative science, China's early Taoism explained in detail the idea of three things generate all (三生万物). In the earliest medical classic *Huang Di Nei Jing* (《黄帝内经》 *The Yellow Emperor's Inner Classic*), the theory of qi (气) was one of the models of the generation and evolution of the universe.⁸ As recorded in the *Bao De Zhou Zhi* (《保德州志》 *Baode Historical Events*), in the eighth year of the Wanli reign, the epidemic was prevalent. In the thirty-ninth and fortieth years, the epidemic was more serious, and children and adults suffered from rashes.⁹ The record shows that people used ginseng powder and *Er Sheng Jiu Ku Dan* (二圣救苦丹 Two Saints Elixir) to treat measles. In the thirty-ninth and fortieth year of the Wanli reign, serious droughts lasted for two years in Shanxi, and measles broke out in winter and spring. In *Yu Yi Cao* (《寓意草》 *Draft on Medical Cases*) composed by Yu Chang (喻昌), it recorded that people used ginseng to drive away the plague. *Yi Zong Jin Jian* (《医宗金鉴》 *Golden Mirror of the Medical Tradition*) pointed out that, "the winter epidemic is cold, thus the Water Dissolving Powder is effective; whereas the spring epidemic is hot, so that the Saint Elixir is more useful (冬疫多寒宜水解散, 春疫多热宜救苦丹)."¹⁰ *Wu Xing* in Taoist doctrine was not only used for observing constellations and alchemy, but also for interpreting the operation of the human body's cyclic system. The meridians, bones and other parts of the body corresponded to the stars and the universe. The induction and classification method was highly abstract, and it was also an approach of redefining society and the world.¹¹

In Buddhist astrology, whether called Five Stars (五星), Seven Stars (七曜), Nine Stars (九耀) or Eleven

Stars (十一大耀), the star images are all based on the *Wu Xing*: metal, wood, water, fire, and earth. The Buddhist modeling of the stars plays a leading role in the Buddhism and Taoism. Take the murals in Gongzhu Temple as an example, the tablet, mahogany, lute, brush, sword held by the Five Stars were almost the same with those in the Yongle Palace (永乐宫). In Shuilu murals, the objects held by the Five Plague Gods totally corresponded with *Wu Xing* and even more similar to the objects of the Five Stars. If the objects in the hands of the Five Plague Gods were used to spread plague and epidemic, after being subdued by Kuangfu Ture Person, they obviously became divine weapons to drive away plague. According to the theory of the dialectical relationship among *Wu Xing*, we can cultivate the earth to control water, inhibit wood to support the earth, purge fire to make up for the water, and add metal to balance the wood (培土以制水, 抑木以扶土, 泻火以补水, 佐金以平木). These objects have become magic weapons to save the people. Therefore, in the murals, the fan was made of a banana leaf, the firearms were kept in a gourd, the iron nail was paired with a mallet, and the barrel was paired with an irrigating vessel. The skillful integration of the magic weapons and the gods reflected the doctrines of *Wu Xing*. At the same time, it was also the accurate expression of the basic theories of TCM. There is no doubt that in the Shuilu murals, slight adjustments can be found in the Five Plague Gods images. In some cases, the images of the original artifacts are not found. Instead, the images simply conveyed the idea of saving the sick. In the murals in the Yuanzhi Temple in Fancun town, the five deities were seated in a circle with bowls in hands, whose shape was similarly to the bowl of the Bodhisattva of the Medicine King (药王菩萨). And there was also a spoon within the bowl, showing its function as a medicine bowl. This depiction also reflected the identity of the Five Plague Gods as "healers".

5 Conclusion

From the statistics of the plagues pandemic along the history, plagues caused by war took up a quarter of the total number.¹² Wu Youxing in the Ming dynasty was the first to classify and categorize the plague. In *Wen Yi Lun* (《瘟疫论》 *On Plague*), it was clearly asserted that the plague originated from criminals or prisoners, so it was called *Wen Bing* (温病 warm diseases). Whether it was infectious was the key to distinguish plagues from *Wen Bing*. The guiding principle of TCM is yin-yang and *Wu Xing*, while the Shuilu murals expressed multi-god beliefs by using Buddhist artistic techniques, so there seem to be in no relation. However, the underlying logic is the sociological structure of unity of the three religions and unity of heaven and mankind. The god-creation system of Chinese Buddhism was not only an adjustment based on Buddhism, but also, in the term of the theoretical basis, the exotic religion's adaption to

the local folklore. The Five Plague Gods images, with multiple semantic expressions, reflected the interconnection of the inner systems and the complexity of the social attributes. This realistic expression was featured by Confucianist Buddhism and medical connotations. The framework was characterized by Confucianist text, Buddhist artistic features and Taoist medicine, with Chinese medicine ideological connotation and religious culture involved.

The year 2020 saw the most massive outbreak of the plague COVID-19. The global shutdown was the means to prevent the epidemic. In the face of such a raging plague, we thought that understanding the truth of bacteria and viruses could help us handle or easily prevent it. But in the face of global paralysis, we once again fell into meditation. Perhaps we can use the most advanced epidemic prevention system to control the spread of the plague. But it seems that we can only realize a local suppression or short-term prevention and control. In today's globalization, with the rapid flow of population and the instantaneous arrival of logistics, a single country is no longer considered as the unit of epidemic prevention. Retrospecting the experience and methods of our forefathers may help us find better means of prevention and control. Although *Wu Xing* theory exhibits theological characteristics, a universal framework can be found in substance's generating and conquering. If medicine can be integrated with religion and sociology, a new systematic plague-prevention theory based on Chinese medicine can be formed. And the role of images and iconography will no longer be applied as a historical evidence, but rather as means of communication and science popularization.

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Ethical approval

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

Author contributions

YI Bao, ZHOU Qian and SHI Honglei participated in the drafting and reviewing of the manuscript. All authors agree to publish the contents.

Conflicts of interest

The authors declare no financial or other conflicts of interest.

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Anatomical Retrofitting: *Pi* (脾) as Spleen and the Persistence of Ontological Ambivalence

Lan A. Li^{1,*}

Abstract

Over the past decade, medical researchers in China have debated whether the *Pi* (脾) corresponds to the biomedical spleen or pancreas. This debate exemplifies a broader phenomenon of “anatomical retrofitting”, or the anachronistic imposition of contemporary categories onto living historical objects. “Anatomical retrofitting” as a means of rectifying cases of mistranslation further positions the biomedical spleen and pancreas as representing ahistorical, universal truths. This framework gives rise to a conceptual binary: while the biomedical spleen is universalized as what philosophers may describe as “logical” ontology, the *Pi* connects to a different nature of reality, or “metaphysical” ontology. Far from being an object of imprecision, the *Pi* was a dynamic vessel that also shared characteristics with the humoral spleen. Given that scholars in China have already subjected *Pi* to historical scrutiny, this paper urges scholars to do the same with biomedical anatomy. For instance, historically situating the humoral spleen demonstrates that it became less known and less articulated as it transformed into the biomedical spleen. Meanwhile, the pancreas remained an unstable epistemic object that took on the dynamic functions of the humoral spleen in nineteenth-century organotherapy. Through primary source analysis and literature review, this paper contends that the apparent ontological incommensurability between *Pi* and spleen is neither mutually exclusive nor irreconcilable. Instead, the dynamic nature of internal viscera, their many functions, and their participation in epistemic practices contribute to an ongoing ontological ambivalence that persists despite the forced certainty of anatomical retrofitting.

Keywords: *Pi* (脾); Anatomical retrofitting; Ontological ambivalence; Biomedical spleen; Pancreas; Medical epistemology

1 Introduction

The *Pi* (脾) sat at the center of the body (Fig. 1). It appeared as an elongated vessel with a pinched lobe, its bulge sitting close to the surface of the body. This extended structure positioned above a larger bulge labeled *Wei* (胃) or “stomach”. The *Pi* stretched upwards, bypassing the *Fei* (肺) or “lungs”, and reached into a cluster of smaller tube-like structures. These finer elements folded, curved, and twisted into what was labeled *Bao Luo* (胞络), indicating a network of precious and protected channels. The *Bao Luo* rested above another vessel resembling an acorn. This was the *Xin* (心), which has been translated as “heart”, or perhaps equally imperfectly, as the “heart-mind” (Note 1).

Published in 1956, this was a modern image of anatomy. Like many medical texts that appeared in mid-twentieth-century China, it continued the longstanding

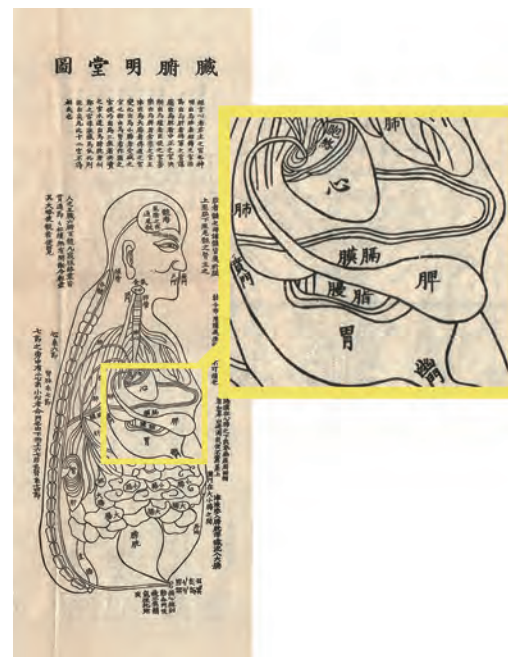


Figure 1 *Nei Jing Tu* (内景图 Internal Anatomy Diagram) depicting *Zang* (脏) from a *Ming Tang Tu* (明堂图 Acupuncture and Moxibustion Chart) panel (source with permission from: *Compendium of Acupuncture and Moxibustion*).

¹ Department of the History of Medicine, Johns Hopkins University, Baltimore 21218, USA

* Lan A. Li, E-mail: lanli@jhu.edu
 ORCID: 0009-0000-9720-7216

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practice of copying, reproducing, and reprinting classical texts with additional modifications (Note 2). This particular image appeared in a reproduction of the Qing-dynasty collection *Zhen Jiu Ji Cheng* (《针灸集成》 *Compendium of Acupuncture and Moxibustion*). The image itself many readers may recognize as a *Nei Jing Tu* (内景图 *Internal Anatomy Diagram*) that featured internal *Zang* (脏), which scholars have translated as viscera, orbs, storehouses, or agents (Note 3). More importantly, this image was associated with the famous *Ming Tang Tu* (明堂图 *Acupuncture and Moxibustion Chart*) series, which depicted *Jing Luo* (经络, illustrated meridians), that dated to the fourteenth century (Note 4). In other words, historical images of *Pi* endured with and within *Ming Tang Tu* (Note 5). They lived through practices of reproduction that reinforced a specific view of internal viscera that complicated discrete definitions of modernity.

In recent decades, medical researchers in China have debated whether the *Pi* represents the biomedical spleen or the biomedical pancreas. Many researchers claim that the *Pi* was historically mistranslated as the biomedical spleen, a mistake that can be corrected by contemporary clinical research. These debates exemplify a broader phenomenon of “anatomical retrofitting”, or the anachronistic imposition of contemporary categories onto living historical objects. While the *Pi* is analyzed as a historical object, the biomedical spleen and pancreas are not. In other words, “anatomical retrofitting” serves as a means of both enacting translation and amending mistranslation that positions the biomedical spleen and pancreas as representing a historical, universal truth. This framework further gives rise to a conceptual binary where the biomedical spleen occupies a “logical” ontology that is divorced from history, while the *Pi* connects to a “meta-physical” ontology that is a product of history.

Sinologists have long wrestled with the challenges of translation (Note 6). Historians of anatomy have wrestled with similar challenges (Note 7). With the numerous complexities of navigating between etiological and linguistic difference, researchers still reinforce the idea of biomedical anatomy as a universal and modern system. This makes sense: taking biomedical anatomy for granted allows researchers to commit to a kind of certainty that then subjects *Pi* to historical scrutiny and skepticism. Yet, doing so ignores the condition that biomedical anatomy is also historically contingent. It is not universal and is not timeless. Anatomical organs were historically unstable. Their meanings and names in Europe emerged alongside particular experimental methods related to intellectual life in the seventeenth century and experimental organ transplantation in the nineteenth century (Note 8).

To engage with the “true” identity of internal viscera, historians must appreciate what it means to offer a history of anatomy in the first place. Scholars of East Asian medicine often turn to *Huang Di Nei Jing* (《黄帝内经》 *The Yellow Emperor's Inner Classic*) corpus as a historical source,

even though it has both endured and transformed over many centuries in the hands of numerous editors, commentators, translators, philologists, and physicians. Indeed, textual analysis can provide some historical insight as long as scholars attend to the transformations among textual editions that also transform the names and disease states related to anatomical viscera. Concepts of the body often shifted with epistemic practices, social movements, and political persuasions (Note 9). Scholars have recognized as much, especially when considering the many characteristics of the *Pi*.² Rather than existing as a singular viscera, the *Pi* often appeared as a conglomerate of functions, textures, and expressions.

Far from being an object of imprecision, the *Pi* was a historically dynamic object that shared characteristics with the humoral spleen. While the *Pi* has remained expansive in the continued practice of reproducing historical texts and images, the humoral spleen became less known, less articulated as it transformed into the biomedical spleen in the nineteenth and twentieth centuries. At the same time, the dynamic characteristics of the humoral spleen transferred to the biomedical pancreas, which emerged as an epistemic object in nineteenth century organotherapy. In other words, considering the biomedical spleen and the biomedical pancreas as historically contingent entities engages with them as ontologically unstable objects. Through primary source analysis and literature review, this paper contends that the apparent ontological incommensurability between *Pi* and spleen is neither mutually exclusive nor irreconcilable. It proposes that the dynamic nature of organs, their many functions, and their historical transformations contribute to an ongoing ontological ambivalence despite the forced certainty of anatomical retrofitting.

2 Material and methods

Chinese medical scholars have increasingly argued that the classical *Pi* is better translated as the biomedical pancreas rather than the spleen. For instance, Zhou Donghao (周东浩) and Liu Guang (刘光) have wrestled with the anatomical, ontological, and etiological multiplicity of the *Pi* from a broad analysis of early modern texts and graphic images.³ Other scholars have likewise cited the *Nei Jing*, where the position of the *Pi* at the center of the body more closely aligns with the pancreas sitting at the “center” of the gut.⁴ Meanwhile, Chen Yong (陈永) et al. have argued that historical disease states and disease categories of the *Pi* were “mistranslated” as the spleen and more closely align with the pancreas due to similarities in disease state and anatomical placement.⁵

These arguments are compelling, but they assume biomedical organs as “true” anatomy and Asian organs as merely approximating anatomy. To this end, it is important to recognize that biomedical organs are also unstable and changing. The discrete boundaries and functions that defined a particular organ shifted. Historically, the

spleen was an older organ than the pancreas. The spleen and the pancreas with their own histories were not eternal; they were not modern, and they existed within a cosmological system that also changed over time.

Historian Charles Rosenberg has famously urged historians to interrogate teleological histories of disease discovery while avoiding the pitfall of retrofitting historical entities and experiences to modern disease states and anatomical structures (Note 10). Without understanding the shifting history of physiology and anatomy during the long Renaissance, scholars of Asian medicine have often searched for historical practices of dissection that resemble early modern European ones. They seek forms of Asian anatomy to match biomedical morphologies. For instance, contemporary writers frequently compare anatomical atlases to anchor the “real” nature of objects like the *Pi*, an exercise that requires them to rely on biomedical cosmologies as stable, universal truths. It is the historian’s work to maintain critical distance from the search for modernity in pre-modern texts while attending to historical differences and changes.

Rosenburg’s thesis has not reached researchers in China who have increasingly taken on anatomical retrofitting as a way to articulate the *Pi*. Numerous articles examining the experimental and historical nature of *Pi* have appeared in prominent journals publishing studies by researchers from institutions across China, including Fujian University of Traditional Chinese Medicine, Yanshan University, Tianjin University of Traditional Chinese Medicine, Changchun University of Chinese Medicine, and the Department of Rheumatology and Immunology at Huadong Hospital, Fudan University, and so on. In these papers, at stake in interrogating the history of translating the *Pi* is one of national reputation. They contend that correctly identifying the *Pi* as the biomedical pancreas rather than the spleen prevents misinterpretations of Chinese medicine and offers a more accurate understanding of its basic concepts.

The source of the problem, however, has numerous origin stories. Perhaps they began with translation projects in the seventeenth century with Jesuit missionaries like Johann Schreck (邓玉函, 1576–1630), Giacomo Rho (罗雅各, 1593–1638), and Nicolò Longobardo (龙华民, 1559–1654).⁶ Perhaps the work continued with scholars like Wang Honghan (王宏翰, 1648–1700), Wang Xuequan (王学权, 1728–1810), and Wang Mengying (王孟英, 1808–1867). Or, perhaps the first mistranslation of *Pi* as spleen appeared with Benjamin Hobson (1816–1873) who transliterated the “pancreas” as “*Tian Rou* (甜肉, sweet flesh)”.⁴ Or, perhaps the problem began when John Dudgeon (德贞, 1837–1901) translated pancreas into Japanese. Or, perhaps the problems can be traced to Wang Qingren (王清任, 1768–1831) who used two characters interchangeably, identifying the “spleen” as “*Yi* (胰)” and the “pancreas” as “*Pi* (脾)” in his work *Correcting Errors in Medicine* (《医林改错》). Some scholars then argue that identifying the pancreas

as the true referent of *Pi* unlocks the ultimate truths contained ancient texts like the *Huang Di Nei Jing* corpus. Paradoxically, these same authors describe ancient texts being “confused about anatomy” despite containing an abundance of anatomical images.

Researchers such as Zhang Qiming (张启明) and Zhang Huizhen (张惠珍) have further contributed to expanding the ontological nature of the *Pi* by mapping its historical disease pathologies onto contemporary understandings of the cerebral cortex, adrenal cortex, thyroid gland, parathyroid gland, anterior pituitary gland, and immune systems.⁷ Among these accounts, the pancreas expands as an organ. It functions as an epistemic object, becoming more delineated as it is further identified with structures like the islets of Langerhans, alpha cells, and beta cells. This growing articulation reflects a language of certainty, with the pancreas serving as a named entity encompassing many unnamed components. The pancreas in biomedicine becomes inclusive rather than exclusive within a larger anatomical system. The same could be said for *Pi* as the spleen, which was already conceptualized as a system that included membranes and connections to the cerebral cortex, adrenal cortex, thyroid gland, parathyroid gland, pituitary gland, among other immune organs. This opened *Pi* to paradoxically resemble both Chinese medical innovation and obsolescence.

3 Approaches

To understand the contradiction of *Pi* representing both anatomical innovation and obsolescence, I turn to literature in the philosophy of logic and ontology. Logic allows me to consider claims that give rise to contradiction while ontology allows me to further consider the implications this logic has on the nature of the *Pi*. When used colloquially, logic is often considered as the grounds for making ontological claims, though the two fields did not develop in tandem. Ontology considers what exists, while logic provides rules for constructing arguments (Note 11). Logic is based on the art of discussion and reasoning. This paper will not engage with the technical aspects of logic, but it will engage with metaphysical ontology as it pertains to the history of anatomy. Doing so reveals the kinds of assumptions at play in anatomical retrofitting where researchers take biomedicine as a universal truth in order to make particular claims that eventually elide history, translation, and ontology.

Positioning biomedical anatomy as a universal truth exempts biomedical anatomy from critical scrutiny. It further excludes East Asian anatomy from making similar truth claims. This then intensifies critical engagement with Sinographic sources and invites questions on the nature of reality alongside attempts to understand the nature of Chinese medicine in China. Such an undertaking then produces an ontological binary. Biomedical

anatomy becomes robustly logical; it occupies a “formal” ontology of essence. Chinese medicine becomes firmly metaphysical; it occupies a kind of “material” ontology.

To clarify, I consider “ontology” as a branch of metaphysics dealing with existence, and logic as the study of principles and criteria for validating reason or argumentation. Philosopher Charlotta Weigelt has described how “logical” entities explore concepts and principles that any ontology must assume. In contrast, “metaphysical” entities present specific ontological views on the nature of reality (Note 12). When scientists discuss the *Pi* and the biomedical spleen, juxtaposing them or arguing that the *Pi* is “actually” the pancreas, and further suggesting that empirical research on the pancreas reveals deeper truths about the *Pi*, they can only do so if the pancreas is ontologically stable, and the *Pi* is ontologically unstable. They can only do this by essentializing the biomedical spleen and the biomedical pancreas. Biomedical anatomy exists on a level of logic to which all other things must fit. Such comparisons can only be made by disregarding the history of medicine in Europe and overlooking critical continuities and shifts in the history of medicine.

This is not to say that experimental studies on the pancreas have no place in discussions of East Asian anatomy. Indeed, the purpose of studying medical history is to understand how perceptions of the body changed over time. Certainly, scholars are invested in the social, political, material, tacit, and discursive conditions of knowledge making. Anatomical retrofitting elides these considerations and operates on a specific set of assumptions. Examining their logic allows us to articulate the architecture of these assumptions, specifically through formal and applied logic.

Anatomical retrofitting requires the spleen and *Pi* to operate under different sets of laws. The spleen and the *Pi* must occupy different ontological categories. These separate categories allow the truth of one object to reveal the truth of the other; they allow the spleen to reveal the inherent “truth” of the *Pi*. The spleen and pancreas assume the role of “formal” ontology. They exist in a formal category of essences against which all material entities must be measured. In contrast, the *Pi* represents a “material” ontology that invokes the highest forms of being. The *Pi* exists in a larger cosmology that may not be fully known, alongside other concrete things like Nature, Spirit/Culture, and Consciousness (Note 13). It interrupts logical forms and invites metaphysical considerations on the nature of reality. This further fixes the unsettling binary. As anatomical retrofitting renders the spleen and pancreas as logical and formal ontologies that essentialize other objects, the *Pi* remains out of reach. It is both metaphysical and material. It connects to historical texts, practices, and cosmologies that invite deeper inquiry to destabilize reductive claims of reality.

4 Results

4.1 Dynamic attributes of the *Pi*

The *Pi* was a dynamic organ. Premodern texts occasionally introduced it as the most extreme yin of the yin organs, ruling the body’s supply of qi (Note 14). It operated alongside the stomach and shaped one’s taste. Classical texts like the *Basic Questions* (《素问》) offered a simple description, “the ‘spleen’ and the ‘stomach’ are joined by a membrane (脾与胃以膜相连)”. Yet, this translation remains unsatisfying because it is unclear if the *Mo* (膜) as a membrane is a discrete object, or connected to a larger entity that either joined or separated the *Pi* from the “stomach”. Perhaps the *Mo* as an oily “membrane” might be doing more than the text suggests. The passage then continues with the phrase “their motion is facilitated by a fluid (而能为之行其津液)”. This is also not a fully satisfying translation especially given that *Ye* (液) suggests something closer to a humor than other kinds of fluid (Note 15). In another interpretation, the *Pi* and “stomach” potentially interacted through a sticky interface and was put into motion by humoral fluids in the gut. Perhaps the humors allowed for the gut to flow.⁸

Most characteristically, the *Pi* stood as one of the deepest organs in the body. Among the five essential viscera—heart, lungs, kidneys, liver, and *Pi*—the *Pi* was often presented last (Note 16). As *Huang Di Nei Jing* put it, “The abdomen is yin, the most extreme yin within the yin is the *Pi*.”⁹ This was not because the *Pi* was the least important, but because the order of organs indicated their depth. By being last in the line of the five viscera, the *Pi* resided in the most interior space of the body. Diseases affecting it were considered irreversible and most dangerous. Injuries to the *Pi*, whether from external forces or from the mind, could induce paralysis, weak bowel movements, and disturbed dreams. Excessive thinking could injure the *Pi* in the same way that excessive anger injured the liver (Note 17). The *Pi* not only defined temperaments and were affected by temperaments, but also shaped one’s taste, preferences for flavors, and sensitivity to flavors. In most anatomical texts, the *Pi* directly connected to the mouth, and excessive injury to the *Pi* could result in a sweet taste in the mouth.

The *Pi* was then embedded within a cosmology of colors, sounds, and organs, moving among these associations as an active object. Medical texts described the *Pi* enjoying specific sounds—as it happened, every *Zang* preferred a specific sound (Note 18). One sixteenth-century text stated that the *Pi* explicitly responded to the *Gong* (宮) sound (Note 19). It performed a grinding motion to initiate digestion in the gut. It not only enjoyed sounds related to the *Gong* sound but also, as the organ that “generates flesh”, controlled the expanding and contracting of flesh (Note 20). Because the organs were responsive to specific kinds of sounds, medical

texts instructed practitioners to actively use sounds to address internal injuries (Note 21). The five viscera existed alongside the five flavors, five sounds, five colors, and five agents. Within this cosmology, the *Pi* was not simply involved in digestion alone, just as the lungs were not merely related to breathing (Note 22). They held particular preferences and engaged in particular actions that further related to the emotions.

On paper, the *Pi* did not appear as a bounded entity. It was a relational object in anatomical illustrations. For instance, the “spleen-stomach” membrane from the thirteenth-century text *Yi Yin’s Grand Method of Decoctions Expanded by Zhongjing* (《伊尹汤液仲景广为大法》) attributed to the thirteenth century scholar-practitioner Wang Haogu (王好古, 1200–1264?) (Fig. 2). On the right side of the page, the *Pi* appears as a large solid mass with articulated lines indicating its shape and contour. Directly facing the *Pi* on the left side of the page, are the folds of the *Wei Dai* (胃给 stomach) (Note 23). The image features other organic and membranous things, including the esophagus opening to the mouth, and fluids moving between the stomach and the small intestine (Note 24).

Graphic representations demonstrated a flexible anatomy. The location of the *Pi* was not fixed on the page (Note 25). Like other organs, the *Pi* occupied different positions in different illustrations of the same interior space (Note 26). Specifically, other images in the same text showed the *Pi* resting above the stomach or directly beside it (Fig. 3). Anatomical *Tu* (图, a technical graphic

genre) offered multiple articulations of anatomical relationships. In one image, the *Pi* and stomach were positioned directly below folds of the lung and heart; in another image, the *Pi* appeared as a membrane next to the stomach and liver membranes, which grew out of the heart membrane; in another image, the *Pi* protruded like a bulge under the heart. Illustrators positioned the *Pi* as folded within and alongside other viscera to graphically articulate the most yin of the yin organs (Note 27). In another image, the *Pi* membrane appeared in the yin “sea of qi (气之海)”.

This is particularly revealing when some contemporary researchers have overgeneralized the history of Asian medicine as precluding modes of anatomical examination. They further assume that the absence of such examination renders East Asian anatomical organs as fanciful and metaphorical. Yet modes of observation and measurement remain abundant among premodern sources. Descriptions of the organs like the *Pi* were precise and richly detailed. For instance, an excerpt from the *Nan Jing* (《难经》 *Classic of Difficult Issues*) delineated its weight, appearance, and function:

“The *Pi* weighs two *jin* (斤) and three *liang* (两) (Note 28)

It occupies a thickness of three *cun* (寸) (Note 29)

It is five *cun* long

Its oily, jelly-like parts weigh half a *jing*

It is mixed with *xue* (血)

It provides heat to the five viscera,

it regulates the temperature of the five viscera

It adjusts the orientation of the viscera.” (Note 30)

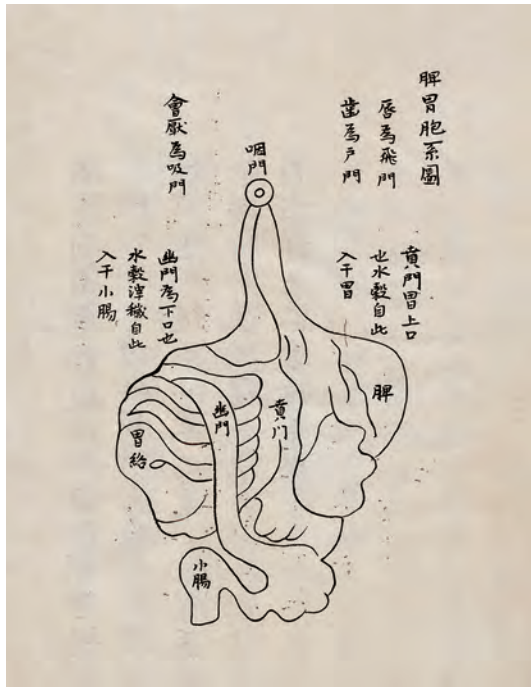


Figure 2 Spleen-Stomach Membrane System/Network *Tu* (脾胃胞系图) from *Yi Yin’s Grand Method of Decoctions Expanded by Zhongjing* (《伊尹汤液仲景广为大法》) (source with permission from: National Archives of Japan. Original date: 1234; Edo period (1603–1868) reprint. Public domain).

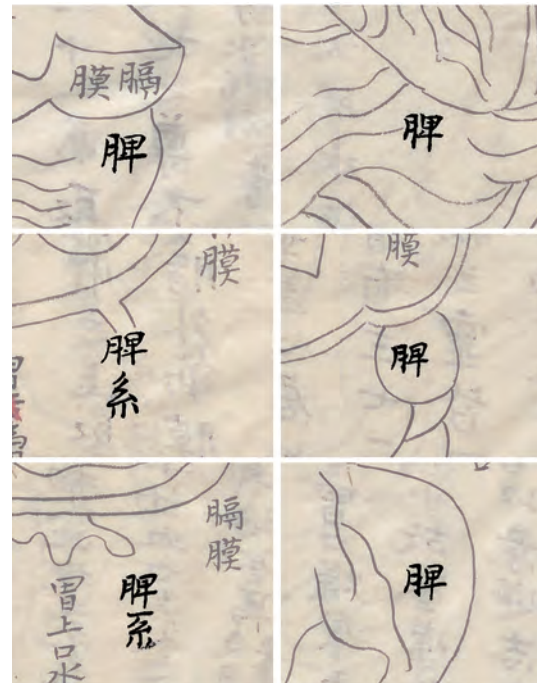


Figure 3 Multiple representations of *Pi* (脾) in *Yi Yin’s Grand Method of Decoctions Expanded by Zhongjing* (《伊尹汤液仲景广为大法》) (source with permission from: National Archives of Japan. Original date: 1234; Edo period (1603–1868) reprint. Public domain).

This account reveals not only a premodern fascination with precision but also offers an image of a *Pi* as possessing a distinct densities, textures, and components. Some parts of the *Pi* were solid and heavy, and others were jelly-like and oily. The *Pi* was made of heterogeneous material and composed of many textures. These textures could be separated, considered, and weighed. More interestingly, doing so would have suggested that the *Pi* arose from a distinct set of empirical practices meant to study how it operated on its own and related to the other essential viscera.

The specificity of the *Pi*, its parts, and its functions permeated throughout classical East Asian texts, practices, and perceptions. Etymologically, it expressed and absorbed different kinds of qi, exhibiting a range of preferences and temperaments. Even the contemporary colloquial term of having a “temper” or *Pi Qi* (脾气) suggests the significant cultural role that the *Pi* played in embodied states of health and disease. While some scholars have relegated *Pi* as a viscera central to digestion, these excerpts show how *Pi* was far from a non-corporeal and imaginary entity.¹⁰ It was a dynamic material organ with distinct parts and articulated through discrete modes of observation and measurement.

4.2 The humoral spleen

It is worth mentioning that perhaps that early modern translations of *Pi* as “spleen” endured simply because the spleen was an older organ than the pancreas. For instance, the spleen featured prominently in premodern treatises as one of the primary organs, whereas the pancreas did not. These treatises were attributed to Galen of Pergamon (AD 129-216), a Roman and Greek physician, surgeon, and philosopher, recognized as one of the most prominent medical figures of late antiquity. In Galen’s texts, the humoral spleen was one of six organs related to nutrition; it was closely associated with the stomach, liver, liver bile, bowels, and other membranes. As one of the essential organs, the spleen was thought to act independently and be self-contained, much like the kidneys, womb, and intestines. Furthermore, Galen highlighted the central role of the spleen, along with the liver, kidneys, and “two” bladders, in processing bile—a process that he lamented few of his contemporary anatomists understood. He explained:

“It is on account of the liver that the kidneys and the two bladders come into being (that which receives bile growing out from the liver itself, and that which receives urine being attached to the kidneys), and also the spleen, which cleanses the slimy excretions of the organ...the stomach performs a preparatory digestion of the nourishment for the liver, and that the system of intestines comes into being for the purpose of distribution of matter in the intestines themselves—as was every other individual matter regarding each part of the body.”¹¹

In this excerpt, Galen describes the spleen as responsible for cleaning “slimy excretions of the organ”. Its role in digestion involved a custodial function of removing waste. It was also a “wet” organ with a larger proportion of fat.¹¹ In animal dissections, Galen described the texture and temperature of the spleen, writing the following:

“The flesh of spleen, kidneys, and liver is wetter than skin to the same degree that it is softer; and hotter to the same degree that it is fuller of blood. That of the heart, meanwhile, is drier than all these to the same extent that it is harder; at the same time, it is hotter, not only than these, but than any other part of the body.”¹¹

Like the *Pi*, humoral spleen also existed as an articulated viscera. It also maintained a discrete set of textures, temperatures, parts, and functions. The humoral spleen was “wetter” than the skin, but not as “hot” as the heart. It existed within fundamental elements of the humoral hot-cold and wet-dry categories. Meanwhile, diseased or enlarged spleens were believed to be sensitive to certain flavors and foods. For instance, Galen noted that enlarged spleens were sensitive to sweet raisins that were “not yet sour”.¹¹ Similarly, he warned that sweet wines could also damage an enlarged spleen and other organs. The imbibed substances could initiate “a pull towards these organs” and become “wedged” in the extremities of the vessels.¹¹ Other sweet drinks like milk mixed with honey were also thought to potentially injure the spleen. Specific kinds of flavors and foods had the power to disturb and physically displace the spleen.

4.3 The pancreas as epistemic object

Understandings of the humoral spleen evolved over time. In the nineteenth century, physiologists built upon the work of their early modern predecessors to further investigate the specific functions of organs and how those functions defined useful anatomical structures. With a growing interest in the expressiveness of the fluid body, experimental physiologists fixated on the kinds of fluids that organs secreted. For instance, the famed Russian physiologist Ivan Pavlov (1849-1936) and his hundreds of collaborators measured animal behavior through changes in the excretion of gastric juices (Note 31). This research shaped the early field of organotherapy, where physiologists continued to study the fluid nature of the organs and the fluids that they secreted. This further gave rise to experimental organ transplantation, which also attempted to understand the fluidity and function of internal viscera.

Physiologists like Erwin Payr (1871-1946) investigated the boundaries of organotherapy by experimenting with different kinds of organ transplantation.¹² Under these circumstances, well-vascularized organs like the spleen were ideal for study (Note 32). Payr and his contemporaries examined the immunological function of the spleen by transplanting portions of the spleen or

even entire spleens from rabbits to monkeys or dogs, assuming that transferring the spleen would also transfer immunity against certain diseases from the donor to the recipient. The spleen also served as a host site for transplanting other organs. Experimenters surgically removed and grafted parts of the pancreas, parathyroid, adrenal gland, thymus, ovaries, testes, pituitary, and kidneys onto the spleen. While the spleen appeared technically useful for grafting and transplantation, these experiments ultimately proved inconclusive. Entire transplanted organs would dissolve into the host animal. To the dismay of the experimenters, transplanted organs simply vanished. The host body absorbed the new organs, which appeared to be neither discrete nor bounded. As fluid entities, organs melted.

As physiologists continued their investigations of the fluid spleen, they also turned their attention to the function and form of pancreatic secretions. Late nineteenth-century physicians considered the pancreas to be an enigma, some noting its “hitherto unknown function”.¹² The fascination with the pancreas was encouraged by emerging technologies and techniques for organ transplantation. As it happened, the pancreas, like the spleen, was suitable for experimentation.¹² Again, the boundaries of individual organs remained ambiguous. When early physiologists tried to understand the unique role of specific organs in diseases like diabetes, they arrived at multiple conclusions (Note 33). In the 19th century, the pancreas was merely one of many organs that induced diabetes. It was not unique.

Despite the failings of experimental organ transplantation and studies on the spleen and pancreas, physiologists in the twentieth century continued their investigation. They studied the organs and their secretions to better understand chronic diseases. While the pancreas emerged as a significant object in the history of organ transplantation, it came to be further defined as a “crucial” organ in new studies to locate the link between insulin and diabetes. Though physiologists recognized that there was no single cause for diabetes, the pancreas helped to simplify its etiology. Beginning the mid-twentieth century, numerous new histories of the pancreas emerged (Note 34). Many of these books present a teleological account of ignorant early modern physicians supplanted by the heroic modern anatomists and their illuminating discoveries (Note 35).

Experiments in organotherapy rendered the spleen and pancreas as distinct organs. They were both useful organs under different experimental conditions. By the mid-twentieth century, research on diabetes positioned the pancreas as *more* useful than the spleen, even though organotherapy research had demonstrated multiple causes for diabetic symptoms. Despite the growing interest in constructing heroic narratives around the history of the pancreas, scholars must critically examine such accounts. The history of anatomy is not a heroic saga, especially given that early dissectors were largely

interested in the expression of fluids rather than the structures that contained them.

4.4 The many *Pi* as spleen

Meanwhile, *Pi* continued to converge and multiply in the mid-twentieth century. In the 1950s, Chinese scientists turned to their Soviet counterparts in Russia for models of the material body, translating and printing tens of thousands of manuals (Note 36). For instance, the physician-illustrator Wang Xuetai (王雪苔, 1925-2008) and his contemporaries drew on the work of Ivan Pavlov (1849-1936), the same physiologist who contributed to the field of organotherapy in his studies of animal behavior (Note 37). The legacies of organotherapy, the shifting understandings of the biomedical spleen and pancreas, along with the longevity of versions of the *Pi* in *Nei Jing Tu*, offered a dynamic view of anatomical representation in the twentieth century. Illustrators like Wang both engaged with classical European graphic realism while also reproducing simplified classical technical images (Note 38).

In 1948, Wang Xuetai began to closely study and reproduce images from the *Treatise of the Fourteen Meridians* (《十四经发挥》). As the newly appointed illustration for famous textbook *New Approaches to Acupuncture-Moxibustion* (《新针灸学》, abbreviated as *New Approaches*) by the famed physician Zhu Lian (朱琏, 1909-1978), Wang took seriously the study of classical and contemporary images (Note 39). He was instructed to make modern images and created numerous lithographs of écorché hands, heads, and arms.

In Wang’s first set of biomedical images for the first edition of *New Approaches* in 1950, the “modern” spleen appeared as a dark red lobe lodged to the left of the gut (Fig. 4). It clung to a concealed green organ, labeled as the pancreas. A relatively new organ in the 1950s, the pancreas hid behind the blue outline of the *Wei* and its yellow tentacular nerves, labeled as “superior gastric nerve plexus (上胃神经丛)”. By 1954, Wang’s depiction of the spleen changed in the second edition of *New Approaches* (Fig. 5). It shrank in a black and white image. While the proportions of the torso roughly resembled Wang’s first edition images, the *Wei* now appeared more prominently at the center of the body nestled beneath the liver. The spleen as *Pi*, meanwhile, was relegated even further to the left of the torso, no longer bulging, and no longer hugging the pancreas, which also appeared more prominently as a dotted outline behind the stomach.

Between these two images, we can observe three distinct transformations. First is Wang’s removal of color. The blue stomach, its yellow claw-like nerves, the dark red spleen, and green pancreas have all been rendered into dotted halftones. Second are the proportional changes of the organs, with the spleen growing smaller and the stomach growing larger. Third is the emergence

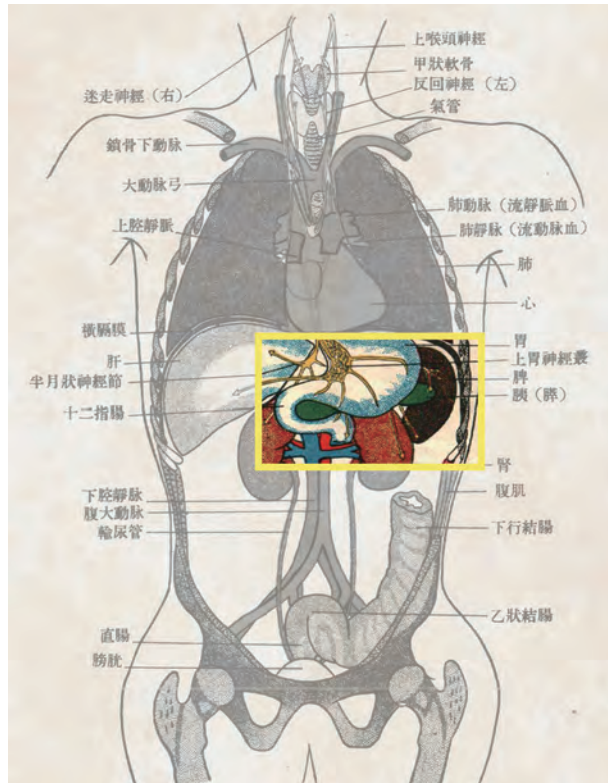


Figure 4 The “modern” spleen in the 20th century appears as a dark red lobe lodged to the left of the gut, detached from the heart system. (source with permission from: *New Approaches to Acupuncture-Moxibustion*¹³).

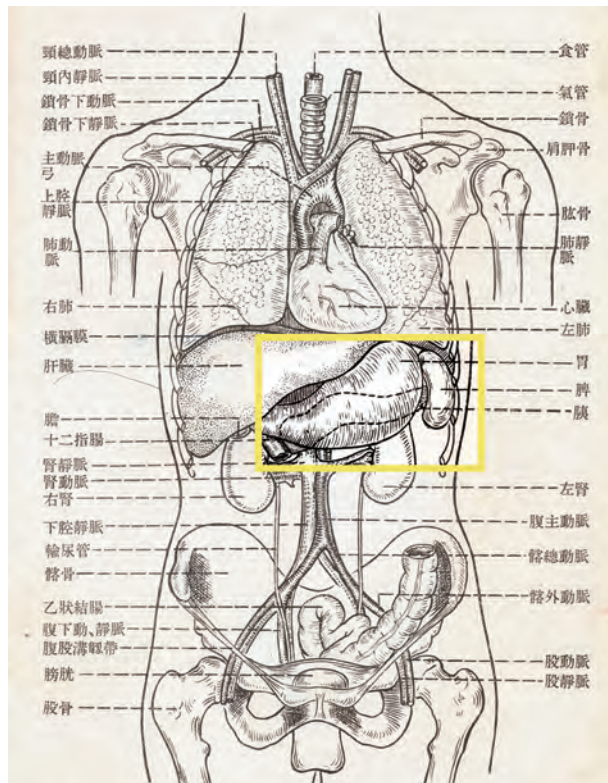


Figure 5 The “modern” shrunk spleen in the 20th century, now as a black and white image in the second edition of *New Approaches to Acupuncture-Moxibustion*. (source with permission from: *New Approaches to Acupuncture-Moxibustion*¹³).

of the pancreas from being concealed behind the blue stomach to appearing as a dotted outline seen through the stomach in the second edition.

There are a few ways to interpret the graphic shift in Wang Xuetai’s representations. It is possible that Wang created these two images using two different templates. Yet, given the idiosyncrasy of Wang’s set of images in each edition of *New Approaches*, and the graphic consistency throughout the set, it is more likely that Wang re-created his lithographic images based on transformations in his own judgment and interpretation. From engaging with the breadth of Wang’s work, it is clear that he had become more invested in discursively and visually translating the robust literature on classical anatomy.

If we compare the transformations between Figure 4 and Figure 5, it is further possible that Wang edited his biomedical anatomical illustrations in the second edition of *New Approaches* to more closely resemble with a *Ming Tang Tu*. It is possible that he removed the complementary colors that distinguished the spleen and pancreas, rendering them as halftones to suggest they operated as a single unit. By doing so, intentionally or not, the bulging unit at the center of the image more closely resembled the bulging spleen in Figure 1.

This is to say that Figures 1, 4, and 5 show three different modern versions and visions of the *Pi* as “spleen” in the 20th century. Classical genres of the *Pi* in a figure showed a prominent lobe extending from the center to the periphery of the torso. Yet, with the emergence of the pancreas as a distinct object in organotherapy practices, illustrators like Wang Xuetai copied new images showing the spleen and pancreas as separate organs. While previously unknown, the pancreas became more prominent and visible, displacing the spleen from the center of the image. The biomedical spleen would shrink not only in size but also in its represented form and function. And yet when twentieth century illustrators like Wang Xuetai created their images of anatomy, the spleen and the pancreas seemed to merge into one unit.

5 Conclusion

This paper has offered a preliminary approach for understanding the multiplicity of *Pi* as a conceptual and corporeal object. Keen attention to the historically contingent nature of the *Pi* allows researchers to make sense of its expansive dynamism in text and image. I specifically characterize recent debates of whether the *Pi* represents the biomedical spleen or the biomedical pancreas as a case of “anatomical retrofitting,” or the anachronistic imposition of contemporary categories onto living historical objects as a mode of translation and as a means for amending mistranslation.

Anatomical retrofitting requires the *Pi* and the spleen to operate under different sets of laws. These laws position the biomedical spleen to reveal the inherent “truth” of the *Pi*. While the biomedical spleen represents essential

concepts, or “logical” ontology that is divorced from history, the *Pi* connects to a different nature of reality, or “metaphysical” ontology that is a product of history. In other words, while anatomical retrofitting renders the spleen and pancreas as logical and formal ontologies that essentialize other objects, the *Pi* remains out of reach as a metaphysical and material object.

I have further considered the historical connection between biomedical spleen and the humoral spleen, which in Galenic texts was considered as a fatty and “wet” organ composed of a variety of textures, temperatures, parts, and functions. Specific kinds of flavors and foods had the power to disturb and physically displace the spleen. In the nineteenth century, physiologists interested in the humoral body gave rise to experimental organ transplantation as a means to understand the fluidity and function of the organs. While the spleen appeared technically useful for transplantation, these experiments ultimately proved inconclusive.

Meanwhile, the *Pi* was embedded within a cosmology of colors, sounds, and organs. It moved among these associations as an active object. The *Pi* not only defined temperaments and was affected by temperaments, but also shaped one’s taste, preferences for flavors, and sensitivity to flavors. Excessive injury to it was thought to result in a sweet taste in the mouth. Graphic representations likewise offered a flexible representation of anatomy. The location of the *Pi* was not fixed on the page and occupied a variety of positions in different illustrations of the same interior space.

Twentieth century physicians and their illustrators continued to resurrect and reproduce images of the *Pi* from a variety of visual and textual genres. The broad catalogue of historical and contemporary sources further enabled researchers to graft with great imperfection many kinds of morphological shapes and physiological expressions found in ever-shifting corporeal cosmologies (Note 40). This paper has articulated the conceptual asymmetries of anatomical retrofitting as a kind of grafting practice among the *Pi*, humoral spleen, and biomedical spleen and pancreas. Further, considering the logical foundations and ontological consequences of anatomical retrofitting reframes histories of anatomy to cast in relief biomedical entities of indeterminate function and fate.

Notes

1. For a discussion of the polysemous nature of *Xin* (心), see Li LA. Medical poetics: global health humanities on film and the case of 心. In Crawford P, Brown B, Charise A, eds. *The Routledge Companion to Health Humanities*. First edition. London: Routledge; 2020. p. 163-172.
2. A number of scholars of East Asian medicine have assembled long histories of the transformation of Asian medicine, such as Hinriche TJ, Barnes LL. *Chinese*

Medicine and Healing: An Illustrated History. First edition. Cambridge: Belknap Press; 2013. For the recent cutting-edge long history of Asian medicine, see Lo V, Stanley-Baker M, eds. *Routledge Handbook of Chinese Medicine*. First edition. London: Routledge; 2022.

3. Regarding its translation, *Nei Jing* could potentially reference both *Nei Jing* (内经) as the “inner cannon” or *Nei Jing* (内景) as the “inner vision”. Scholars have further debated on the translation of the word *Nei* (内) we simply designating the interior of the body. I have discussed previously that historian-sinologists Lu Gwei-Djen (1904–1991) and Nathan Sivin (1931–2022) disagreed on the translation of *Nei*, where Lu considered it to be inherently corporeal beyond simply indicating the interior of the body. This was specifically relevant to her translation of *Nei Dan* (内丹) as a Daoist corporeal practice of attaining immortality. See Li LA. Invisible bodies: Lu Gwei-Djen and the specter of translation. *Asian Medicine* 2018;13(1-2):33-68.

4. I discuss the significance of *Tu* (图) as a graphic genre supporting the representation of *Jing Luo* (经络) as meridians in my forthcoming book, *Body Maps: Improvising Meridians and Nerves in Global Chinese Medicine* (2025). For an excellent discussion of *Tu* in East Asia see Bray F, Dorofeeva-Lichtmann V, Metailie G. *Graphics and Text in the Production of Technical Knowledge in China: The Warp and the Weft*. Leiden: Brill Academic Publishers; 2007.

5. Representations of the body took many forms, including ancient figurines, medieval paintings, diagnostic charts, and illustrated medical texts. For a diverse exploration of these forms in Asian medicine, see Lo V. *Imagining Chinese Medicine*. Leiden: Brill Academic Publishers; 2018.

6. For a history of translation, transmission, and transformation of Chinese medicine as a historical object and as a plural object, see Bivins R. Imagining acupuncture: images and the early westernization of Asian medical expertise. *Asian Medicine* 2012;7(2):298-318. Hsu E. *The Transmission of Chinese Medicine*. Cambridge Studies in Medical Anthropology. Cambridge: Cambridge University Press; 1999. Volker S. *Chinese Medicine in Contemporary China: Plurality and Synthesis*. Durham: Duke University Press; 2002. Volker S. Transmitting Chinese medicine: changing perceptions of body, pathology, and treatment in late imperial China. *Asian Medicine* 2013;8(2):299-360.

7. For a history of the relationship between materiality, invisibility, and representing internal viscera, see Lei SHL. Qi-transformation and the steam engine the incorporation of Western anatomy and re-conceptualisation of the body in nineteenth-century Chinese medicine. *Asian Medicine* 2012;7(2):319-357. Lo V, Wang YD. Chasing the vermilion bird: late-medieval alchemical transformations in *The Treasure Book of Ilkhan on Chinese Science and Techniques*. In Lo V, Barrett P, Dear D, Lu D, Reynolds L, Yang D, eds. *Imagining Chinese*

- Medicine*. Leiden: Brill Academic Publishers; 2018. p. 291-304.
8. These include figures such as Thomas Willis (1621-1675) and Erwin Payr (1871-1946). See Wragge-Morley A. Imagining the soul: Thomas Willis (1621-1675) on the anatomy of the brain and nerves. In: Ambrosio C, Macle hose W, eds. *Imagining the Brain: Episodes in the History of Brain Research*. Amsterdam: Academic Press; 2018. p. 55-74. Schlich T. *The Origins of Organ Transplantation: Surgery and Laboratory Science, 1880-1930*. Rochester: University of Rochester Press; 2013.
9. Lorraine Daston and Peter Galison have famously discussed the relationship between technologies of representation, epistemic virtues, and knowledge production in the history of science and the rise of objectivity, see Daston L, Galison P. *Objectivity*. New York: Zone Books; 2010. For a discussion on the role of aesthetics in early modern scientific judgement, see Wragge-Morley A. *Aesthetic Science: Representing Nature in the Royal Society of London, 1650-1720*. Chicago: University of Chicago Press; 2020. Here, I further draw on classic literature in science studies on thinking through the role of “epistemic objects” in the laboratory. See Rheinberger HJ. *Toward a History of Epistemic Things: Synthesizing Proteins in the Test Tube*. First edition. Stanford: Stanford University Press; 1997.
10. This is in direct reference to Charles Rosenberg’s caution against retro-diagnoses. Rosenberg CE. The tyranny of diagnosis: specific entities and individual experience. *The Milbank Quarterly* 2002;80(2):237-260.
11. Formal logic extends beyond mere dialectics, which is the practice of discussion and reasoning based on certain rules. Bocheński JM. Logic and ontology. *Philosophy East and West* 1974;24(3):275-292.
12. Charlotta Weigelt has further argued that logical discourse often conflicts with the ontology presented at the metaphysical level, posing implications for the nature of substance, which Aristotle could not directly accept. As a result, Aristotle’s *Metaphysics* aimed to reconcile different existing discourses on reality. Weigelt C. The relation between logic and ontology in the *Metaphysics*. *The Review of Metaphysics* 2007;60(3):507-541.
13. David Woodruff Smith has elaborated on Edmund Husserl’s use of the term “pure” to signify an abstraction of a thing from other contexts or relations. Smith further argues that Objecthood not only possesses properties but is also potentially represented in language, intended in consciousness, and known with evidence. This concept, or “metasystematic essence”, unfolds across logic, phenomenology, ontology, and epistemology in Husserl’s theory. Smith DW. “Pure” logic, ontology, and phenomenology. *Revue Internationale de Philosophie* 2003;57(224):133-156.
14. For an excellent excavation of the philological, metaphorical, and material transformation of qi, see Stanley-Baker M. Qi (气): A means for cohering natural knowledge. In: Lo V, Stanley-Baker M, Yang D, eds. *Routledge Handbook of Chinese Medicine*. London: Routledge; 2022.p. 23-38.
15. The original quote from being: “脾与胃以膜相连耳,而能为之行其津液” (《素问·太阴阳明论篇第二十九》)
16. Specifically, these are the five *Zang* viscera that have a yin orientation.
17. I have previously argued that thinking was not only an element of cognition but also a category of feeling. In considering the broad functions of the *Pi*, this paper thus interrogates the ontological category of emotions, where rather than functioning as an object against reason, emotions included forms of cognition and, specifically, thinking. Li LA. Emotional spleens: death by overthinking in classical Chinese texts. Barclay K, Stearns P, eds. *The Routledge History of Emotions in the Modern World*. London: Routledge; 2022. p. 167-182.
18. For instance, in the Ming dynasty text *Shou Shi Bao Yuan* (《寿世保元》 *Prolonging Life and Preserving the Origin*), first published in 1615 by Gong TX, the spleen is described as “enjoying” the sound or “*pi hao yin sheng, wen sheng ji dong er mo shi*” (脾好声音, 闻声即动而磨食). Gong TX. *Prolonging Life and Preserving the Origin* (寿世保元). Shanxi: Shanxi Science and Technology Press; 2011. Chinese.
19. The *Gong* (宫) sound appeared as the first note in a twelve-tone chromatic scale. It was roughly like the C note. In being the first, the *Gong* sound also appeared as the “lord” of all other sounds. Like the organs, the sounds took social metaphors, a common characteristic found in Chinese medical texts. The relationship between the five sounds, like the relationship between the five *Zang* organs, like the relationship between the five agents, often resembled a body politic. This is following Nancy Shephard Hughes and Margaret Lock’s famous description of the three bodies: the body-self, the social body, and the body politic. Scheper-Hughes N, Lock MM. The mindful body: a prolegomenon to future work in medical anthropology. *Medical Anthropology Quarterly* 1987;1(1):6-41.
20. While the word *Jin Rou* (筋肉) is often now translated as “muscle”, it originally referred to every tissue other than fat. See the original description in Zhang JB. *Jingyue’s Complete Works* (张景岳医学全书). Beijing: China Press of Chinese Medicine; 1999. Chinese.
21. Consider, for instance, the phrase “Sensational Medicine” in Li JC. *Sensational Medicine* (情志医学). Beijing: Publishing House of Ancient Chinese Medical Books; 1994. Chinese.
22. To push this further, each of the organs was embedded within a cosmology of dampness, earth, sweetness, which lead to flesh and the formation of the mouth. See *The Yellow Emperor’s Inner Classic* (黄帝内经). Trans and annotates. Yao CP. Beijing: Zhonghua Book Company; 2010. p. 61. Chinese.
23. This set of images is originally attributed to a royal physician named Yang Jie (杨介, 1002-1063) during the Song dynasty, who offered one of the earliest printed sets

of anatomical images. Yang's famous book *Illustrations of Internal Organs and Circulatory Vessels* (《存真环中图》) provided a series of ten anatomical prints based on the dissected remains of an executed criminal. In his images, Yang Jie compiled views of the organs from the front, back, and sides. Organs appeared sometimes densely packed and other times loosely arranged. See Miyasita S. A link in the westward transmission of Chinese anatomy in the later middle ages. *Isis* 1967;58(4):486-490.

24. As the most yin of the yin organs, the *Pi* (脾) could only be seen from the front of the body. It was concealed from the back.

25. This is not to say that *Tu* was a dominant mode of representation. Indeed, it was primarily artisanal, not a form of fine art. For a detailed history of realism in Song painting, see Murray JK. Art-historical perspectives on the Song: studies on Song painting. *Journal of Song-Yuan Studies* 1994;24:355-72.

26. Yang Jie was said to be the only individual producing these images. For a comprehensive history of medical images that began during the Song dynasty, see Catherine D. Picturing the body in Chinese medical and Daoist texts from the Song to the Qing period (10th to 19th Centuries). In: Lo V, Barrett P, eds. *Imagining Chinese Medicine*. Leiden: Brill Academic Publishers; 2018. p.51-68. Meanwhile, scholar-practitioner Volker Scheid has described how these images of the organs suggest "critical textual research, empirical observation, and the ongoing effort to improve clinical practice and reflected a shift of attention in the investigation of things away from cosmological resonance and introspection toward more directly observable relationships." Scheid V. Transmitting Chinese medicine: changing perceptions of body, pathology, and treatment in late imperial China. *Asian Medicine* 2013;8(2):299-360.

27. Classical medical texts described a close relationship between the *Pi* and the "stomach" where the "stomach" supported the *Pi*.

28. These historical measurements have changed over time based on different material and cultural references of size and weight relativity. In the case of *jin* (斤) and *liang* (两), the relative comparison (and not the particular translation) is similar to two pounds three ounces.

29. This is a historical inch and has been also described as the "same body inch".

30. This passage comes from *Classic of Difficult Issues: Forty-two Difficulties* (《难经·四十二难》).

31. For a detailed history of the experiments conducted by Pavlov and his collaborators, see Todes D. *Ivan Pavlov: A Russian Life in Science*. Oxford: Oxford University Press; 2015.

32. Physiologists experimented with organotherapy to demonstrate how the spleen and bone marrow treated anemia. Schlich T. *The Origins of Organ Transplantation: Surgery and Laboratory Science, 1880-1930*. Rochester: University of Rochester Press, 2013. p. 48.

33. For instance, the German physiologist Eduard Friedrich Wilhelm Pflüger (1829-1910) discovered that removing the duodenum while keeping the pancreas caused more intense diabetes in frogs compared to removing the pancreas alone.

34. Some of the histories of the pancreas include Howard JM, Walter H. *History of the Pancreas: Mysteries of a Hidden Organ*. Second edition. New York: Springer; 2002. Henderson J. *A Life of Ernest Starling*. New York: Academic Press; 2005. Busnardo AC, DiDio LJ, Tidrick RT, Thomford NR. History of the pancreas. *American Journal of Surgery* 1983;146(5):539-550. Hodgkin AL, Huxley AF, Feldberg W, Rushton WAH, Gregory RA, McCance RA. *The Pursuit of Nature: Informal Essays on the History of Physiology*. Cambridge: Cambridge University Press; 1977.

35. For instance, one history portrays Herophilus as glimpsing something resembling the pancreas early on but neglecting to recognize its "true" functions. See Howard JM, Walter H. *History of the Pancreas: Mysteries of a Hidden Organ*. Second edition. New York: Springer; 2002.

36. These anatomical bodies made medical knowledge accessible, aligning with the Communist Party's goals of encouraging readers to recognize a text's content as well as virtues of modernity. Similar impulses appeared in other scientific fields such as archeology and agriculture. Sigrid S. *Red Revolution, Green Revolution: Scientific Farming in Socialist China*. Chicago: University of Chicago Press; 2016.

37. Wang's choice of color blocking in his *Tu* production is an example of how the modes of image production were further entangled with social, political, and historical shifts in medical practice. Shigehisa Kuriyama has discussed how economic conditions significantly shaped aesthetic practices in anatomical illustrations in the Edo period. Kuriyama S. Between mind and eye: Japanese anatomy in the eighteenth century. In: Leslie C, Young A, eds. *Paths to Asian Medical Knowledge*. California: University of California Press; 1992. p. 21-43. Additionally, Victoria Bennet has offered a detailed history of the material, cultural, and graphic transformations of images in Japan. See Bennett V. *Medical, Anatomical, and Visual Transformations in the Japanese Woodblock Prints of the Edo and Meiji Periods (1603-1912)* [dissertation]. Columbia: University of South Carolina; 2019.

38. I have written elsewhere on a close study of the graphic shifts in Wang Xuetai's (王雪苔) representation of *Jing Luo* (经络). See Li LA. Communist materialism and illustrating medical textbooks, 1950-1966. In: Nott J, Harris A, eds. *Making Sense of Medicine: Material Culture and the Reproduction of Medical Knowledge*. Chicago: The University of Chicago Press; 2022. p. 194-204.

39. Zhu Lian (朱璉) had dedicated herself to this project following a 1944 Yan'an (延安) meeting, where regional government officials fashioned a slogan to render Chinese medicine "scientific" and Western medicine "popular".

See Taylor K. *Chinese Medicine in Early Communist China, 1945-1963: A Medicine of Revolution*. London; New York: Routledge; 2005.

40. Here, I acknowledge the impact of Projit Mukharji's work on braided sciences in colonial Bengal. See Mukharji PB. *Doctoring Traditions: Ayurveda, Small Technologies, and Braided Sciences*. Chicago: University of Chicago Press; 2016. To this end, I turn to Nana Osei Quarshie's work on historical "grafting" practices in appropriating and accommodating diagnostic and therapeutic approaches to mental distress in West Africa. This will be further illuminated in Quarshie's forthcoming book *An African Pharmakon*. For an example of the legal, social, and economic dimensions of what Quarshie describes as the "African Pharmakon", see Quarshie NO. Spiritual pawning: "mad slaves" and mental healing in Atlantic-era West Africa. *Comparative Studies in Society and History* 2023;65(3):475-499.

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- [5] Chen Y, Cai JF, Zou J, Luo D, Guan JL. *Pi* in traditional Chinese medicine refers to pancreas rather than spleen (中医脾实质乃“Pancreas”而非“Spleen”). *Negative* 2017;8(1):35-38. Chinese.
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- [9] Anonymous. *The Yellow Emperor's Inner Classic* (黄帝内经). Trans. and Annotated. Yao CP. Beijing: Zhonghua Book Company; 2010. p. 49. Chinese.
- [10] Zhang DX, Pang WL, Xu XW. Analysis of spleen's anatomic entity involvement in T.C.M. (析中医“脾”解剖实体的演变). *Journal of Traditional Chinese Medical Literature* 2008;5(5):8-9. Chinese.
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- [12] Schlich T. *The Origins of Organ Transplantation: Surgery and Laboratory Science, 1880-1930*. Rochester: University of Rochester Press; 2013. p. 58, 66, 67.
- [13] Zhu L. *New Approaches to Acupuncture-Moxibustion* (新针灸学). Illustrates. Wang XT. Beijing: People's Medical Publishing House; 1950. p. 5, 10. Chinese.

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Reconstruction of Knowledge and Medical Images in the Convergence of Chinese and Western Medicine: Taking “Sweet Meat” as an Example

GU Xiaoyang^{1,✉}

Abstract

The pancreas is neither part of the five *Zang* organs (五脏) nor the six *Fu* organs (六腑). Thus, it has received little attention in Chinese medical literature. In the late 19th century, medical missionaries in China started translating and introducing anatomical and physiological knowledge about the pancreas. As for the word pancreas, an early and influential translation was “sweet meat” (甜肉), proposed by Benjamin Hobson (合信). The translation “sweet meat” is not faithful to the original meaning of “pancreas”, but is a term coined by Hobson based on his personal habits, and the word “sweet” appeared by chance. However, in the decades since the term “sweet meat” became popular, Chinese medicine practitioners, such as Tang Zonghai (唐宗海), reinterpreted it by drawing new medical illustrations for “sweet meat” and giving new connotations to the word “sweet”. This discussion and interpretation of “sweet meat” in modern China, particularly among Chinese medicine professionals, is not only a dissemination and interpretation of the knowledge of “pancreas”, but also a construction of knowledge around the term “sweet meat”.

Keywords: Medical terminology; Sweet meat; Medical missionaries; Pancreas; History of images

1 Introduction

The pancreas is neither one of the five *Zang* organs (五脏) nor one of the six *Fu* organs (六腑) and has received less attention in traditional Chinese medicine (TCM). In modern China, medical missionaries translated and introduced the anatomical and physiological knowledge of the pancreas. The term “sweet meat (甜肉)”, coined by the British medical missionary Benjamin Hobson (合信, 1816–1873), appeared early and was influential, remaining popular for decades before being replaced by *Yi* (胰).

In ancient Chinese medical texts, words such as *San Gao* (散膏), *Pi* (脾), and *Yi*, etc., have been used to refer to the pancreas, and many scholars have studied and analyzed the knowledge of the pancreas in Chinese

medicine.^{1–3} Others have also focused on the translation of pancreas, studying the dissemination and construction of knowledge in the translation of modern Western medical terms.^{4–7} In contrast to these previous studies, the author’s aim is not to analyze whether “sweet meat” belongs to the *Pi* in Chinese medicine, nor to examine how it was abandoned as a Chinese translation, but rather to focus on the term “sweet meat” as a vehicle for the circulation of knowledge. In the following section, the author will trace the origin of the term “sweet meat” and examine the images of it presented by Tang Zonghai (唐宗海, 1851–4897) and other scholars of Chinese medicine, as well as their further interpretation of the term “sweet (甜)”. Through this case, we can understand the changes and production of knowledge in the process of the fusion of Chinese and Western medicine from the perspective of the history of knowledge and images, and gain a deeper insight into how Chinese medical practitioners responded to the conflicts and collisions between the two types of medicine and reconstructed their medical knowledge and images.

2 Etymology, origin, and associated imagery of “sweet meat”

Hobson was a British missionary and doctor who graduated from London University in 1835, and was appointed by the London Missionary Society to come to China in 1839 to practice medicine in Macau, Guangzhou,

¹ School of Medical Humanities, Capital Medical University, Beijing 100069, China

✉ GU Xiaoyang, E-mail: guxiaoyang1@163.com
ORCID: 0009-0004-2828-7872

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Shanghai, and other places. While practicing medicine, Hobson translated, compiled and printed many medical books, which facilitated the spread of Western medicine in modern China. His first medical work, *Quan Ti Xin Lun* (《全体新论》 *Treatise on Physiology*), published in 1851, was considered an important medical book in introducing Western anatomy and physiology to China, and had a far-reaching influence.⁸⁻¹⁰

Hobson translated the pancreas as “sweet meat” in *Quan Ti Xin Lun*, writing: “The Chinese had no name for the organ sweet meat, which is about five *cun* (寸) long, lying horizontally behind the stomach, shaped like a dog’s tongue, with the head on the right and the tip of the tail on the left, which tastes sweet and is therefore called sweet meat, with a duct of juice in its center, which enters obliquely through the upper opening of the small intestine (the same duct as that through which the bile ducts enter the small intestine), and the juice which it produces, like self-supporting water, serves an unknown purpose, probably to assist the function of the gall bladder.”¹¹ Hobson’s introduction to the “sweet meat” had three main components: anatomical location and structure, how it got its name, and physiological function. By the first half of the 19th century, the anatomical location and structure of the pancreas had long been accepted in Western medicine, but Hobson’s choice of translation and presentation of the function of the pancreas is worthy of closer examination.

2.1 Etymology and origin of the word “sweet meat”

The word *pancreas* is derived from the Greek word “πάγκρεας”, which is composed of the prefix “πᾶν” for all and “κρέας” for flesh, literally meaning “whole meat”.¹² In the second half of the 16th century, under the influence of the Renaissance, a large number of words from Greek and Latin were translated into English.¹³ It was during this period that the two English words *pancreas* and *sweetbread*, meaning *pancreas*, entered the English vocabulary one after the other. *Pancreas* and *sweetbread* appear side by side in the popular 1565 English dictionary compiled by the English bishop Thomas Cooper (1517–1594), where the *pancreas* is described as “an organ under the stomach” and the organ in the pig is called *sweetbread*.¹⁴ Some medical books of the time used both words.¹⁵ But *sweetbread* also appeared frequently in other books, such as cookery books.¹⁶ In the 17th and 18th centuries, *sweetbread* came to refer not only to the pancreas of animals such as calves and lambs, but also to the thymus gland.¹⁷⁻¹⁹ In addition to appearing in dictionaries and medical journals, it also appeared frequently in cookbooks.¹⁹ The word *bread* in *sweetbread* is derived from the old English word “bræd”, meaning meat, and the name *sweetbread* likely refers to the organ as a delicacy.²⁰ It is claimed that *sweetbread* would have a sweeter flavour and

richer texture than ordinary meat when it was cooked.²¹ Hobson’s “which tastes sweet” in *Quan Ti Xin Lun* may have been intended to convey a similar connotation.

By the 19th century, the difference between the meanings of *pancreas* and *sweetbread* had become even greater, with the *pancreas* appearing mainly in academic medical texts to refer to the anatomical organ, the pancreas. *Sweetbread*, however, appears less frequently as an academic term. For example, the word *sweetbread* did not appear in any of the medical works that Hobson referred to when compiling *Quan Ti Xin Lun*,⁸ such as William Carpenter’s (1813–1885) *Animal Physiology*, Jones Quain’s (1796–1865) *Elements of Anatomy*, Erasmus Wilson’s (1809–1884) *The Anatomist’s Vade Mecum*, and other books. In addition, *sweetbread* caused controversy in the medical community due to the unclear meaning of the word. For example, Frederick Pavy (1829–1911), a British digestive disease specialist and physiologist, mentioned in his monograph that the common name for the pancreas was *sweetbread*.²² However, Thomas Chambers (1817–1889), a renowned physician of the same era, countered that Pavy was mistaken: “*Sweetbread* means the thymus gland of a cow.”²³ An article in the *British Medical Journal* attempted to clarify the meaning of *sweetbread*, explaining that *sweetbread* did not just refer to the pancreas, but had been used to refer to sheep’s testicles, pancreas, parotid gland, thymus, sublingual gland, and many other animal organs.²⁴

Therefore, in 19th-century medical discourse, *pancreas* was a medical term that specifically referred to the pancreas, whereas *sweetbread* was not. It was so colloquial that doctors did not often use it as an anatomical or physiological term. However, Hobson chose the word *sweetbread* as a medical term when he wrote his medical books. In *A Medical Vocabulary in English and Chinese* (《医学英华字释》), a medical dictionary compiled by Hobson in 1858, most of the anatomical vocabulary has only one original English word, but in the column for “sweet meat”, the words *pancreas* and *sweetbread* are listed side by side.²⁵ It can be hypothesized that Hobson probably coined the term “sweet meat” based on a direct translation of *sweetbread*. A linguist Shen Guowei (沈国威), analyzing Hobson’s translation of *sweetbread*, said: “For concepts and organs that do not exist in Chinese medicine, Hobson uses more common language to make a figurative description.”²⁶ Perhaps this is why Hobson chose *sweetbread*, which has a strong colloquial flavor, as a synonym for pancreas, and used the corresponding word “sweet meat” as the Chinese translation of pancreas.

2.2 Physiological functions and image presentation of “sweet meat”

Hobson did not distinguish the lexical difference between *pancreas* and *sweetbread*, and his description of the physiological function of “sweet meat” was also

incoherent, except that it had a juice duct which, together with the bile duct, ran into the small intestine, and the function of the juice secreted was unclear. In fact, by this time, English and French doctors had already done a great deal of research into the function of pancreatic juice. The existence of pancreatic juice was known to the medical profession as early as the 17th century. In the first half of the 19th century, the French physiologist Claude Bernard (1813–1878) had already discussed how the pancreas was involved in the digestion of food, and in particular how it facilitated the digestion and absorption of fats.²⁶ In England, Dr. Pavey also wrote extensively about the digestive function of pancreatic juice in his monograph, even analyzing specifically its effect on the absorption of carbohydrates and fats.²² Hobson, on the other hand, probably did not fully understand the physiological function of the pancreas and therefore stated in *Quan Ti Xin Lun* that the pancreas “serves an unknown purpose”.

It is worth noting that the physiological functions of the heart, lungs, kidneys, and other organs are more clearly described in *Quan Ti Xin Lun*. Accordingly, the illustrations include cross-sectional drawings of the heart, lungs, and kidneys to show some of their internal “channels” and to explain more clearly how blood, air, and urine flow. As for the “sweet meat”, whose physiological function is unknown, the illustrations in the book (Fig. 1) do not show its internal condition and none of them show its juice duct, but only its appearance and anatomical adjacency to the other organs. This makes the “sweet meat” an organ whose anatomical location is clearly defined, but whose physiological function is unclear in the illustrations in *Quan Ti Xin Lun*.

More than a decade later, the American missionary doctor Dauphin Osgood (柯为良, 1845–1880) updated the physiological knowledge of the “sweet meat”. He used an early version of the famous anatomical work *Gray’s Anatomy*, i.e., *Anatomy, Descriptive and Surgical*, as his main source, and translated some of its contents into a book called *Quan Ti Chan Wei* (《全体阐微》 *Anatomy, Descriptive and Surgical*), which was published in Shanghai in 1881.²⁷ Osgood retained the

term “sweet meat” but described its structure and function in much more details than Hobson, and it can be said that Osgood further constructed the connotation of the term “sweet meat”. The direction of the “ducts” within the “sweet meat” and the digestive function of the “sweet meat” juice is described in *Quan Ti Chan Wei* as follows: “From the head to the tail there is a ‘sweet meat’ duct, which either joins or contracts with the common hepatic duct at the head and enters the head of the small intestine, and its texture is like that of the nucleus under the ear, and its juice is like that of saliva, and it is capable of digesting fat.”²⁸ Accordingly, the illustration (Fig. 2) also clearly shows the “sweet meat” duct within the “sweet meat” and the channel through which the “sweet meat” juice flows.

Medical illustration was an important part of the medical books produced by the missionaries, serving to reveal and obscure information that complemented the medical text. Hobson’s “neglect” of the “sweet meat” duct corresponds to the lack of detail about its function in his textual descriptions, while Osgood’s depiction of the “sweet meat” duct echoes his discussion of the digestive function of the “sweet meat” in his work. The illustrations are not “objective representations” of the body’s internal organs, but part of the creator’s selective medical narrative. Because of the changing narratives about the physiological functions of “sweet meat”, the illustrations of “sweet meat” in Hobson’s and Osgood’s books use different strategies to depict its internal structure.

3 Interpretation and image presentation of “sweet meat” by Chinese medicine practitioners

At the end of the 19th century, the clash between Chinese and Western medicine and the cultures behind them became increasingly intense in modern China. Western medical practitioners disseminated and wrote about Western medical knowledge by translating foreign languages into Chinese, while Chinese medical practitioners, especially those who advocated the convergence of Chinese and Western medicine, also began to interpret

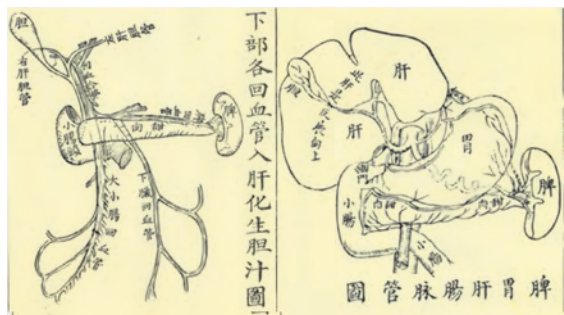


Figure 1 Illustrations in *Quan Ti Xin Lun* (《全体新论》 *Treatise on Physiology*) showing the “sweet meat” (source with permission from: The Chinese University of Hong Kong Library, Digital Collections, Chinese Medicine Texts Collection).

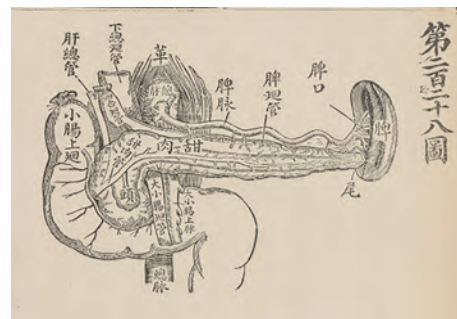


Figure 2 Illustrations in *Quan Ti Chan Wei* (《全体阐微》 *Anatomy, Descriptive and Surgical*) showing the “sweet meat” (source with permission from: Harvard-Yenching Library, Chinese Rare Book Collection).

Western medical knowledge. In this process, the term “sweet meat” and the anatomical and physiological knowledge it represented were reinterpreted.

Tang Zonghai, a famous practitioner of Chinese medicine in the late Qing dynasty, was quite representative of the interpretation of “sweet meat”. Tang Zonghai’s *Zhong Xi Yi Hui Tong Yi Shu Wu Zhong* (《中西医汇通医书五种》 *Five Books about the Convergence and Assimilation of Chinese and Western Medicine*) was one of the earliest works dedicated to bringing together the knowledge of Chinese and Western medicines. As a result, he is considered to be a representative medical practitioner of the concept of converging Chinese and Western medicines. The study of Tang Zonghai’s interpretation of “sweet meat” can help us understand how some Chinese medical practitioners accepted Western anatomical and physiological knowledge and constructed a new explanatory model for such knowledge based on Chinese medicine theories. In his book, *Zhong Xi Hui Tong Yi Jing Jing Yi* (《中西汇通医经精义》 *Essential Meanings of the Medical Canons Approached through the Convergence and Assimilation of Chinese and Western Medicine*), published in 1892, Tang interpreted “sweet meat” as part of the *Pi*, one of the five *Zang* organs of Chinese medicine: “Western medicine has another word for ‘sweet meat’. They do not know that ‘sweet meat’ is part of the *Pi*.”²⁹ In the text and accompanying illustrations he supported this claim in two ways.

On the one hand, Tang Zonghai associated the digestive function of “sweet meat” with *Pi*, and elaborated on its function from the perspective that “*Pi* dominates transport and transformation (脾主运化)”: “Western doctors said that there is a strip of ‘sweet meat’ at the side of the stomach. To produce ‘sweet juice’ from the connecting tissue into the upper mouth of the small intestine. To digest what is in the stomach.” “Western doctors also said that the ‘sweet meat’ juice can digest the grain. The ‘sweet meat’ is also called *Yi Zi* (胰子). All *Gao* (膏) fats are born from the *Pi*. *Gao* can convert water, *Yi Zi* can transform fats, and *Pi* is called wet earth. It is the *Yi Zi* and the *Gao* that are referred to.” Even the word sweet for “sweet meat” was given a new meaning. Because of its similarity in meaning to one of the five flavors (五味), sweetness (甘), it was taken as evidence that “sweet meat” was associated with the *Pi*: “There is no such thing as ‘sweet meat’ in Chinese medical books. But sweetness is associated with *Pi*. It was a certain law.” “Its flavor is sweetness. Western doctors said that ‘sweet meat’ juice enters the small intestine and digests its contents. Sweetness is the original native flavor of the earth. Therefore, all sweet tastes can tonify the *Pi*. The ‘sweet meat’ juice enters the stomach. Then food and drink are digested. I am referring to the canonical texts. Sweetness comes from the *Pi*, becomes ‘sweet meat’ juice. It is a thing of the *Pi*. There is no need to make another entry.”²⁹

Tang Zonghai sought to reconcile Chinese and Western medical theories. To reconcile the contradictions between the theories of Chinese and Western medicine at the time, he declared that “sweet meat” was a part of *Pi* and sought to explain the transport and transformation function of *Pi* in Chinese medicine through the digestive function of sweet meat.⁷ Even the word “sweet” in Hobson’s colloquial translation of “sweet meat” was given a five-flavor theoretical interpretation because of its close association with “sweetness”, which became evidence that “sweet meat” was associated with *Pi*. Tang Zonghai’s explanatory logic is not uncommon, and his contemporaries in Chinese medicine often associated sweet meat with the *Pi* around “sweet”, “sweetness” and “digestive function”.³⁰ For example, in his 1899 book *Zhong Xi Hui Can Tong Ren Tu Shuo* (《中西汇参铜人图说》 *Illustration of the Bronze Figure with Chinese and Western Medicine*), the Qing dynasty physician Liu Zhongheng (刘钟衡) said: “The *Pi* is of the earth, and it makes sweetness in the harvest, and ‘sweet meat’ belongs to the *Pi*, and it helps the *Pi* to transform food.”³¹

On the other hand, Tang used illustrations to further support and enrich the information conveyed in the text. In the illustration entitled “*Pi Diagram* (脾图)” (Fig. 3) in *Zhong Xi Hui Tong Yi Jing Jing Yi*, *Pi* in the form of a broad bean clings to the “sweet meat”, and the two are drawn as if they were one. At first glance, the position relationship of the organs in the “*Pi Diagram*” resembles the illustrations of “sweet meat” in the works of Hobson and Osgood, as if it were a representation of the “anatomical proximity” of the organs. However, if we look at the details of the illustrations, we can see that the anatomical demarcation between the *Pi* and the “sweet meat” is blurred and diluted, and the connection between the blood vessels and the soft tissues becomes a solid affinity. The *Pi* and the “sweet meat” are one in structural relationship because of their consistent “transport and transformation functions”. This logic is even more evident in the “*Stomach Diagram* (胃图)” (Fig. 4). The shape of the *Pi* becomes elongated

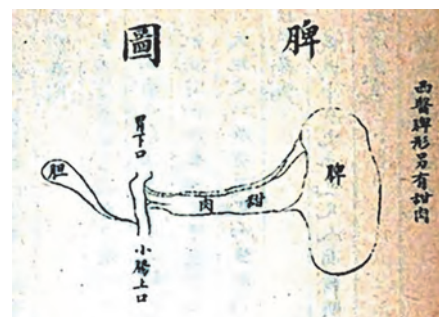


Figure 3 “*Pi Diagram* (脾图)” in *Zhong Xi Hui Tong Yi Jing Jing Yi* (《中西汇通医经精义》 *Essential Meanings of the Medical Canons Approached through the Convergence and Assimilation of Chinese and Western Medicine*) showing the “sweet meat” and the *Pi* (source with permission from: <https://ctxt.org/zhs>).

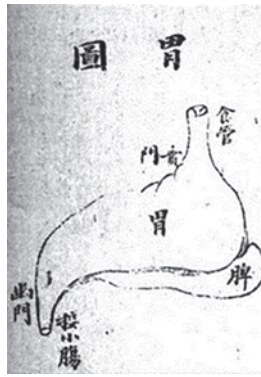


Figure 4 “Stomach Diagram (胃图)” in *Zhong Xi Hui Tong Yi Jing Jing Yi* (《中西汇通医经精义》 *Essential Meanings of the Medical Canons Approached through the Convergence and Assimilation of Chinese and Western Medicine*) showing the *Pi* (source with permission from: <https://ctext.org/zhs>).

and is placed in the anatomical position of the “sweet meat”. The “sweet meat”, on the other hand, is attached to the *Pi* and disappears completely as part of the *Pi* in the diagram.²⁹ According to the explanatory logic constructed by Tang Zonghai, the different shapes of *Pi* in the *Pi* and Stomach diagrams would not contradict each other. Not only that, but Tang also added explanations to the corresponding illustrations in the books of earlier medical practitioners. As one of the pioneering books on anatomical drawings in Chinese medicine, Wang Qingren’s (王清任, 1768–1831) *Yi Lin Gai Cuo* (《医林改错》 *Correction on Errors in Medical Classics*) depicts an organ with the shape and anatomical position of a “sweet meat” called *Zong Ti* (总提): “The *Zong Ti* is commonly known as the *Yi Zi* (胰子), and its body grows to the right of the cardia, the left of the pylorus, and the right of the *Jin Men* (津门).” (Fig. 5) At the same time, the book also shows an elongated spleen with a shape similar to that of the “sweet meat”: “There is a tube in the *Pi*, which is exquisite in appearance and easy to produce water, called the *Long* tube (珑管). The length of the *Pi* is equal to the stomach, a tube in the middle of the *Pi*, that is, the *Long* tube. The reason for drawing another *Long* tube is that there is an outlet channel which makes it easy to identify.”³² (Fig. 6) It is difficult to determine from Wang Qingren’s lines and illustrations whether the “sweet meat” is the *Zong Ti* or the *Pi*, or to explain exactly what function it serves. Tang Zonghai, on the other hand, pointed out that the *Zong Ti* mentioned by Wang Qingren was the “sweet meat”, it is attached to the *Pi* and is a part of the *Pi*, and that the physiological functions of the “sweet meat” as described by Western medicine have long been known in Chinese medicine: “The *Pi* produces one thing. It is called ‘sweet meat’. *Yi Lin Gai Cuo* also called it *Zong Ti*, or *Yi Zi*. *Yi Zi* can remove oil. Western doctors, however, said that ‘sweet meat’ juice can transform grain, but did not know that it can also transform oil.”²⁹

Many of Tang Zonghai’s medical contemporaries agreed with his interpretation of the relationship between

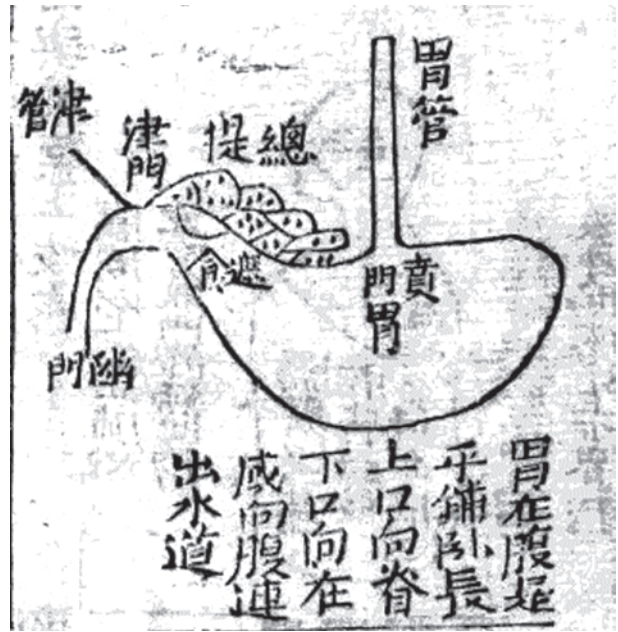


Figure 5 Illustrations of *Zong Ti* (总提) in *Yi Lin Gai Cuo* (《医林改错》 *Correction on Errors in Medical Classics*) (source with permission from: <https://ctext.org/zhs>).

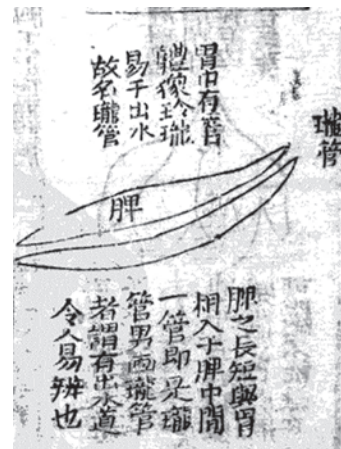


Figure 6 Illustrations of *Pi* (脾) in *Yi Lin Gai Cuo* (《医林改错》 *Correction on Errors in Medical Classics*) (source with permission from: <https://ctext.org/zhs>).

the *Pi* and the “sweet meat”. However, when it came to the depiction of the forms and locations of *Pi* and “sweet meat” in the illustrations, several medical practitioners expressed a degree of doubt and reflection in their works. They noted the difference between Western anatomical drawings and illustrations of internal organs in Chinese medicine, and attempted to explain the rationale for illustrations of “sweet meat” or *Pi* in Chinese medical literature. For example, Liu Zhongheng chose to avoid two forms of *Pi* in his illustrations. His book shows only the vertical palm-shaped *Pi* and the strip of “sweet meat” next to it. The organs in this illustration are quite similar in shape and location to those in Western anatomical illustrations (Fig. 7).³⁰ Other medical practitioners, however, attempted to explain the presence of



Figure 7 Illustrations of *Pi* and “sweet meat” from the *Zhong Xi Hui Can Tong Ren Tu Shuo* (《中西汇参铜人图说》 *Illustration of the Bronze Figure with Chinese and Western Medicine*) (source with permission from: Peking University, China Academic Digital Associative Library, Public Domain).

two *Pi* in the illustrations. The Qing dynasty physician Luo Dingchang’s *Zhong Xi Yi Cui* (《中西医粹》 *The Essence of Chinese and Western Medicine*), published in 1893, contains a detailed comparison and discussion of the diagrams of the internal organs between Wang Qingren’s the *Yi Lin Gai Cuo* of the previous physician and Hobson’s *Quan Ti Xin Lun*. Luo Dingchang (罗定昌) stated that Wang Qingren’s explanation of the function of the *Pi* was superior to that of Western doctors, which had problems with the perception and representation of the “sweet meat” and the *Pi*, hence the drawing of the two *Pi*: “Western doctors mistake the *Pi* for ‘sweet meat’ and draw another *Pi* outside the stomach, and for the Long tube and the waterway they only use *Fei Wang* (肥网) to describe them, their ideas are not as good as Xun Chen’s (勋臣). I didn’t flatter one party or put the other down.”³³ The Qing dynasty physician Zhu Peiwen (朱沛文) cited illustrations from Hobson’s *Quan Ti Xin Lun* in his own *Hua Yang Zang Xiang Yue Zuan* (《华洋脏象约纂》 *A Combination of Chinese and Western Anatomy Illustration*), completed in 1892, and offered further thoughts and explanations on the relationship between “sweet meat” and the *Pi*. Zhu Peiwen was more receptive to Western anatomy, and thus proposed the contradiction that “sweet meat is the *Pi*” and “the spleen is also the *Pi*”: “If there is a tube in the ‘sweet meat’, and the *Yi Lin Gai Cuo* says that there is a long tube in the middle of the *Pi*, then the ‘sweet meat’ is suspected to be the *Pi*. But if it is, and the *Pi* that foreigners say is shaped like a vertical palm, then there must be two *Pi*, which can’t be.” However, he later found evidence from the Yuan dynasty Chinese medical text *Shi Yi De Xiao Fang* (《世医得效方》 *Effective Medical Prescriptions from Generations of Physicians*) that anatomically two *Pi* can coexist: “Wui Yilin (危亦林, 1277–1347)’s *Shi Yi De Xiao Fang* said that if the *Pi* has two leaves, then ‘sweet meat’ is also the *Pi*.” He also pointed out the two lobes of the *Pi*, one responsible for “managing the blood” and the other for “transporting the nutrients for the stomach”. Both of these functions were consistent with accounts of *Pi* in Chinese medical texts.³⁴

4 Self-consistency and contradiction in the presentation of “sweet meat” images

Like words, images are important historical evidence. Images of the body can also illustrate changes in people’s ideas about illness and health.³⁵ Examining and comparing the information provided by a series of illustrations related to “sweet meat” in the previous section allows one to read information that is more complex than that provided by a single image. Medical literature, in a variety of cultural contexts, is so often defined by its dependence on a dynamic conversation between medical texts and the images that illuminate them.³⁶ The logical self-referentiality of the dialogical relationship between the text and images of “sweet meat” by the medical missionaries and Chinese medical practitioners has become an important support for their respective theoretical constructions and discourses. The illustrations of “sweet meat” by Hobson and Osgood, compared to the illustrations of “sweet meat” and *Pi* by Tang Zonghai and Wang Qingren, reflect the different ways of “seeing” and “representing” the body between Chinese and Western medicine that underlie the collision and conflict between the two medical philosophies.

From the perspective of anatomy, there is an essential contradiction between the *Pi Diagram* and the *Stomach Diagram* in *Zhong Xi Hui Tong Yi Jing Jing Yi*. For instance, Figures 3 and 4 can’t coexist. It is not possible to have a “sweet meat” and a *Pi* in the anatomical position of “near the stomach”. It is also impossible to have a *Pi* adjacent to the “sweet meat” (Fig. 3) and a *Pi* containing the “sweet meat” (Fig. 4) in the human body. However, traditional Chinese practitioners see and represent the body differently from Western doctors. The images in many traditional Chinese medical books are mostly mappings of the body, rather than images that accurately depict organs and body structures. Illustrations of orbisiconography were usually intended primarily as diagrams of functions, not as images of anatomical substrates.³⁶ Therefore, it is logical rather than difficult for a traditional Chinese doctor to visualize and sketch a *Pi* responsible for transporting, transforming, and containing “sweet meat” while looking at anatomical diagrams of “sweet meat” and the *Pi*.

However, the introduction of Western anatomical and physiological knowledge has undoubtedly introduced new ways of representing and describing the body into the Chinese-speaking world, and has created a new relationship between image and text.³⁶ Either actively or passively, Chinese medical practitioners have to deal with this new way and relationship. According to Tang Zonghai’s textual description of the function of *Pi*, the logical self-referentiality of a text-image dialogue can be formed simply by showing an image of *Pi* (Fig. 4). Western medical anatomy, on the other hand, uses images in a relentless effort to direct the viewer’s eye where it

wants to look. Whether it is the liver lifted in *Quan Ti Xin Lun* (Fig. 1) or the “sweet meat” duct shown in the section in *Quan Ti Chan Wei* (Fig. 2), the viewer is led to confront the existence of the anatomical structure of “sweet meat” head-on. Thus, Tang Zonghai’s pictorial representation of the location of the “sweet meat” (Fig. 3) and Luo Dingchang and Zhu Peiwen’s explanation of the “coexistence of the two *Pi*” in the illustration also demonstrate their acceptance of Western medicine’s way of seeing. On this basis, these Chinese medical practitioners produced new knowledge, using text and images to create a human body in which the “sweet meat” and the *Pi* are one.

5 The sweet in “sweet meat” and the sweetness in five flavors

In *Yi Lin Gai Cuo*, Wang Qingren suggested that “the common name for *Zong Ti* is *Yi Zi*”, and in the 1880s, English missionary John Dudgeon (德贞, 1837-1901) suggested that the word *Yi* (胰), which had always existed in Chinese literature, could be used to translate pancreas.^{37,38} As the medical community discussed and sifted through medical terms, the term *Yi Xian* (胰腺) gradually became more popular than “sweet meat”, and the term “sweet meat” was discarded.³⁹ However, although the word sweet is hidden in the Chinese name of the organ, practitioners of Chinese medicine have associated it with the properties of the pancreas.

In 1895, the Chinese practitioner Ye Lin (叶霖), who was also dedicated to bringing together the knowledge of Chinese and Western medicines, abandoned the name “sweet meat” and used the name “*Yi*” in his *Nan Jing Zheng Yi* (《难经正义》 *The Correction of the Meaning of the Classic of Difficult Issues*), but the imprint of “sweet meat” can still be clearly seen in the text: “The food is melted and harmonized by the gastric juices and is a little like thick porridge, which passes from the pylorus under the lower mouth of the stomach to the head of the small intestine, where it combines with the bitter green juice of the gallbladder and the sweet white juice of the *Yi*, squeezing out the essence, which is sucked up through the fluid duct to the neck, that is, through the lungs to the heart, turn the red into blood. The *Yi* is a thing attached to the *Pi*, the *Pi* manages the blood, and the sweet white juice in the *Yi* is the blood of the *Pi* transformed by the qi of *Pi Yang* (脾阳).”⁴⁰ In Ye Lin’s interpretation, the “green bitter juice” of the gallbladder and the “sweet white juice” of the *Yi* both correspond to the relationship of five colors (五色), five flavors (五味), and five *Zang* organs. Although the term “sweet meat” has been replaced by “*Yi*”, the attribute of “sweet” has been retained.

Not coincidentally, in 1923, another Chinese practitioner Zhang Shanlei (张山雷, 1872–1934) in his *Nan Jing Hui Zhu Jian Zheng* (《难经汇注笺正》 *Compilation and Correction of the Classic of Difficult Issues*)

also combined the “sweet” in “sweet meat” and the Chinese medicine theory of “five colors and five flavors”: “Therefore, it is said that the color of the *Pi* is yellow. The taste of the *Pi* is sweetness. Only for this ‘sweet meat’, that the color and flavor can all fit. This is very true.” At the same time, he also explains the role of “sweet meat” in digestion with the theory of “the *Pi* dominating transport and transformation”: “The ancient so-called *Pi* is sure to include this ‘sweet meat’. This ‘sweet meat’ juice is transported to the small intestine. Also aids digestion. It is in accordance with the ancient meaning of the *Pi* as the organizer of transport and transformation.”⁴¹

The emergence of the translation “sweet meat” is related to the fact that Hobson retained and used the colloquial English name “sweetbread” for the pancreas. It can be said that the appearance of the word “sweet” in the Chinese translation of “sweet meat” is somewhat accidental. However, when several medical practitioners later attempted to converge Chinese and Western medicine to explain the digestive function of “sweet meat” by saying that “*Pi* dominates transport and transformation”, sweetness became a specific characteristic of “sweet meat” and an important part of the interrelated explanatory system of the five flavors and five *Zang* organs. Through the unique imagination and understanding of new medical knowledge and terminology, traditional Chinese medical practitioners incorporated “sweet meat” into the existing theoretical knowledge system to form a logical explanation that could be self-consistent.

6 Conclusion

In modern China, the term “sweet meat”, coined by the medical missionary Hobson, has been popular for dozens of years and has an interesting intellectual and visual history. Tracing the origin of the term “sweet meat” reveals that pancreas and sweetbread do not have the same meaning. Hobson’s translation of “sweet meat” is based on his personal interpretation, and the appearance of the word “sweet” is somewhat accidental. However, some practitioners of Chinese medicine, represented by Tang Zonghai, have made a new interpretation of the word “sweet meat”, and faced with the new anatomical and physiological knowledge of Western medicine carried by the word “sweet meat”, they tried to come up with a self-consistent explanatory model based on the theoretical framework of Chinese medicine. Under the theoretical explanation of “*Pi* governs transport and transformation”, “sweet meat” was considered to be part of *Pi*, and the images of “sweet meat” and *Pi* can be merged into one. At the same time, the word “sweet” in “sweet meat” has taken on a new meaning within the framework of TCM theory. The meaning of “sweet” is similar to that of “sweetness”, and according to the association of the five flavors and five *Zang* organs,

“sweetness” is related to *Pi*. Therefore, sweet becomes a characteristic of “sweet meat”, an important part of the interrelated system of five flavors and five *Zang* organs, and proof that “*Pi* dominates transport and transformation” and “‘sweet meat’ is part of *Pi*”.

The creation and circulation of the translation “sweet meat” is not only part of the intellectual history of the pancreas, but also provides a unique perspective for the historical study of the eastward expansion of Western medicine. The interpretation and discussion of the term “sweet meat” in modern medicine, especially in Chinese medicine, is not only a dissemination and interpretation of knowledge about the pancreas but also a construction of knowledge around the term “sweet meat”.

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Ethical approval

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

Author contributions

GU Xiaoyang drafted and reviewed the article.

Conflicts of interest

The author declares no financial or other conflicts of interest.

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The “Ukiyo” of Moxibustion Reflected in the Ukiyo-e

JIANG Shan^{1,2,*}

Abstract

Ukiyo-e (浮世絵) was a genre of popular art during the Edo and Meiji periods in Japan. Moxibustion, which was originally introduced from China, was also in its heyday and became one of the popular topics for *ukiyo-e* artists at that time. Using the images as historical evidence perspective, this article focuses on the moxibustion used in daily life in Japan depicted in the *ukiyo-e* arts. With the perspective of acu-moxa therapy, one may identify some specific issues in the acupoint selection, leading to the discovery of special application of moxibustion used by the group of *yūjo* (遊女) at that time. The article concludes by exploring gender issues in *ukiyo-e* arts and the implications of punishment attached to moxibustion treatment.

Keywords: Moxibustion; *Ukiyo-e* (浮世絵); Edo period; Utagawa Kunisada (歌川国貞)

1 Introduction

Moxibustion is a type of therapy conducted on the skin that is often combined with acupuncture in traditional Chinese medicine. According to medical history, moxibustion was used much earlier than needling.¹ It implies that there is a difference in technical difficulty and theoretical complication between the two treatments. The rise and fall of acupuncture and moxibustion in later generations has always been affected by factors such as effectiveness, safety, and simplicity. In general, needling penetrates deeper into the skin than moxibustion, and thus has higher technical requirements and is practiced by a specific group of practitioners. Despite the considerable long history of the using of moxibustion, it is often regarded as a therapy that blurs the line between proper medical treatment and daily health care. This perception can also be seen in other countries within the Han-Chinese cultural sphere.

In the 23rd year of Emperor *Kinmei* (欽明天皇, 562 AD), a person named Zhi Cong (知聰) from the Wu region brought Chinese pharmaceutical books as well

as images of acu-moxa into Japan. It was believed as the beginning of the circulation of acu-moxa knowledge in Japan.² Owing to various political, social and economic factors, acupuncture ushered in a heightened development during the Shogunate period. During this time, acupuncture and moxibustion showed differences in professional application and folk usage similar to those seen in China, most likely an inevitable result of their different technical characteristics. Many books on moxibustion in the Edo period show a clear tendency towards daily health remedy. These books promoted moxibustion knowledge, making it more accessible and popular among the folks. However, direct perception of the extent of this daily health care and popularity only through texts is challenging. According to Japanese medical historians, moxibustion in Japan at that time had gradually established its own style.³ Nevertheless, it might be difficult to truly understand the specialty of this “own style”.

It is both incidental and inevitable, that the encounter between *ukiyo-e* (浮世絵) (Note 1) arts and moxibustion has provided pictorial conjectures between the lines, and also depicted a richer and different history than those based on the historical texts. As Peter Burke said, “... images, like texts and oral testimonies, are an important form of historical evidence. They record acts of eye-witnessing”.⁴ *Ukiyo-e* is a special type of fine arts that was formally first created in the Edo period. This article intends to study the world of moxibustion flourished in Japan, using images as historical evidence. Through the lens of *ukiyo-e* arts in the 18th and 19th centuries, the article looks beyond layers of written texts in an attempt to re-examine how moxibustion as a kind of originally introduced technology, had undergone changes in Japanese society and imparted new meanings in the process of its popularization.

¹ School of Medical Humanities and Social Sciences, Peking Union Medical College, Beijing 100730, China; ² International Research Center for Japanese Studies, Kyoto 610-1192, Japan.

* JIANG Shan, E-mail: jiangshan@cams.cn
ORCID: 0000-0001-7440-0785

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2 When moxibustion encountered *ukiyo-e*

Although the historical materials of Chinese medicine are mainly left in the form of written texts, there is no shortage of images as well. However, among the surviving images, the majority are theoretical depictions of human body structure, channels and acupoints, tools of therapy, diagnostic evidence, and *materia medica*. Rarely are artworks related to healing scenes are preserved.

Medical scenes about therapy, hygiene or health-care depicted in the Dunhuang murals were quite early. Later ones like the *Qing Ming Shang He Tu* (清明上河图 *Along the River During the Qingming Festival*) by Zhang Zeduan (张择端) in the Northern Song dynasty, from which a glimpse of patient seeking medical treatment epitome at a few medical shops can be caught in the scroll. A more relevant image, for example, is Hu Sihui (忽思慧)'s *Yin Shan Zheng Yao* (《饮膳正要》 *Principles of Correct Diet*) in the Yuan dynasty. There are 21 images of people and scenery portraying the idea of daily health maintenance.⁵ Another case is the orthopedic and traumatology images seen in the Shanxi temple murals at the Ming dynasty.⁶

Compared to the above, even fewer images described scenes of acu-moxa treatment on purpose. The portrait stone *Bian Que Xing Zhen Tu* (扁鹊行针图 *Bian Que Needling Diagram*) of the Eastern Han dynasty is the few far-fetched even though it is themed surrounding medical god mythology. The most relevant art of acu-moxa is the well-known *Song dynasty Li Tang Jiu Ai Tu* (李唐灸艾图 *The Moxa Treatment*, Fig.1) painted by Li Tang (李唐) of the Southern Song dynasty. It depicts several people performing moxibustion on a farmer who suffered in agony, against the scene of the riverside at the village entrance.

Apart from all these mentioned visual images, people can only rely on words to concrete a phantom of acu-moxa practice in the distant past. However, this “blank space” in the history of medical art has blossomed since the Edo period Japan to some extent. According to initial investigation, paintings with the theme of acu-moxa and other therapies derived from China appeared in Japan since the Heian period or much earlier.⁷ Illustrations



Figure 1 *Li Tang Jiu Ai Tu* (李唐灸艾图 *The Moxa Treatment*) (source with permission from: Taipei Palace Museum).

combined in acu-moxa monographs for the purpose of assisting in therapeutic description are made for professional purposes. They are beyond the scope of this article and are not the pinpoint of discussion. This article only explores artistic images that are not used to explain medical knowledge. In general, moxibustion has better preserved visual materials than other treatment techniques, of which the largest collection is the *ukiyo-e* arts from the Edo and Meiji periods. It was this phenomenon that triggered this research at the very first place.

According to the incomplete statistics on the collections of *ukiyo-e* so far, there are at least 20 *ukiyo-e* works that were designed depicting the scenes of moxibustion, but hardly one was about acupuncture. This result excluded those with indirect clues of moxibustion and imitations or reprintings of the same image among different artists. Indeed, the number is a mere fraction of the huge collection of all *ukiyo-e* artworks. But considering the abundance of *ukiyo-e* themes, the proportion dedicated to moxibustion is still relatively impressive compared to other themes. These moxibustion-themed *ukiyo-e* arts were created by ten artists who were active from the Edo to the Meiji era. Among them, Utagawa Kunisada (歌川国貞)'s works are most prominent. It is understandable considering the fact that Kunisada was a productive painter who painted tens of thousands of works,⁸ but it is also related to his personal experiences for which it will be discussed in detail later.

It is no coincidence that moxibustion and *ukiyo-e* arts, two seemingly unrelated fields, interweaved during the 18th and 19th centuries. Under the shogunate's *Sakoku* (鎖国, locking down the country) policy, Japan happened to turned into a fertile soil for nurturing local folk culture, and the daily life of ordinary people inspired abundant creations of artists. The increasing popularity of printing technology has also made promoting artworks more convenient. Yoshiwara (吉原), the center for men's entertainment during the Edo period, provided business opportunities for publishers. Its rich cabaret performances and highly pursued *geisha* (芸者) soon became a popular theme for printmaking, which gradually solidified as a particular genre, *ukiyo-e*. They hired excellent artists, who continued to improve their skills to better represent the charm of *kabuki* (歌舞伎) actors and *yūjo* (遊女) at Yoshiwara.⁹ These groups finally catalyzed the booming chain of *ukiyo-e* creation. With the improving printing technology, *ukiyo-e* arts became richer in colors and soon a pathos, thus the splendor of “*Nishiki-e* (錦絵, multi-colored woodblock printing)” was generated.¹⁰ All these factors contributed to the flourishing of *ukiyo-e* art.

The features of popularity, commonality, and their intimate relation with daily life, made *ukiyo-e* perfectly fit the characteristics of moxibustion at the time. With the increasing popularity of *ukiyo-e* arts, artists became more innovative in choosing their objects to describe. They no longer limited their pictures to rigid individual portraits. To satisfy curiosity, they also constructed

group portraits to reflect the daily life of men and women with various professions. When searching the history of artworks, we must first examine the motivation of the artists, as well as the intention of sponsors and clients hidden behind.¹¹ The *ukiyo-e* artworks, which were supposed to be for sale, must first cater to the requirements of buyers. Among the many selected themes, the secret life of *yūjo* at Yoshiwara was quite eye-catching. Thus, it became one of the most popular categories of *ukiyo-e* at that time. This explains to a certain extent that in the collection of *ukiyo-e* about moxibustion, the main character is mostly found to be a beautiful girl. Some of the moxibustion *ukiyo-e* belongs to a set reflecting different daily events or behaviors of women, or to be specific, *yūjo*.

The appearance of moxibustion in *ukiyo-e* arts naturally leads to one question: what does it imply that the artists chose moxibustion as a part of daily life illustrations? Of course, the most straightforward answer is that moxibustion should have been a common practice among the folks, and people were familiar with it. Among the artworks such as *Hanagoyomi Kichihhi Sugata* (花暦吉日姿 *A Floral Calendar: Women on Lucky Days*) by Utagawa Kunisada, and *Fuzoku Sanju-Nisou* (風俗三十二相 *32 Beauties in Daily Life*) by Tsukioka Yoshitoshi (月岡芳年), moxibustion appears to be a regular custom that follow the calendar. This also confirms the popularity of moxibustion at that time as documented in many records. Additionally, there are many peculiarities in these moxibustion-themed *ukiyo-e* arts, which lead to deeper questions relevant to understanding both arts and therapeutics. Because of length constraints, this article will briefly discuss two or three of them.

3 Moxibustion and health care

When looking from the point of medicine instead of art, it is not difficult to find out that moxibustion in these *ukiyo-e* arts is different from the imagination of premodern Chinese moxibustion. For instance, the status of the practitioner, as well as the patient, the location where the therapy takes place, medical tools, therapeutic method, and the selection of acupoints.

If moxibustion is used as a means of treatment, then there are two types of participants: the practitioner and the patient. In ancient medical records, most moxibustion treatments are recorded experience for the reference of practitioners. Although not explicitly mentioned, these records imply the division between doctors and patients. A few records of self-performed moxibustion are scattered in folk medicine books such as some records in *Qian Jin Fang* (《千金方》 *Formulas Worth a Thousand Gold Pieces*). These moxibustion methods are mostly self-performed to alleviate ailments or maintain wellbeing. In general, the potential reader of texts on moxibustion techniques is mainly the practitioner. The situation was similar in Japan. Although moxibustion writings

seemed to show a clear tendency of popularization in Edo period, with many instructions for daily health care, the majority of their writers and intended readers, still seemed to be professionals. This is likely related to the fact that writing or reading medical books may ask for a certain level of education.

However, when moxibustion is transferred from the world of words to images, the responsibility of passing on medical knowledge specifically for doctors is eliminated. Thus there's little need for professional representation. Therefore, the role of a trained practitioner who is seemingly necessary in the therapy has disappeared from the moxibustion scenes in *ukiyo-e* arts. In most of the so far collected *ukiyo-e*, a single beauty is acting as the patient of moxibustion therapy. Two types of characters can be identified. In one of these, the beauty is obviously burning moxa by herself, maybe for the purpose of health care. For examples, the *Edo Meisho Hyakunin Bijo* (江戸名所百人美女 *One Hundred Beautiful Women at Famous Places in Edo*, 1858 edition, Fig.2) by Utagawa Kunisada and the moxibustion scene from the *Kyokun Oya no Megane* series (教訓親の目鏡 *Prospective Bridges Judged through Parent's Moralizing Spectacles*, 1803 edition, Fig.3) by Kitagawa Utamaro (喜多川歌麿). The other type of these *ukiyo-e* with a single portrait, however, are more suggestive. Moxa is burning on them alone surely, but usually on the back or other places that obviously cannot be reached by oneself. Therefore, this kind of images implies the existence of a hidden practitioner. The most representative and may be famous one is the above mentioned *32 Beauties in Daily Life* by Tsukioka Yoshitoshi (1888 edition, Fig.4). The practitioner who burned the moxa cannot be inferred from the image, but seeing the multi-person portraits discussed later, one may be able to find clues of her status.

In *ukiyo-e* with group portraits of moxibustion, the types of combinations includes two, three, or four figures in



Figure 2 *Edo Meisho Hyakunin Bijo* (江戸名所百人美女 *One Hundred Beautiful Women at Famous Places in Edo*) by Utagawa Kunisada (source with permission from: 国立国会図書館「NDLイメージバンク」 <https://dl.ndl.go.jp/pid/1311375>).



Figure 3 *Kyokun Oya no Megane series* (教訓親の目鏡 *Prospective Bridges Judged through Parent's Moralizing Spectacles*, 1803 edition) by Kitagawa Utamaro (source with permission from: <https://publicdomainq.net/kitagawa-utamaro-0036629/>).



Figure 4 *Fuzoku Sanju-Nisou* (あつさう 風俗三十二相 *32 Beauties in Daily Life*) by Tsukioka Yoshitoshi (source from: Morinomiya College of Medical Arts and Sciences, 森ノ宮医療学園 はりきゅうミュージアム 蔵: <https://www.morinomiya.ac.jp/schoolguide/museum/>).

one scene. Among them, two-figure painting depicting the practitioner and the patient is the typical style. And the moxa is commonly burned on the patient's arm or back. An example is another painting by Utagawa Kunisada named *Edo No Hana Ukiyo* (江戸の花浮世 *The Flowers of Edo*, Fig.5). In the foreground, a beautiful woman supports her arms with a table, tugging at her clothes with her back exposed while waiting for moxibustion treatment. In the background, another woman has a tray of moxa cones placed on her lap and get ready to choose the location for treatment. Whereas in three-figure and four-figure images, the additional roles are only observers who do not participate in the treatment. The reason for the existence of the observer is beyond the medical purpose, which will be discussed later.

In these arts, it is worth noting the identity of the patients. The images mentioned above are all belong to a classical *ukiyo-e* genre mainly depicting the beauty, and the people who receive treatment or health care are



Figure 5 *Edo No Hana Ukiyo* (江戸の花浮世 *The Flowers of Edo*) by Utagawa Kunisada [source with permission from: Ritsumeikan University, <https://ja.ukiyo-e.org/image/ritsumeikai/Z0172-059>,『浮世絵大成』所収、立命館大学アート・リサーチセンター提供 (Z0172-059)].

all young women. There are also *ukiyo-es* in which the patients are elderly people or children, or only the prepared moxa and burning tools appear in the scene. The depicted scenes of moxibustion treatment taking place in rooms decorated with household items or the casual clothing of participants suggested that the medical activities were carried out at an informal chamber. These clues reinforce the impression that moxibustion was regarded as a normal daily used method in Japanese society at the time. Since moxibustion could be practiced at home, people might not take moxibustion treatment as a very serious and professional thing. In the *Jinrin Kinmō Zui* (《人倫訓蒙図彙》 *Illustrated Encyclopedia of Humanity*) published in 1690, moxibustion practitioners did not show up together in the ranks of medical professional along with physicians and acupuncturists.¹² Some of the so-called moxibustion houses were even truly used as private hiding places for *yūjo* services.¹³

Under such social customs, it may not be worth running a moxibustion house compared to selling moxibustion tools or materials for a living. As a result, moxibustion shops and salesmen carrying moxa cones appear in the periphery of the collection of moxibustion *ukiyo-e*. Since moxibustion is commonly used in daily life, it should be bearable and convenient. Although indirect moxibustion methods had already been introduced from China, most images and historical materials in Japan show that moxa burning directly on the skin was still welcomed. The size of the moxa cone determines the size of the burning scar on the skin after treatment. In ancient Chinese medical records, there was a saying that the bottom diameter of moxa cone should be generally 3 *fen* (分), but it could vary according to different patients and body parts.¹⁴ Nevertheless, a theory of “a moxa cone should be large” was established during the Sui and Tang dynasties and best represented by the *Qian Jin Fang*. Although the theory was introduced to Japan, it was not fully adopted. Gotō Konzan (後藤良山), who had a great influence during the Edo period, was quoted

in the *Gaikyū Tsūsetsu* (《艾灸通説》 *General Theory of Moxibustion*) that the size of moxa cone “is principally based on the size of rat droppings or wheat grains”, and “on the base of my observation, the pain and suffering caused by the burning of a big cone is unbearable”.¹⁵ Therefore, moxa cones seen in *ukiyo-e* are all in fine granulated form or small column size. Viewing from the point of medical practice, burning such a small moxa cone on the skin can shorten burning time, narrow the injury from burning, and thereby relieve the pain to make the therapy more acceptable to the elderly, women and children. Whereas from the artistic point of view, a tray of scattered small moxa cones picked up by a beautiful woman, applied onto fine skin and adjusted the firepower by fanning a breeze with a feather, while the lady’s brows knitting lightly is quite an enjoyable scene (Fig.6). Nonetheless, be it moxa cones or moxa sticks, these tools are imported from China. Yet, when we imagine the scene of ancient moxibustion scenes, the above mentioned *Li Tang Jiu Ai Tu* might be the one image that lingers in our mind.

The postures of the patients in *ukiyo-e* images are different. Such differences are related to the selected acupoint where moxibustion is performed. Among the collected images with clear expression about acupoints, seven of them describe the transport points (背俞穴). Five describe the acupoints on the inner side of upper arm, near Qingling (HT2), one of the Hand *Shaoyin* Heart Channel (手少阴心经) acupoints. Two describe the Xingjian (LV2). One describes the Zusanli (ST36), and one the Tianshu (ST25). Besides, one image depicts the scene of burning moxa between the Erjian (LI2) and Sanjian (LI3) of a child.

The transport points and the Zusanli are the traditionally used acupoints for daily health care in Japan.



Figure 6 *Kaika Ninjo Kagami* (開花人情鏡燒艾 *Modern Models of Manners*, 1878 edition) by Toyohara Kunichika (source with permission from: Morinomiya College of Medical Arts and Sciences, 森ノ宮医療学園 はりきゅうミュージアム 蔵: <https://www.morinomiya.ac.jp/schoolguide/museum/>).

It has already been argued by a scholar¹⁶ through the works of an early *ukiyo-e* artist, Hishikawa Moronobu (菱川師宣), that the many dots pointed on the legs of laborers may imply the customs of burning moxa was so popular that it drew the attention of *ukiyo-e* artists in the 17th century. The transport points connect to the internal organs. In particular, the Gaohuang (BL43) is the most used acupoint in *Ishinpō* (《医心方》), likely due to the story of “the disease has spread to the vital organs (病入膏肓)” happened during the tenth-year reign of Chengong (成公十年) and recorded in *Zuo Zhuan* (《左传》 *The Commentary of Zuo*), as well as the experience recorded in Sun Simiao’s (孙思邈) *Qian Jin Fang*.³ In the many *ukiyo-e*, acupoints on the back where moxibustion is performed are mostly positioned close to the Gaohuang. As the brook point of the channel of liver, Xingjian is conveniently located for self-application, and is a common acupoint used in women’s health care. Tianshu is often used in the treatment of abdominal diseases. It may reflect the frequent incidence of digestive system diseases in pre-modern Japan, and hence the acquired skills for diagnosing and treating the abdomen. The only *ukiyo-e* regarding pediatric moxibustion is collected at the Morinomiya College of Medical Arts and Sciences. Nagano mentioned that during the Meiji period, pediatric acu-moxa were often used for children who could accept neither *Kampo* Medicine nor Western medicine treatments. People of the time believed that unhygienic blood left in the body at birth would cause fetal poison. Needling can help draining the redundant blood, whereas moxibustion can repress pathogenic qi, thus both therapies have functions in pediatric treatment and prevention.¹⁷

The acupoints involved in the above moxibustion *ukiyo-e*, no matter the transport points that connect to the internal organs, or the five Shu-transport points (e.g. Zusanli, Xingjian, Erjian, Sanjian), or the abdominal acupoint Tianshu, are all commonly seen in the therapeutic experience of acu-moxa or daily health care. The only special case is the several scenes of burning an acupoint located on the inner side of the upper arm. It neither belongs to the five transport points with obvious distant therapeutic effect, nor is it convenient for treatment operations by oneself or by others. Nothing is specially discussed about the using of acupoints located at the upper arm such as Qingling in Japanese medical books regarding daily acu-moxa health care. There must be some other reason that led to these artworks if it is not for the sake of treatment. The most obvious feature of these *ukiyo-es* of moxibustion implies the answer to this mystery.

4 *Ukiyo-e* of moxibustion in a gender perspective

As mentioned above, the patients accepting moxa burning in the *ukiyo-e* are mostly young beauties, except for a few cases of old women and young children. Additionally, a more important and obvious commonality

of these moxibustion scenes is that the practitioners are usually young women as well. Such an obvious gender characteristic is quite rare in records of premodern Chinese medical practice. Needless to say, due to the Confucian tradition, medical practices traditionally belonged to the world of male especially since the Song dynasties. Except for some certain special disciplines, medical practitioners in premodern China were dominated by men. The situation in Japan was quite similar. Therefore, moxibustion treatment depicted in the *ukiyo-e* was, to a certain extent, detached from the professional medical field and was more like a kind of household health care behavior. This makes the moxibustion group of the 18th and 19th centuries more distinctly delineated. On the one side, there were specialized and trained moxibustion practitioners are dedicated to knowledge production and passing on experience. On the other side, people were accustomed to using moxibustion for self-help and family health maintenance. However, *ukiyo-e* art is not like news snapshot, nor like a documentary. If we ignore the variety of images, artists, uses of images and attitudes to images in different periods of history, as Peter Burke said, we are going to be at risk.¹⁸ Therefore, even though the mentioned above *ukiyo-e* arts imply a world that moxibustion was only used by women, it does not mean that during the Edo and Meiji periods, moxibustion had nothing to do with men. The “orthodox” history of moxibustion at that time has already been discussed about by scholars and will not be the focus of this article. In this part, I intend to explore the reality, motivations and perspective behind the scenes of female doing moxibustion in the *ukiyo-e* arts from the viewpoint of gender.

4.1 The reality reflected in the moxibustion of *ukiyo-e* arts

Although it is a virtual world drawn following the imagination of artists, most of the *ukiyo-e* came from inspiration from people’s real lives. Therefore, there might be clues can be found from daily customs of women in Edo society. As mentioned above, most of the *ukiyo-e* with moxibustion are found as a part of beauty series. In other words, moxibustion is just one of the many scenes depicted with beautiful women. *Ukiyo-es* in which moxibustion works explicitly for health care (such as burning moxa on the transport points) are often juxtaposed with paintings themed on daily activities. For example, Utagawa Kunisada’s *Hana Goyomi Kichihhi Sugata* (花曆吉日姿 A Floral Calendar: Women on Lucky Days, 1843–47, Fig.7) series used the format “XX Yoshi (よし)” as the title, that is, “do something would be auspicious”, suggesting what activity is suitable for the viewer at different time, like an almanac. In addition to moxibustion, activities such as nail clipping, traveling, opening a furnace and lighting a fire, and getting married etc. are also included.



Figure 7 *Kyū Sue Yoshi* (灸据えよし A Good Day to Do Moxibustion Treatment), from the series *Hana Goyomi Kichihhi Sugata* (花曆吉日姿 A Floral Calendar: Women on Lucky Days) by Utagawa Kunisada I (Toyokuni III), Japanese, 1786–1864. Photograph © [2024-09-27] (source with permission from: Museum of Fine Arts, Boston. Publisher: Wakasaya Yoichi (Jakurindō), Japanese, Japanese, Edo period, 1843–47 (Tenpō 14–Kōka 4). Woodblock print (nishiki-e); ink and color on paper; Vertical ōban; 36.9 x 25.1 cm (14 1/2 x 9 7/8 in.). Museum of Fine Arts, Boston, William Sturgis Bigelow Collection, 11.40980).

Another example is the *Kaika Ninjo Kagami* series (Fig.6) by Toyohara Kunichika (豊原国周). In addition to moxibustion, there are also seasonal activities of beauties enjoying the coolness, autumn rain and appreciating the snow, as well as bathing and drinking from a cup. This series of *ukiyo-e* was designed during the period of *Bunmei-kaika* (文明開化, Japanese Civilization and Enlightenment). The word *Kaika* (開花) shares the same pronunciation with *Kaika* (開化, educated by modern knowledge) thus was used to refer the civilized people. Hence the series also includes some scenes of modern lifestyle to show the benefit of being educated. It is inferred that the purpose of such paintings, including the ones with moxibustion, might mean to provide a guidance to good manners by using the figures of beautiful women to attract attention.

Aside from moxibustion on acupoints obviously for health care, there still are a large number of *ukiyo-es* depicting moxibustion on the inner side of the upper arm, which also inspired by daily life in Edo period. In the collection of *ukiyo-e* with moxibustion, the social status of the women burning moxa for health care varies. The women in *ukiyo-e* who are burning moxa on their arms mostly share the similar fashion of hairstyle or dress which implies their occupation as the prostitutes, i.e. *yūjo* or *geisha* (Note 2). *Yūjo* was a type of special occupation meant to provide pleasure to men. According to the unwritten rule of Yoshiwara at the time, it was not wise for the *yūjo* to fall in love with their guests. However, the circulation of many romances between the *yūjos* and their lovers shows the rule didn’t work very well. There was a particular trend among the *Yoshiwara yūjo*. If someone fell in love with a customer and wanted to swear her loyalty, she would tattoo

the abbreviation of her lover's name with a *kanji* (漢字, character) *Inochi* (命, life) on the inner side of upper arm. It was probably because this was a private part of the body that was hardly seen but convenient enough for the girl to hide with a bandage or plaster when serving other customers.¹⁹ Some *ukiyo-e* arts were even themed on a *yūjo* who's getting this kind of tattoo. The tradition would be so romantic until the lovers broke up one day. The symbol of love would suddenly turn into the trouble of life. But, luckily, moxibustion, which can leave burning scar and be harmless at the same time, became a perfect tattoo eliminating tool. The large proportion of *ukiyo-e* depicting moxibustion on the arm indicates the popularity of this custom at Yoshiwara at the time. An *ukiyo-e* created by Kitao Shigemasa (北尾重政) shows exactly the process of removing tattoo in this way (Fig.8). In his work, a woman with a tattoo on her upper arm is waiting for the servant to burn moxa so that the tattoo of her old lover's name could be removed in front of her new lover (Note 3). It is also interesting that this kind of name tattoo happens to overlap where the Hand *Shaoyin* Heart Channel passes through, another coincidence matching with the theory of acu-moxa regarding treatment for a "broken heart".

As mentioned earlier, most moxibustion scenes depicted in the *ukiyo-e* follow the method of direct moxa burning. However small the moxa cone is, it will inevitably be painful. Nevertheless, artists did not usually depict the painfulness very obviously. For the aim of aesthetic pleasure, painfulness was conveyed in an implicit way in *ukiyo-e* arts. For instance, a woman who is accepting the therapy may bite her handkerchief to control herself from shouting out. Moreover, by observing the collected materials, I found that most scenes of burning moxa for health care do not emphasize on the painfulness (Note 4). On the contrary, if the moxibustion is used for tattoo eliminating, the recipient is likely stuffed with a handkerchief in her mouth or leaning over her body to avoid from the burning. In some cases, a



Figure 8 *Kyū De Irezumi O Kesu* (灸で刺青を消す, *Removing a Tattoo by Moxa Burning*) Attributed to: Kitao Shigemasa, Japanese, 1739–1820, Japanese, Edo period. Photograph © [2024-09-27] (source with permission from: Museum of Fine Arts, Boston. Woodblock print (nishiki-e); ink and color on paper Horizontal aiban; 21.5 x 31.9 cm (8 7/16 x 12 9/16 in.). Museum of Fine Arts, Boston, William S. and John T. Spaulding Collection, 21.5700).

small "window" filled with some words can be found on the corner of the picture to give some hint beyond the scene. When studying historical materials with both images and texts, a gap may exist between that makes the images and texts do not strictly match. "This intriguing 'gap' is likely due to the distance between the subjective desire and objective effect, the intuitive feeling and rational judgment, as well as the medium and technique used in arts creation."²⁰ *Ukiyo-es* with moxibustion on the arm are often paralleled with warnings regarding the danger of love. For example, Kitagawa Utamaro's *Prospective Bridges Judged through Parent's Moralizing Spectacles* (Fig.3), uses the well-known love story between a *yūjo* Komurasaki (小紫) and Shirai Gonpachi (白井権八) at the time to warn both the *yūjos* and the customers, that if they were to fall in love, they should have a good outcome like Fujiya Izaemon (藤屋伊左衛門). Otherwise, they should not be emotionally and physically involved. Considering the popular practice of tattooing on the inner side of arm and burning moxa to eliminate tattoos, most of this genre of *ukiyo-e* were designed with the expression of pain as a warning. This seemingly unrelated "gap" between the image and the text is connected by the painful reality created by moxibustion.

4.2 Gazing behind the *ukiyo-e* with moxibustion

The use of images as evidence in historical research should start from "studying the different purposes of their makers."²¹ The mass-produced *ukiyo-e* arts have an intrinsic commercial intention to please the audience. Therefore, the artistic perspective and figures chosen by the artists could be regarded as the agent of aesthetic and entertainment needs of the public at the same period. The indulgent life of Yoshiwara was thus naturally the favorite theme of the *ukiyo-e* artists. Utagawa Kunisada, who created the most of *ukiyo-e* with moxibustion, had been living in Yoshiwara since his youth. He was quite familiar with the daily life of the *yūjo*.²² The experience became a continuous source of inspiration for his paintings of the beauties.

As Chen Pingyuan (陈平原) pointed out in analyzing the design for the late Qing dynasty pictorial magazine, "The presentation of 'landscape' is not only a technical issue about likeness or being exquisite, but also relevant to the stance and interest of the creator."²³ It is very similar about *ukiyo-e* art, in which volume of sales and catering the taste of buyers weigh a lot. Therefore, when choosing the subject of arts, artists must take into consideration the perspectives and interests of their potential customers, who were mostly the men spending much time at Yoshiwara and keeping deep curiosity towards the private life of *yūjo*. Throughout the history of art, most paintings depicting women hide a gaze from men as the audience.²⁴ As John Berger states, "The essential way of seeing women, the essential use to

which their images are put [no matter in traditional or contemporary art], has not changed... the ‘ideal’ spectator is always assumed to be male and the image of the woman is designed to flatter him.”²⁵ Thus, women who were presumably treated in pain seemed charming in most *ukiyo-e* with moxibustion. It is no doubt for the sake of satisfying the taste of their male viewers. In addition, there are some other *ukiyo-e* with moxibustion but not mentioned in this article shown in the form of group portraits of three or four people. In the group, men, who are only the observers instead of the practitioners, act as the opposite gender to see, hug, or even intrude the female characters who are accepting treatment or burning moxa. Such scenes with men were also designed to cater their desire by assisting their imagination of merging into the picture.

“Men look at women. Women watch themselves being looked at.”²⁶ In comparison, another group of potential viewers might be easily overlooked. As the *ukiyo-e* became a genre of popular art, their mass merchandise showed very similar qualities of advertising in capital market. While studying the makeup techniques reflected in the *ukiyo-e* arts, Noriko Suzuki (鈴木則子) mentioned that,

“In the mid-17th century, the latest fashion trends of makeup, clothing, and hairstyles were already in vogue from the portraits of *kabuki omagata* (歌舞伎女方) and *yūjo*. With the development of woodblock printing technology, the many inexpensive paintings of the beauty were available for the folks. The multi-colored woodblock printing that appeared in the second half of the 18th century, in particular, has rapidly accelerated the value of *ukiyo-e* art as the source of information on fashion.”²⁷

Therefore, *ukiyo-es* that depict the private life of *yūjos* at Yoshiwara naturally became the fashion “magazines” for young ladies at the time to imitate and learn the art of “pleasing men”. This is another reason why *ukiyo-e* artists chose scenes or customs that can be related with daily life. By viewing the beauties in the paintings, girls will naturally put themselves in the scene. And if they imitate the behaviors of the beauty, they may possibly look like the same. Eventually, being better looking should make it easy for them to gain better lives and opportunities, just like the beauties in the pictures did.²⁸ And that, is how advertisement works. Under such a perspective of the viewers, the reason why *ukiyo-e* with moxibustion contain only women’s portraits should not be regarded as the portrayal of reality, but a result of “a hidden agenda”.

From the perspective of gender, it is not difficult to see that the essential property of moxibustion in *ukiyo-e* arts had already departed from the original essence of medicine. Instead, it interweaved with complicated factors like social customs, conception of life, and audience of arts. As these *ukiyo-e* arts innovated and popularized, the understanding of moxibustion had also gradually distorted among the folks in the Edo and Meiji Period. New metaphors extending from moxibustion were thus

created. The many *ukiyo-es* with moxibustion are no longer simple, but can be seen as riddles that concealed the artists’ true intentions.

5 Conclusion: moxibustion crossed the boundary in the *ukiyo-e*

The original meaning of “Kyū o Sueru (灸を据える put the moxa on the skin)” (Note 5) was burning moxibustion as a therapy. But its extended meaning now is conduct strict warning or punishment. With the above analysis of the history of *ukiyo-e* arts and moxibustion, this boundary-crossed change in its meaning is understandable. Because of the multi-usage of burning moxa, as well as the pain it caused, “moxibustion for health care” gradually became “moxibustion for morality maintenance”. Numerous factors behind that contribute to this change and popularity in culture of moxibustion. Unlike needling, burning moxa is simple and safe to operate. Owing to its convenience, moxibustion became a popular household medical tool during Edo and Meiji Period. In the terms of direct burning, which was common for long time, people were afraid of it and yet preferred it. They even ascribed the metaphor of punishment to its painfulness. It was also fancied by artists to propagate and achieve their perceived moral and ethical norms. Due to the good therapeutic effect of moxibustion, on the other hand, the artists could not bear highlighting the painfulness too much. Thus, they created a “surreal” beautiful moxibustion scene.

“Images may help posterity tune in to the collective sensibility of a past period.” It also provides clues for historians to understand “the anxieties of individuals and groups in different cultures”.²⁹ *Ukiyo-e* arts with moxibustion open a new window for observing Japan during the 19th century. The boundaries between medicine and wellbeing, household and Yoshiwara, *yūjo* and ordinary people are melting. The divisions imagined by historians are dissolved. Portraits and narrations of daily life during Edo and Meiji Period are no longer blurry. As Suzuki said, *ukiyo-e* arts reflected a “physical body reform” of the entire society from the late 18th century to the early 19th century.³⁰

On the other hand, according to the records in pre-modern Chinese medical books, burning moxa was an expression of a professional medical therapy used by practitioners. Whereas by exploring history of images on relevant theme, a hidden aspect of moxibustion in the household life has been revealed. There’s a possibility that a similar situation also obtained in China. While the popularization of moxibustion again shows an emphasis on practical knowledge during the whole process of Japan’s reception of culture from China and other areas. The moxibustion framed in *ukiyo-e* can be regarded as a mirror, in which one may see how Edo people accepted, modified, imagined and continued the medical technique introduced from the ancient culture.

Notes

1. From here on, the contents in parentheses after Japanese pronunciation are Japanese characters.
2. The *geisha* used here does not equal to its modern meaning.
3. See: <https://collections.mfa.org/objects/233379>.
4. The reason for this also involves another aim of the genre of *ukiyo-e* with moxibustion, which I will discuss in other article.
5. *Digital Daijisen*, Shogakukan (デジタル大辞泉, 小学館).

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

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Conflicts of interest

The author declares no financial or other conflicts of interest.

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The Channel Branches & Network Vessels on the Tianhui Lacquered Meridian Figurine—Taking the Heart-Regulated Channel as an Example

ZHOU Qi¹, Lena Springer^{2,3,*}

Abstract

Along with the surge of unearthed medical literature and cultural relics in recent years, a network of channels in the system of medical conduit vessels (meridians) during the early Western Han dynasty has become much clearer gradually. In it, the increasing number of channel branches, network vessels and needle insertion holes (acupoints) is an important feature of the development of channel medicine during the Western Han dynasty. This is not only a reflection of the expanding requirements of the theoretical system of the main trunk channels and other vessels, but also an inevitable result of the continuous enrichment and accumulation of clinical experience. This article integrates the information about channel branches, network vessels, inscriptions, dots and further relics on the Tianhui (天回) Lacquered Meridian Figurine to compare the unearthed literature of the channel genre with the transmitted classical literature about acupuncture. The “Heart-Regulated Channel” in *Medical Manuscripts on Bamboo Slips from Tianhui* (《天回医简》) serves as an example to explain the occurrence, development and changes of the channel branches and network vessels in the early system of medical channels.

Keywords: Tianhui Lacquered Meridian Figurine (天回髹漆经脉人像); *Tianhui Medicine Slips*; Heart-Regulated Channel (心主之脉); Channel branches; Network channels

1 Introduction

Since the excavation of the *Classic of Foot and Arm Eleven-Channels Moxibustion* (《足臂十一脉灸经》, *Foot and Arm* for short) and the *Classic of Yin-Yang Eleven-Channels Moxibustion* (《阴阳十一脉灸经》, *Yin-Yang* for short) in Mawangdui (马王堆), and the *Book of Channels* (《脉书》) in Zhangjiashan (张家山), endless discussions in academia tackled how the early system of *Jing Mai* (经脉, medical vessels, i.e. with main threads, classic trunk channels or conduit vessels, widely known and shortened as “meridians”) evolved from

eleven to twelve *Mai* (脉, channels). As Liao Yuqun (廖育群) pointed out: “While comparison of the silk manuscript with *The Conduit Vessels of Miraculous Pivot* (《灵枢·经脉》, *The Conduit Vessels* for short) shows that one channel is missing, one cannot simply assume that it had not been discovered yet or had not developed completely; instead, what should be taken into consideration is the strong influence of the idea of yin-yang divination.”¹ Yamada Keiji (山田庆儿) believes that the names of the channels or vessels are “concrete names for parts of the body that replaced the abstract concepts of yin and yang, establishing the basis for the systematization of the channels. This process occurred just during the era of the Mawangdui medical books.”² Regarding the early formation of conduit vessels, Huang Longxiang (黄龙祥) argues that “After the eleven channels and then the twelve channels became classic channels, the other channels which could not be included as ‘vessels belonging to the conduits (经数之脉)’—even if they were the same in nature and functions as the eleven and twelve channels—either existed under the name of *Luo* (络, network vessels), or they were hardly used and eliminated in large numbers.”³ Ma Jixing (马继兴) had noticed already when he arranged the Mawangdui medical books that “The name ‘eleven channels’ does not appear in *The Yellow Emperor’s Inner Classic* (《黄帝内经》), yet several chapters refer to the ‘twelve channels’ with only one name for the specific names of channels ... which shows that, to some extent, (the transmitted

¹ Institute for the History of Chinese Medicine and Medical Literature, China Academy of Chinese Medical Sciences, Beijing 100700, China;

² Department for Theology and Religious Studies, King’s College London, London WC2B 6NR, United Kingdom; ³ Institute of Chinese Su Folk Culture Studies, Sichuan University, Chengdu 610065, China

*Lena Springer, E-mail: lena.springer@kcl.ac.uk
ORCID: 0000-0003-2938-7387

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medical classics) have preserved early materials about the ‘eleven channels’.⁴ And he also holds that the learning of conduit vessels is not entirely a history of “bottom-up” evolution.⁵ These discussions elucidate the picture of the developing early channel system, and they provide useful approaches to comprehend the evolution from eleven to twelve channels. However, due to the lack of data to prove that *Shou Xin Zhu Jue Yin Mai* (手心主厥阴经, Hand Heart-Regulated *Jueyin* Channel, *Xin Zhu* literally meaning “controlled by the Heart”) existed, the early theoretical system of the twelve conduit vessels remains an enigma.

The discovery of the channel figurine in a tomb at Shuangbaoshan (双包山) in Mianyang (绵阳) in 1993 roughly confirmed that the system of twelve conduit vessels was established in the early Western Han dynasty. However, the figurine was severely damaged, and no textual evidence was excavated, which could clearly demonstrate the evolution process from eleven classic channels to twelve ones. The medical manuscripts on bamboo slips and the lacquered channel figurine that were excavated from a tomb on Laoguanshan (老官山) in Tianhui Town, Chengdu City, in 2012 have provided a wealth of unearthed medical literature and relics from the Western Han dynasty for the study of the early system of conduit vessels. They have filled a gap of historical materials about the “Heart-Regulated Channel” (心主之脉) that completed the twelve classic channels. The content about the Tianhui Lacquered Meridian Figurine (天回髹漆经脉人像) in the appendix of the latter volume of the *Medical Manuscripts on Bamboo Slips from Tianhui* (《天回医简》, *Tianhui Medicine Slips* or *Slips* for short) discloses three kinds of important information about the surface of the Meridian Figurine in Tomb M3, i.e., lines showing the channels, inscriptions, and dots. This information is of great significance to interpret the development of the acupuncture system in Chinese medicine of the ancient period. This article integrates the information about channel branches, network vessels, inscriptions, dots and further relics on the Tianhui Lacquered Meridian Figurine to compare the unearthed literature on medical channels with the transmitted classical literature about acupuncture. The “Heart-Regulated Channel” in the *Tianhui Medicine Slips* serves as an example to explain the occurrence, development and changes of the channel branches and network vessels in the early medical channel system.

From the point of view of circulation in conduit vessels, based on the known unearthed literature on channels (Note 1), there was an eleven-channels system before the twelve-channels system, or a classic trunk channel system with fewer main channels even before the eleven-channels system. The discovery of the “Heart-Regulated Channel” and the Lacquered Meridian Figurine in the *Book Two* (《下经》) of the *Book of Channels* makes the evolution process from the eleven-channels system to the

twelve-channels system evident. Yet, in addition to the transmutation of the system of main channels to twelve ones, many *Zhi Mai* (支脉, channel branches, channels resembling branches of mountain ranges) and *Luo Mai* (络脉, network vessels resembling a net) appeared on the Meridian Figurine and in the text from the *Slips* describing the conduit vessels. This is content that has not appeared in any other excavated medical books or cultural relics. Just as the engraved lines on the Figurine of the original system of eleven channels, an additional nineteen lines were engraved for medical channels. These nineteen lines for medical channels do undoubtedly relate directly to the channel branches and network vessels in the acupuncture literature inherited by later generations. This explains that the eleven or twelve main channels of the conduit vessels according to the *Tianhui Medicine Slips* of the early Western Han dynasty (i.e. the period of the Jing and Wu Emperors) began to multiply to more and more channel branches and network vessels, spreading like vines through the whole body. The appendix of the *Slips* “Tianhui Lacquered Meridian Figurine” illustrates that “nineteen lines for conduit vessels are engraved in addition to the red lines for conduit vessels across the chest, abdomen, back, legs and feet, etc. The routes of those meridian lines cannot all be matched to the branches, networks and the ten *Jian Bie Mai* (间别脉, inter-meridian diverging channels) mentioned in ‘Twelve Conduit Vessels’ of *Book Two*”.⁶

The increasing number of branches, networks and needle insertion holes is an important feature of the development of channel medicine during the Western Han dynasty. This is not only a reflection of the expanding requirements of the meridian theoretical system about conduit vessels, but also an inevitable result of the continuous enrichment and accumulation of clinical experience. By integrating the information about channel branches, network vessels, inscriptions, dots and further relics on the Tianhui Lacquered Meridian Figurine to compare the unearthed meridian literature with the transmitted classical literature about acupuncture, we should achieve a deeper understanding of the structure of the early channel system and of its evolution and transmission to later generations.

2 Channel branches and network vessels

It has been argued that, among the medical channels, “trunk channels”, “network vessels”, “channel branches”, and “diverging channels” are analogous to natural water systems. “The difference between ‘trunk channel’ and ‘network vessels’ lies only in the water being large or small, like a trunk or like branches—with the big main trunks as ‘trunk channels’ and the small separate branches as ‘network vessels’”. Accordingly, trunk water is large waters; trunk channel is large channel; and trunk

vein is large vein.”⁷ If the medical channel theory had separated main and collateral channels from the very beginning literally in this way, channel branches and network vessels should be located along the classic trunk channel system from stem to stern. However, according to the text from the excavated literature of the genre about medical channels, this is not the case.

Now, we take the channel branch of the Foot *Taiyang* Channel (足太阳脉) in the books about conduit vessels from the excavated literature as an example to focus on the formation and development of the channel branches in the early period. The texts on the Foot *Taiyang* Channel and its channel branches described in the *Book of Channels* from Zhangjiashan, the *Foot and Arm* from Mawangdui, *Book Two*, and *The Conduit Vessels* are listed in the following table (Table 1):

In the table, *Zhi Zhe* (直者, trunk, literally “the straight one”) indicates the direction of the main channel of the respective conduit vessels, and *Zhi Zhe* (支者, branch, meaning the one like a branch) refers to the channels that separate outwards from a main conduit

vessel. The various books about medical channels in Table 1 are listed in chronological order. Thus, judging from the development of the channel branches of the Foot *Taiyang* Channel, the branches did not appear at the beginning along with the main medical channels, but as time goes by, the channel branches developed from scratch, and from simpler to complexer features. A diachronic survey of the literature about medical channels shows that the eleven channels of the *Book of Channels* with the A (甲) and B (乙) versions of *Yin-Yang* did not involve the branches or networks of vessels; *Foot and Arm* mentions two *Zhi* (枝, branches, with the “wood” radical) from Foot *Taiyang* Channel (足太阳脉) and Foot *Shaoyang* Channel (足少阳脉) respectively; and *Book Two* mentions one *Zhi* (支, branch, without the “wood” radical) of the Foot *Taiyang*, Foot *Shaoyang* and Foot *Yangming* Channels (足阳明脉) respectively. However, in addition to the twelve classic trunk channels, *Book Two* also mentioned ten other “inter-meridian diverging channels”, “the Foot *Taiyang* Network (足大阳络)” and “branch of the Foot *Yangming* Channels (足阳明脉

Table 1 Comparison of Foot *Taiyang* Channel circulation in literature of the genre about medical channels

	<i>Book of Channels/ Yin-Yang</i>	<i>Foot and Arm</i>	<i>Book Two</i>	<i>The Conduit Vessels from Miraculous Pivot (Ling Shu)</i>
Foot <i>Taiyang</i> Channel (足太阳脉) <i>Zhi Zhe</i> (直者, trunk)	Originating from the concavity of the lateral malleolus of foot, passing the middle of popliteal fossa, crossing the buttock, leaving the lumbar region, accompanying the spine, branching from the nape, stretching up to the head angle, down the forehead, paralleling the nose root, and arriving at the inner canthus. (系于踵外踝【娄】中, 出却衷, 上穿臀, 出尻中, 夹脊, 出于项, 上头角, 下颜, 夹颞, 系目内廉。)	Outing from the concavity of the lateral malleolus of foot, up the calf, branching from the popliteal fossa; (with the trunk) crossing the buttock and accompanying the spine, ...; going upward to the head, (with the trunk) penetrating the inner canthus to the nose. (出外踝娄中, 上贯腓, 出于却; 其直者贯尻, 夹脊, 【□□】, 上于头; 其直者贯目内眦, 之鼻。)	Starting from the lateral end of the lesser toe, from the dorsal lateral edge of the foot to the concavity behind the lateral malleolus, going upward along the gastrocnemius, up crossing the popliteal fossa; (with the trunk) penetrating the buttock, accompanying the spine and coming out of the nape; stretching up to the head angle, down the temple, and arriving at the inner canthus. (系足小指, 循足跗外廉, 出外踝后胫中, 循腓而上, 出腓中以上, 直者贯尻, 夹脊以上, 出项, 上头角, 夹颞, 下颜颞, 系目内眦。)	Starting at the inner canthus of the eye, going upward to the forehead and meeting at the head top; (with the trunk) connecting the brain inward, then going back out and separating down the nape along the inner side of the shoulder blades, accompanying the spine, and arriving at the lumbar area, penetrating the muscles beside the spine, connecting the Kidney and the bladder; going through the buttock, and descending to the popliteal fossa, down through the medial side of the gastrocnemius, coming out of behind the external ankle of the foot, and travelling along the dorsal lateral edge of the foot and ending at the lateral point of lesser toe. (起于目内眦, 上额交巅上; 其直者, 从巅入络脑, 还出别下项, 循肩髃内, 挟脊抵腰中, 入循髀, 络肾属膀胱; 贯臀, 入腓中; 以下贯腓内, 出外踝之后, 循京骨, 至小指外侧。)
<i>Zhi Zhe</i> (支者, branch)		Branching under ...; Branching under the forehead to the ear. (枝之下□; 枝颜下, 之耳。)	Branching into the bladder (其支者入州)	Branching from head top to the upper corner of the ear; branching from the middle of the waist down to the perineum; branching downward the nape, through the inner side of the scapula, accompanying the spine downward to the thigh pivot, through the lateral posterior side of the thigh to the middle of the popliteal fossa. (其支者, 从巅至耳上角; 其支者, 从腰中下会于后阴; 其支者, 从髀内左右, 别下贯髀, 挟脊内, 过髀枢, 循髀外后廉下合腓中。)

支者)”, separately the route and main ailments associated with the medical channel. The diverging channels, channel branches and network vessels in *Book Two* that differ from the twelve rectified channels, based on the text, reflect the already flourishing state of the channel branches and network vessels at the time of the *Tianhui Medicine Slips*. Moreover, in the transmitted classic *The Conduit Vessels* describes the routes of each main channel of the twelve conduit vessels and already gives more detailed descriptions of the channel branches. In *The Formation of Huangdi’s Inner Classic*, the Japanese scholar Yamada Keiji has noted the relationship of channel branches in the *Mawangdui Foot and Arm* and in *The Conduit Vessels* early on, and he stated bluntly, “With regard to the introduction of the distinction of ‘trunk’ versus ‘branch’ channels it can be argued that *Foot and Arm* can be regarded as a primitive type of the chapter *The Conduit Vessels*. If the *Yin-Yang* is the known primitive type of the chapter, the *Foot and Arm* can be regarded as a primitive type of the chapter which is *Pang Xi* (旁系, a network relative).”⁸

If “branches” of the channel branches belong to the branches separating out sideways from the main channels, the “networks” of the network vessels in the medical classics are mainly channels that cross and grow out of the main trunk of conduit vessels. The *Measurement of Channels* (《脉度》) in *Miraculous Pivot* states: “The conduit vessels are the inner ones, and the branches and transverse vessels are net [-work vessels] (*Heng Zhe*, 横者, horizontal, literally crossing ones) (经脉为里, 支而横者为络).”⁹ This indicates in large scale the running direction of network vessels. It is worth noting that cross needling (缪刺) is often discussed in the medical classics: “Now that evil has become a stranger in skin and hair, it dwells in the minute vessels and lingers there, causing obstruction and, rather than entering the conduit vessels, evil overflows to the larger networks, where it causes extraordinary disease. If the evil attacks the larger networks, what is left will pour to the right, and what is right will pour to the left (今邪客于皮毛, 入舍于孙脉, 留而不去, 闭塞不通, 不得入经, 溢于大络而生奇病焉。夫邪客大络者, 左注右, 右注左).”¹⁰ This is actually the best commentary on the above-mentioned “the branches and transverse ones are network vessels”. The network vessels connect left and right with crossing branches, and here lies the mysterious principle of cross needling to “elect right (needle insertion holes) for the left, and vice versa (左取右, 右取左)”. Thus, the *Discussion on Cross Needling* (《缪刺论》) recorded: “In case of network ailment, pain is located at the opposite channel, and cross needling is indicated (络病者, 其痛与经脉缪处, 故曰缪刺). Cross needling is aimed at corresponding networks (缪刺者, 刺其络).”¹⁰ On the *Tianhui Lacquered Meridian Figurine*, we can see a lot of channels that form horizontal branches sideways, which should be regarded as network vessels according to the above understanding of classic texts.

At present, there is only one record of a network vessel in the excavated medical literature, that is, the network of Foot *Taiyang* in Slip 249 of the *Book Two*: “The Foot *Taiyang* network branches off from the lower part of the scapula, runs across the chest, and connects to the lower part of the breast (足太阳络, 出肩胛下廉, 绕胸, 属乳下).”¹¹ Its route and main ailments match neither the medical channel lines on the *Tianhui Lacquered Figurine* nor the Foot *Taiyang* Network according to the transmitted medical classics. Still, the expression “across the chest (绕胸)” suggests that the Foot *Taiyang* Network should belong to a different conduit vessel than the longitudinal main channel. The twelve engraved conduit vessel lines on the *Tianhui Meridian Figurine* that are named after the Earthly Branches have the characteristic of “a branch yet transverse (支而横)”, and these medical channel lines should also belong to the channel branches and network vessels in the medical classics of later generations. Among these twelve engraved meridian lines, *Ke Zi* [刻子, engraved Line *Zi* (the 1st)] corresponds to the Heart-Regulated Channel in *Book Two*, which resembles the main channels *Arm Shaoyin* or *Arm Taiyin*, but also resembles the channel branches or network vessels diverging from a main channel. The correspondence between *Ke Zi* (Fig. 1) and the text from the *Book Two* is illustrated as follows: “*Ke Zi*: starts from the palm, passes through the center of the transverse line of the wrist, goes up along the meridian line of the inner side of the forearm, passes through the elbow fossa, crosses the *Arm Taiyin* Channel on the inner side of the upper arm, and stops obliquely down to the Engraved Line *Chen* (刻辰, the 5th), with left and right being symmetrical (刻子: 起于掌上, 经腕横纹中央, 沿前臂内侧正中线上行, 经肘窝, 在上臂内侧与臂大阴脉交叉, 斜下至刻划辰而止, 左右对称).”¹²

Ke Zi is a quite special conduit vessel. Unlike the other eleven channels running straight up and down, it forms a cross in the chest, and thus is more like a “branch yet transverse” network vessel. However, its route in the arm is consistent with both the line running along the hand and arm, and the “Heart-Regulated Channel” in the text of the *Slips*, from which it has been incorporated into the channel system of main twelve channels. As the last piece of the puzzle, *Ke Zi* and the “Heart-Regulated Channel” are undoubtedly of great significance to the understanding of the early formation of the channel branches and network vessels. By referring to evidence from the *Tianhui Lacquered Figurine*, the Slip 232 of *Book One*, and related documents from classical acupuncture literature, we hereby try to analyze the process how the channel that is controlled by the heart has changed.

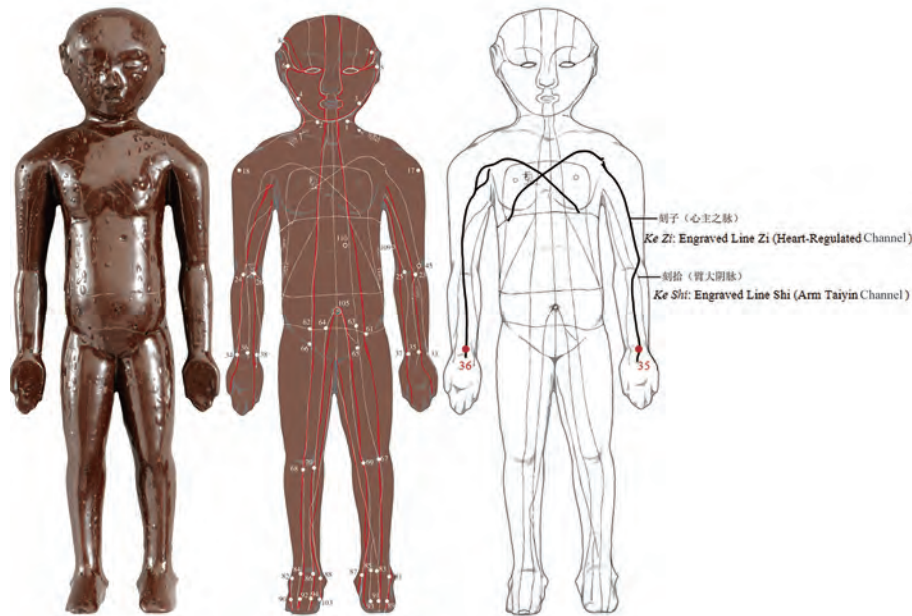


Figure 1 The engraved channel lines on the Tianhui Lacquered Meridian Figurine [source with permission from: *Medical Manuscripts on Bamboo Slips from Tianhui (Latter Part)*¹³, Copy: drawing by Zhou Qi].

3 Heart-Regulated Channel

Slip 12 of *Retrograde and Prograde* (《逆顺》) in the *Tianhui Medicine Slips* tells how the five *Zang* organs (五脏) attribute to which conduit vessels:

“心出辟 (臂) 少阴, 肺出辟 (臂) 大阴, 肾出骭少阴, 胃出足大阴。¹⁴”

English Translation: The Heart attributes to the Arm *Shaoyin*, the Lung to the Arm *Taiyin*, the Kidney to the Foot (Leg) *Shaoyin*, and the Stomach (Spleen) to the Foot *Taiyin*.”

This is the earliest text on the attribution of the five *Zang* organs to the channels that can be referred to so far, but the *Slips* only record the organs Heart, Lung, Kidney, and Stomach. Gu Man (顾漫), in his article “The attribution of the yin meridians to the five *Zang* organs as seen in the *Tianhui Medicine Slips* (《天回医简所见阴脉与五脏的配属》)”, conducts a detailed and reliable discussion of the text and explains the reason for the missing relationship between Liver and a conduit vessel, as he points out that: “The relationship of ‘conduit vessel & *Zang* organ’ as described in *Retrograde and Prograde*, retains the characteristics of the system of ‘four divisions of yin-yang’, and it tries to establish the principle of matching one medical channel with one *Zang* organ, so that the mutual attribution of the five *Zang* organs to the yin channels of the Arm and Foot can be realized.”¹⁵ This is very helpful to understand the eleven-channels system of the *Book of Channels* and the *Foot and Arm*. Accordingly it can be inferred that the eleven-channels system of the early Western Han dynasty was probably formed only after the Foot *Jueyin* Channel (足厥阴脉) was added to the medical channel system of “four divisions of yin-yang”.

The Heart-Regulated Channel is actually the Hand *Jueyin* Channel (手厥阴脉) in the transmitted later medical classics. Therefore, how to understand “Heart-Regulated Channel” in the twelve-channels system is as important as how to recognize the “Foot *Jueyin* Channel” in the eleven-channels system. The Slip on the “twelve conduit vessels” from vessels *Book Two* mentions the “Heart-Regulated Channel” (Fig. 2) as:

“心主之脉。轂 (系) 掌中, 上出辟 (臂) 中, 出肘 (肘) 中, 走夜 (腋) 下, 口入匈 (胸), 循匈 (胸) 里, 上加大阴, 上循腋 (喉) 龙 (咙), 下轂 (系) 心。其病: 手热, 肘 (肘) 纒 (挛), 夜 (腋) 痛, 心痛。二三二¹⁶”

English Translation: The Heart-Regulated Channel (literally ‘channel controlled by Heart’) starts from the palm, goes up the anterior of the forearm and across the elbow center, along under the armpit, and enters the chest; [it] runs through the chest, goes up across the *Taiyin* [Channel], and stretches up to the throat and connects to Heart downward. Its ailments [are] heat in the hand, spasm of the elbow, pain in the armpit and heartache. (Slip 232)”

The name ‘Heart-Regulated Channel’ is not uncommon in the transmitted classical medical texts. For example, the *Chapter on Blood and Qi, Physical Appearance and Mind of Basic Questions* (《素问·血气形志篇》) says “*Shaoyang* and Heart-Regulated [are attributed to each other as] in- and outside (少阳与心主为表里)”;*Defensive Qi of Miraculous Pivot* (《灵枢·卫气》) says “the root of the Heart-Regulated [Channel] is in the hand and lies two inches from the palm between the two tendons (手心主之本, 在掌后两筋之间二寸中)”;*Evil Visitors of Miraculous Pivot* (《灵枢·邪客》) uses exactly the same name as the Slip 232 of the *Book Two*, namely:



Figure 2 The Slip of “Heart-Regulated Channel” [source with permission from: *Medical Manuscripts on Bamboo Slips from Tianhui (First Part)*¹⁷, Copy: drawing by Zhou Qij].

“the net [-work vessels] enclosing (*Bao Luo*, 包络) [the Heart]’ is the Heart-Regulated Channel [(心之)包络者, 心主之脉也]”; and the longest quote is in the *The Conduit Vessels*: “the Heart regulates the Hand *Jueyin* Channel of the ‘network vessels enclosing the Heart’ (*Xin Bao Luo*, 心包络 or Pericardium) (心主手厥阴心包络之脉)”. “What kind of medical conduit vessel (meridian) the Heart-Regulated Channel is”, and “what its relationship with the five *Zang* and six *Fu* organs (六腑) is”, are explained concisely in the *Twenty-Fifth Difficulty in Classic of Difficulties* (*《难经·二十五难》*):

“有十二经, 五藏六府, 十一耳, 其一经者, 何等经也? 然, 一经者, 手少阴与心主别脉也。心主与三焦为表里, 俱有名而无形, 故言经有十二也。”¹⁸

English Translation: There are twelve conduits, and five *Zang* and six *Fu* organs. So [we have] eleven [conduit vessels]; and which one is the last conduit of them? It is the conduit pertaining to the Hand *Shaoyin* and the channel diverging from the Heart-Regulated [one]. The Heart-Regulated [Channel] [corresponds to] the *Sanjiao* [Channel] as exterior and interior, [both of which] have a name without a form; accordingly there are twelve conduit vessels.”

The classical text above can be interpreted as follows: the Hand *Shaoyin* (少阴) and the Heart-Regulated Channel are originally “one conduit (medical channel)”, and can diverge into two vessels (i.e. channels); whereas the corresponding *Zang* organs of the Heart-Regulated just as of the *Sanjiao* (三焦) [Channels] are namable but invisible. The Heart-Regulated Channel diverging from the original “one conduit” Hand *Shaoyin* forms the main channel that matches the other eleven channels, hence the “twelve conduit vessels (meridians)” exist. Judging from text on the Arm *Shaoyin* Channel and the Heart-Regulated Channel in “Twelve Conduit Vessels” of *Book Two*, both channels basically shared the same route from the palm to the axilla. In the *Treatment Essentials of Mingtang Acupoints for Acupuncture and Moxibustion* (*《明堂孔穴针灸治要》*), “*shi dong* (是动)” ailments of the Heart and Heart-enclosing Network (心包络 Pericardium), conduit vessels are diagnosed via the Shenmen (HT7) acupoint. Moreover, in the *Book of Channels*, the courses of the Arm *Jueyin* (巨阴) and *Shaoyin* channels are also very close, roughly presenting two parallel lines with starting and ending points not far apart. Therefore, Huang Longxiang believes that, in the text “Twelve Conduit Vessels” in *Book Two*, “Arm *Taiyin* and Arm *Shaoyin* channels and Heart-Regulated channel all travelled to the proximal part of the upper limbs, and finally all pertained to ‘Heart’ through the axilla, showing the characteristic of ‘one channel with three divisions’.”¹⁹ Mister Zhang Canjia (张灿理) even thought that “the system of conduit vessels (meridians) itself distinguishes the twelve and the eleven medical channels. The Arm *Shaoyin* of the eleven channels is equivalent to the Hand *Jueyin* of the twelve channels; and the Hand *Shaoyin* of the twelve channels does not

exist among the eleven channels.”²⁰ So, it seems that early remnants of the system of eleven conduit vessels can be traced in the transmitted medical classics.

Through the engraved channel lines on the Tianhui Lacquered Figurine (Fig. 1), the collators hold that the channel line labelled “*Ke Zi*” is the Heart-Regulated Channel among the twelve channels of *Book Two*: “The routes of the Heart-Regulated Channel in Slip 232 (...) and *Ke Zi* are roughly consistent. But the *Slips* do not express the meaning of the crossing (left) *Ke Zi* and (right) *Ke Zi* in front of the chest.”¹² In the *Historical Records: Biographies of Bianque and Cang Gong* (《史记·扁鹊仓公列传》), there is a clinical case from Qi State (齐国) in which Cang Gong (仓公) diagnosed a corps commander named Po Shi (破石), using the complexion-pulse-channel diagnostic process, which may be helpful in analyzing and understanding the connection between the *Ke Zi* on the Lacquered Figurine and the channel controlled by Heart. The main diagnostic process of the case is as follows:

“臣意诊其脉，告曰：“肺伤，不治，当后十日丁亥溲血死。”即后十一日，溲血而死。破石之病，得之堕马僵石上。所以知破石之病者，切其脉，得肺阴气，其来散，数道至而不一也。色又乘之。所以知其堕马者，切之得番阴脉。番阴脉入虚裏，乘肺脉。肺脉散者，固色变也乘也。”²¹

English Translation: I make a diagnosis of the patient’s pulse and tell him: “[You suffered from a] lung injury. There is no treatment. You will die of blood in the urine on *Dinghai* (Fire) Day.” Eleven days later, the patient really died of hemorrhage. He got sick from falling off his horse on a hard stone. Therefore, the reason why I was able to detect his illness was because I felt the patient’s pulse and deducted [the diagnosis] Yin-Qi of Lung, which depletes (literally scatters) while its many ways are not one, and face appeared again the complexion of heart over-restriction lung. The cause of his fall was known from the examination of *Fanyin* Channel, which enters deep into the *Xu Li* (虚裏, related to Heart) to restrain the Lung channel. The face of a person with scattered Lung channel turns from white to red, which is the manifestation of the heart over-restriction lung.”

In this clinical case, “face appeared again the complexion of heart over-restriction lung (色又乘之)” and “the original white face turns red, which is the manifestation of the heart over-restriction lung (固色变也乘也)” are frequently used phrases from an early theory about over-restriction of complexion and medical channels (色脉相乘). Slip 22 of *Book One* (《上经》) records: “Whenever the pulse/channel changes with the five complexions, the inner over-restraining the outer [indicates] death, while the outer over-restraining the inner [indicates] possible treatment with drugs (凡脉与五色变, 内乘外者死, 外乘内者可以毒).”²² In this sentence, which illustrates the principle how to judge the moment of life and death by examining the five complexions and combining them with the theories of the five elements (*Wu Xing*, 五行) reinforce and counteract. The collator quotes

the [above] Po Shi Case from the *Biographies of Bianque and Cang Gong*: “When the Lung channel is floating and dispersing, the original white face turns red, which is the manifestation of the heart over-restriction lung.” To explain, “when the five-color complexion changes, someone with the inner over-restraining the outer will die” is relatively appropriate. Integrating the color (or complexion) and pulse (or channel) theory from *Book One* to analyze the pathogenesis of “lung injury. There is no treatment” in the Po Shi Case, we can explain by the illustrating Table 2 (Table 2):

From the table below, we can see the “Complexion-Pulse Diagnosis” 1 & 2 are analyzing the pathogenesis of “Lung injury”, with the latter giving a further explanation on the basis of the former. Only because “the *Fanyin* (番阴) Channel enters into *Xu Li* (虚裏, Heart) and over-restrains the Lung Channel”, it will lead to “depletion of Lung channel (pulse)”. Furthermore, the symptom “restraining the Lung channel” can be evidenced by the “restrained complexion (color)”. This diagnosis defines that, having fallen-on-stone, [the patient] “dies of blood in the urine” on the [*Dinghai*] Day of Fire Restraining Metal. This is the reason why Cang Gong defined the Po Shi Case as a pattern of death and analyzed the principle behind this ailment as not-to-be-treated.

Integrating the information on the Lacquered Meridian Figurine, as shown in Figure 1, the *Ke Zi* (Note 2) (the Heart-Regulated Channel) intersects with the Arm *Taiyin* Channel at the elbow socket, which is in line with its description in the *Book Two* as traveling “upward to cross over the *Taiyin*” (also meaning “over-restrain” *Taiyin*), and which corresponds with the “over-restrained Lung channel (or pulse)” mentioned in the Po Shi Case. The engraved Line *Zi* running along the chest also passes through the character *Xu* (虚) on the Lacquered Figurine; and thus the phrase “*Ru Xu Li*” (入虚里, into the *Xu*) can be interpreted as entering into the space in the chest through the body part *Xu*. It is worth noting that the transmitted medical classics mention a

Table 2 Analytic table on pathogenesis in the Po Shi Case

	Complexion & Pulse Diagnosis 1	Complexion & Pulse Diagnosis 2	Prognosis
Pulse Diagnosis (切脉)	Feel yin-qi of Lung, with multiple and disagreeing arrivals (得肺阴气, 其来散, 数道至而不一)	Feel <i>Fanyin</i> Channel (pulse), which enters into Heart, restraining Lung Channel (得番阴脉。番阴脉入虚裏, 乘肺脉)	The patient will die of blood in the urine on <i>Dinghai</i> (Fire) Day in ten days’ time (Fire Impairing Metal)
Complexion inspection (色诊)	Face appeared again the complexion of heart over-restriction lung (色又乘之)	Lung channel (pulse) depletion makes the complexion restrained (肺脉散者, 固色变也乘也)	[后十日丁亥 (火日) 溲血死 (火刑金)]

body part “*Xu Li*”, its needle insertion hole belonging to the “large network vessel of the Stomach (胃之大络)”. In all versions of *Plain Questions*, the *Li* (里) in *Xu Li* (虚里) is the same as that in *Xiang Li* (乡里, hometown), while the *Li* of *Xu Li* in *Biographies of Bianque and Cang Gong* is actually the traditional Chinese character *Li* (裏) as in *Biao Li* (表裏, exterior and interior). The two *Li* (里 and 裏) have distinct meanings. Therefore, one should not easily equate *Xu Li* (虚里) in medical classics with *Xu Li* (虚裏) in the *Biographies of Bianque and Cang Gong*. Furthermore, as recorded in classical literature, the Heart-Regulated Channel follows a route into “the middle of the chest (胸中)”. For instance, in *The Conduit Vessels*, “The Heart-Regulated Hand *Jueyin* Channel enclosing the Heart starts in the chest (心主手厥阴心包络之脉, 起于胸中)”²³; in *Evil Visitors of Miraculous Pivot*, “The Heart-Regulated Channel ... goes up into the middle of the chest (心主之脉.....上入于胸中)”²⁴; in *The Conduits and Their Diverging [Vessels] of Miraculous Pivot* (《灵枢·经别》), “The trunk on the Heart-Regulated Hand [Channels] ... enters the middle of the chest (手心主之正.....入胸中)”²⁵; and in *The Conduits and their Sinews of Miraculous Pivot* (《灵枢·经筋》), “the tendons on the Heart-Regulated Hand Channel ... are scattered in the chest (手心主之筋.....散胸中)”²⁶, etc. Slip 232 from *Book Two* also noted, “The Heart-Regulated Channel ... enters the chest and circulates in the chest (心主之脉.....入胸, 循胸裏).” These records about the route of the Heart-Regulated Channel as seen in different times in different texts from the genre of literature on medical channels have shown continuously that “in the chest” has always been the place where the Heart-Regulated Channel flowed. The expression of circulating “in the chest (胸裏)” in *Book Two* is particularly helpful to understand what “into the Pericardium (*Xu Li*, 虚裏)” refers to in the *Biographies of Cang Gong*. *Interpretations of Characters* (《说文》) explained, “*Xu* means a big hill (or prominence) (虚, 大丘也)”. The inscription *Xu* (虚) on the Lacquered Figurine (Fig. 1) is engraved on the right pectoralis major muscle, which should refer to such a large hill on the human body. It can be inferred that the “*Fanyin* Channel” in the *Biographies of Cang Gong* could most likely be the “Heart-Regulated” channel in *Book Two*.

There are ten other “inter-meridian diverging channels” in *Book Two*, which, considering their form, are very different from the “twelve conduit vessels (meridians)” in previous texts, yet they are more similar to the eleven channels in *Foot and Arm*, especially since each slip ends in the phrase “carry out moxibustion of the so-and-so meridian”. Judging from the names of the channels, one inter-meridian diverging channel is named “inter-meridian diverging channel of teeth (间别齿脉)”, which may be an early designation of the Hand *Yangming* (阳明) Channel; or the Teeth Channel in the medical channel system of *Foot and Arm* and *Book Two* has been replaced by the Arm *Yangming* or Hand

Yangming Channel (See Table 3). Therefore, these ten inter-meridian diverging channels do not appear to be literature of the genre on medical channels from the same period or system as the *Twelve Conduit Vessels* from *Book Two*. Perhaps it is because of the change in the name of the eleven channels that these channel branches and network vessels, which spread like vines, were separately catalogued as “inter-meridian diverging channels”. So, the very simple route of the “inter-meridian diverging arm yin channel (间别臂阴脉)” could also be the early prototype of the Heart-Regulated Channel among the Arm yin channels.

Besides, in *Needling Numbers* (《刺数》), there are three acupuncture formulae involving the “Heart network vessel”, namely:

- “1) [for] pain and distress in the Heart, [take] five needle insertion holes from each of the two Arm and Foot *Taiyin* Channels, as [the needle insertion holes of the] Heart’s network vessel (心痛惋。两臂、肱大阴各五, 若心络). (Slip 11)
- 2) [for] fullness in Heart and belly, [take] ... five needle insertion holes each of the Heart’s network vessel, as [needle insertion holes of] Foot and Hand *Taiyin* [Channel] (心腹盈, 心络各五, 若足手太阴). (Slip 13)
- 3) [for] cough and qi reversal, [take] five needle insertion holes each of the Arm *Yangming* Channel, as [needle insertion holes from] the Heart’s network vessel (欬上气。两臂阳明各五, 若心络). (Slip 32)”²⁷

The name Heart-Regulated Channel does not appear in *Needling Numbers*, but the word “*Ge* (各, each)” does, after the Heart’s network vessel in Slip 13. According to the text style in that chapter, the names of the meridian needle insertion points (acupoints) of the eleven main channels are all followed by the word *Ge*, which indicates that the meridian points are symmetrically located in the body in pairs for treatment. The points of the Heart’s network vessel are also taken in pairs, suggesting that it is also a symmetrical conduit vessel (meridian). According to the above expression in the *Twenty-Fifth Difficulty* from the *Classic of Difficulties* about Hand *Shaoyin* and the Heart-Regulated Channel, together with the words from *Evil Invades of Divine Pivot*, “All evils that are located in the Heart will lie in the ‘network vessels enclosing’ the Heart (*Bao Luo*, 包络 or Pericardium). What ‘holds the network vessels together’ refers to the Heart-Regulated Channel.”²⁸ We suspect that in the era of the *Tianhui Medicine Slips*, “the Heart’s network vessels” in the *Needling Numbers* is probably another name for the Heart-Regulated Channel from the ‘twelve conduit vessels’ in *Book Two*. *The Conduit Vessels of Miraculous Pivot* discussed fourteen diverging channels [twelve from the rectified classical channels and two from the *Ren* (任) and *Du* (督) channels], plus the large network vessel of the Spleen (脾之大络). The concluding phrase of the text is, “all these fifteen network vessels (...)”, from which we can see that in *The Conduit Vessels*, the meanings of “channel branches” and “network vessels” have become

mixed up and undistinguishable. Since in the above three acupuncture formulae, the points of the Heart’s network vessel are treated as the same body part for needling as the points from the Arm *Taiyin* or the Foot and Hand *Taiyin* Channels. Integrating the locations of “the Heart’s network vessel” in the *Slip* text “the Arm’s *Taiyin* is the gate (literally ‘mouth’) of channels (臂之大阴为脉口)” in the *Book One*, it can be assumed that it is possibly at around the wrist joint (i.e. Dots 35 and 36 on the Lacquered Meridian Figurine, Fig.1).

In the early Western Han dynasty, when the meridian system was undergoing drastic transmutations, the names of conduit vessels, the number of medical channels, and the circulation routes of medical channels were all constantly changing. In terms of compared names, the foot three-yin and three-yang channels were defined earlier than the hand three-yin and three-yang channels. Taking the hand three-yin and three-yang channels as an example, the changes of their names as channels in the meridian literature of various periods are shown in Table 3 (Table 3).

The *Foot and Arm* changed the titles of the eleven channels in the *Book of Channels*, replacing the Shoulder, Ear and Teeth Channel with the Arm *Taiyang*, Arm *Shaoyang* and Arm *Yangming* Channel. The *Book Two* also changed these three classical trunk channels to Hand Large Yang, Hand *Shaoyang* and Hand *Yangming* Channel in response to the requirement over time that the meridians be extended to the ends of the limbs. And finally there is the change from “Arm” to “Hand” in the names of meridians. However, judging from the text “the circulation of the meridian channels and the respective main ailments”, it seems that the change in textual content preceded the changes of the Meridians’ names.

4 Conclusion

To sum up, the “*Fanyin* Channel” from the *Biographies of Bian Que and Cang Gong*; the “inter-meridian arm yin diverging channel” in the *Book Two*; and the “Heart’s Network Vessel” in *Needling Numbers* could all be alternative names of the Heart-Regulated Channel before it was included in the conduit vessel (meridian) system of twelve channels. Once these names of channels, just as those in the *Book of Channels*, i.e., the Shoulder, Ear, and Teeth Channel, were renamed and replaced by “Arm Major Yang”, “Arm *Shaoyang*” and “Arm *Yangming*” respectively, the old meridian names were discarded and fell out of use.

For the classical physician scholars during the Qin and Han dynasties, one more conduit vessel in the meridian system meant that, throughout their clinical diagnosis, they needed to pay more attention to the additional channel’s [problems of] “vessels passing each other (相脉之过)”. Therefore, from the perspective of those physicians’ diagnosis of ailments, the continuous growth of branch and network vessels in the meridian system was, in fact, a reflection of the increasing complexity of diseases. If one accepts the view that, in the ancient period, the *Qi* (汽) entry and exit ports of medical channels were sites of both channel diagnosis and channel therapy, then the over one hundred dots marked on the Lacquered Figurine of Tianhui show that, during the time of the *Tianhui Medicine Slips*, the therapeutic sites (acupoints) that classical physician scholars had to diagnose or select during their clinical treatments had begun to increase exponentially (Note 3). From the perspective of ideas and concepts, the contents in *Book One* had already closely integrated the complexion-pulse diagnosis with the five *Zang* organs and five complexions, and with the four seasons and five directions—that is, with theories of Five Phases that circulated widely during the Western Han dynasty, and with concepts of space and

Table 3 Changing names of hand three-yin and three-yang channels in the Genre about Medical Channels

Books	Names of Conduit Vessels					
<i>Book of Channels/ Yin-Yang</i>	Shoulder Channel (肩脉)	Ear Channel (耳脉)	Teeth Channel (齿脉)	Arm Huge Yin Channel (臂巨阴之脉)	Arm <i>Shaoyin</i> Channel (臂少阴之脉)	/
<i>Foot and Arm</i>	Arm <i>Taiyang</i> Channel (臂泰阳脉)	Arm <i>Shaoyang</i> Channel (臂少阳脉)	Arm <i>Yangming</i> Channel (臂阳明脉)	Arm <i>Taiyin</i> Channel (臂泰阴脉)	Arm <i>Shaoyin</i> Channel (臂少阴脉)	/
‘Channels’ of <i>Tianhui Slips</i>	?	?	Arm <i>Yangming</i> (臂阳明)	?	?	?
<i>Book Two</i>	Han Major Yang Channel (手大阳脉)	Hand <i>Shaoyang</i> Channel (手少阳脉)	Hand <i>Yangming</i> Channel (手阳明脉)	Arm Major Yin Channel (臂大阴脉)	Arm <i>Shaoyin</i> Channel (臂少阴脉)	Heart-Regulated Channel
<i>Conduit Vessels of Divine Pivot</i>	Small Intestine Channel of Hand <i>Taiyang</i> (小肠手太阳之脉)	<i>Sanjiao</i> Channel of Hand <i>Shaoyang</i> (三焦手少阳之脉)	Large Intestine Channel of Hand <i>Yangming</i> (大肠手阳明之脉)	Lung Channel of Hand <i>Taiyin</i> (肺手太阴之脉)	Heart Channel of Hand <i>Shaoyin</i> (心手少阴之脉)	Heart-Regulated Hand <i>Jueyin</i> Channel with Heart-Enclosing Network (心主手厥阴心包络之脉)

time—to form the early theoretical system of complexion (color) and channel (pulse) diagnosis. In the social background of the Western Han, when the idea of the correspondence between Heaven and humans was advocated, also an unavoidable trend was that the twelve channels in medical classics were analogously connected with concepts of twelve water channels, twelve months, and twelve earthly branches, etc. (Note 4) Therefore, the changes of the names of medical channels and the number of conduit, branch and network vessels must have been influenced by both clinical practice and the need to establish a theoretical system.

Notes

1. The *Classic of Foot and Arm Eleven-Channel Moxibustion* from Mawangdui (Foot and Arm for short), and A (甲) and B (乙) versions of *Yin-Yang Eleven-Meridians Moxibustion Classic* (Yin-Yang for short). The bamboo slips from the No. 247 Han Tomb on Zhangjiashan are the *Book of Channels*, which shared the same origin as versions A and B of *Yin-Yang* transcribed for the transmission of acupuncture literature. The *Tianhui Medicine Slips* contains *Book One* and *Book Two* in its own version of *Book of Channels*. In order to differentiate them from *The Conduit Vessels of Miraculous Pivot*, the *Classic Channels* remnants in the *Tianhui Medicine Slips* are referred to as *Tianhui's Classic Channels*. The above medical literature mentioned in this paper to discuss the circulation in conduit (meridian) and network vessels and the respective ailments, is thus all referred to here as unearthed literature of the medical channel genre.
2. *Ke Zi* (Engraved Line Zi): one of the numbered meridian lines marked on the Lacquered Figure of Tianhui; for details of the numbering, see “Lacquered Meridian Figurine” in the Appendix of *Tianhui Medicine Slips* (Book Two), p. 179.
3. If the root-branch method of diagnosing conduit vessels is used, the eleven-channels system of Zhangjiashan's *Book of Channels* mentions 44 diagnostic or therapeutic sites.
4. This comparison of the twelve conduit vessels to the twelve numbers is found in the chapters of *Miraculous Pivot* such as *Conduit Vessel Branches*, *Conduit Vessel Water*, *Discussion on Seas*, *Yin-Yang and Clear vs. Turbid* and *Evil Attacks*, etc.

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Ethical approval

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Author contributions

ZHOU Qi drafted and reviewed the article, Lena Springer translated and modified the article.

Conflicts of interest

The authors declare no financial or other conflicts of interest.

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A Set of Acupuncture Needles in the Late Qing Dynasty Collected by George Soulié de Morant

WANG Han^{1,2}, PANG Yichao¹, ZENG Ruilin^{1,3}, WU Kai^{1,*}

Abstract

In the early 20th century, French vice-consul George Soulié de Morant encountered acupuncture during his visit to China, and then brought it back to France. After more than a century, his collection was transported from Paris, France to Kunming, China, and later recognized as a Chinese national third-class precious cultural heritage. Currently housed in the Museum of Western Studies on Chinese Medicine at Yunnan University of Chinese Medicine, this set of instruments includes one needle holder converted from a fan-shaped holder, ten acupuncture needles, and eleven paper tags handwritten in English with names of diseases and body parts. This article attempts to present the foundational information and historical significance of this collection of this set of late Qing dynasty acupuncture instruments by reviewing the collection and related research on acupuncture instruments, consulting acupuncture professionals, measuring the detailed information of the set of instruments, and employing a method of translating and summarizing the content of the attached tags.

Keywords: George Soulié de Morant; Qing dynasty; Acupuncture needles; Traditional Chinese medicine; France; Tags

1 Introduction of George Soulié de Morant and acupuncture in Europe

In 2010, the United Nations Educational, Scientific and Cultural Organization (UNESCO) included Acupuncture and Moxibustion of Traditional Chinese Medicine in the Representative List of the Intangible Cultural Heritage of Humanity.¹ As the main tool used in acupuncture treatment, the shape and craftsmanship of acupuncture needles embody the crystallization of ancient Chinese wisdom. Studying acupuncture needles not only helps people from all walks of life understand the world's development history of acupuncture, but also helps inherit and carry forward traditional Chinese medicine culture. It has both medical and humanistic values.²

The acupuncture instruments studied in this article were originally collected by the Father of Acupuncture in Europe George Soulié de Morant (Fig. 1). He studied

Chinese under the influence of the French poetess Judith Gautier, the first female academician of the Académie Goncourt. Later, by the suggestion of Judith Gautier, he entered the Institut National des Langues et Civilisations Orientales (法国国立东方语言文化学院 National Institute for Oriental Languages and Civilizations) to further his studies in Chinese. In December 1901, he was sent to Beijing-Hankou Railway Company (Beijing) as a translation secretary, and was later sent to Shanghai and Kunming for work. In his book *L'Acupuncture Chinoise* (《针灸法》 *Chinese Acupuncture*) (Fig. 2), he mentioned



Figure 1 Photo of Soulié de Morant wearing an official uniform (source with permission from: the Museum of Western Studies on Chinese Medicine).

¹ Institute of Western Studies on Chinese Medicine, Yunnan University of Chinese Medicine, Kunming 650500, China; ² Sujian Hospital of Traditional Chinese Medicine, Sujian 223800, China; ³ Macheng Hospital of Traditional Chinese Medicine, Macheng 438300, China
* WU Kai, E-mail: wukai0923@foxmail.com
ORCID: 0000-0003-3194-3856

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Figure 2 Photograph of the manuscript of Soulié de Morant's *L'Acupuncture Chinoise* (《针灸法》 *Chinese Acupuncture*) (source with permission from: the Museum of Western Studies on Chinese Medicine).

that shortly after arriving in Beijing, he witnessed a cholera epidemic. The remarkable therapeutic effects of acupuncture treatment during this epidemic impressed him deeply.³ His eight-year (1901-1909) diplomatic and translation career in China provided him with many conveniences for studying acupuncture.⁴ After returning to France, he not only wrote books and gave lectures, but also received patients in hospitals and his residence. He became the first Frenchman to establish an acupuncture theoretical system and conduct acupuncture clinical practice in France and even Europe.^{5,6} Because of his achievements in acupuncture, he was nominated for the Nobel Prize in 1950.⁷ In 2011, Professor Horting, a scholar in France, was commissioned by Yunnan University of Traditional Chinese Medicine to obtain a batch of Soulié de Morant's relics in Paris, France, including his collection of books, manuscripts, photos, etc., and this set of acupuncture instruments was among them.

The first Western literature on acupuncture was in the late 17th century. The first mention of acupuncture therapy was in *Les Secrets de la Médecine des Chinois Consistant en la Parfaite Connaissance du Pouls* (《中医诊脉秘法》 *The Secrets of Chinese Medicine: A Perfect Understanding of Pulse*) in 1671.⁸ In 1682, illustrations of meridians and acupoints appeared in *Specimen Medicinae Sinicae, sive Opuscula Medica ad Mentem Sinensium* (《中医药例集与中国人思想的简明医书》 *A Sample of Chinese Medicine, and Brief Medical Works According to the Mind of the Chinese*) by Michał Piotr Boym.^{9,10} The first Western monograph on acupuncture was *On Acupuncture: Treatment of Rheumatism* (《论

针灸: 风湿病的治疗》) written by Dutchman Willem Ten Rhyne and published in 1683, which included an illustration of acupuncture instruments.¹¹ In 1729, German naturalist Engelbert Kaempfer discussed acupuncture in *De Beschryving van Japan* (《日本风土记》 *The Description of Japanese Local Culture and Geography*). The book included illustrations of acupuncture instruments and acupoints. There was also a chapter on the use of acupuncture to treat acute abdominal pain.¹² In 1825, French physiologist Jean Baptiste Sarlandière published a book titled *Memoires sur L'electropuncture* (《电针术回忆录》 *Memoirs on Electropuncture*) which included a model of the human body for acupuncture and a diagram of acupuncture needles.¹³ There have been many books on traditional Chinese medicine (TCM) and acupuncture published overseas since then, but there are few documents or artifacts that record ancient or modern acupuncture needles that have spread overseas.

In France, attitudes towards acupuncture have gone through a process of gradual transformation from initial curiosity to widespread recognition. In eighteenth-century France, thanks to the tireless efforts of Louis Berlioz and others, acupuncture gradually gained recognition in the medical community and was successfully integrated into medical practice. In the nineteenth century, there was a growing interest in acupuncture in the French medical community. Medical experts such as Jules Cloquet and Jean-Baptiste Sarlandière worked on the improvement of acupuncture techniques, and made them widely used in clinical treatment. In the twentieth century, the research and practice of Nguyen Van Nghi and others

further promoted the widespread dissemination of acupuncture knowledge, laying a solid foundation for the integration of TCM and modern Western medicine. It is worth mentioning that George Soulié de Morant played a key role in the revival of acupuncture in France in the 1930s. The status of acupuncture within the French medical community has gradually solidified, after which some hospitals in Paris began to practice acupuncture. His contribution directly led to the establishment of many acupuncture schools that integrated science and traditional methods.¹⁴

2 The study of history and development of acupuncture needles

There are few records of acupuncture needles that have spread overseas in Chinese research, and more emphasis is placed on filiform needles (毫针) while ignoring the study of other needles and needle materials in the Nine Needles (九针).¹⁵ Researchers have analyzed 170 documents related to ancient acupuncture needles from 1979 to 2011 from the perspective of bibliometrics. Among them were 82 articles of theoretical discussions and 71 clinical discussions. The content mostly revolved around the origin and function of acupuncture needles, with less discussion on material technology.² Metal acupuncture needles were first recorded in the Bronze Age.¹⁶ Early metal acupuncture needle artifacts still exist, such as a bronze needle discovered in Inner Mongolia in 1978 (collected by the Shaanxi Medical History Museum), and Western Han gold and silver medical needles unearthed from the tomb of Liu Sheng, Prince Jing of Zhongshan in Mancheng, Hebei Province (河北满城中山靖王刘胜墓) in 1968 (collected by the Hebei Provincial Museum).¹⁷ In addition, there are *Zhui Xing* (锥形 conical) and *Zhen Xing* (针形 needle-shaped) acupuncture needles listed in Wu Qiupeng's (伍秋鹏) article.¹⁸ The *Jiu Zhen Tu* (九针图 *The Illustrations of the Nine Needles*) depicted in the *Zhen Jiu Zhai Ying Ji* (《针灸摘英集》 *A Collection of the Past Clinical Acupuncture Techniques*) edited by Du Sijing (杜思敬) in the Yuan dynasty is the earliest existing ancient diagram of the Nine Needles in China.¹⁹ Comprehensive medical cultural relics collections such as *Zhong Guo Zhen Jiu Shi Tu Jian* (《中国针灸史图鉴》 *Illustrated Chinese Acupuncture History*), *Zhong Guo Yi Xue Tong Shi Wen Wu Tu Pu Juan* (《中国医学通史·文物图谱卷》 *A General History of Chinese Medicine: the Volume of Cultural Relics Atlas*), *Zhong Hua Yi Xue Wen Wu Tu Ji* (《中华医学文物图集》 *A Photo-collection of Historic Relics of Chinese Medicine*), etc., do not include artifacts of acupuncture needles from the Ming and Qing dynasties. Detailed discussions on artifacts of acupuncture needles from the Ming and Qing dynasties are only found in Wu Qiupeng's article.²⁰

Nowadays, the China Acupuncture Museum still has *Jin Zhi Hao Zhen* (金质毫针 gold filiform needles)

from the 1950s and silver needles as thin as a hair from Japan.²¹ The Acupuncture Research Institute of the Chinese Academy of Chinese Medical Sciences keeps the famous *Jin Yin Hao Zhen* (金银毫针 gold and silver filiform needles) used by Zhu Lian (朱琏), a famous acupuncture expert who made them in the 1930s and 1940s, and used them in Yan'an(延安).²² According to the author's investigation, there are relatively few unearthed or ancient acupuncture needle artifacts that have been preserved or identified to date. There are even fewer acupuncture needle artifacts from the Qing dynasty that have returned from overseas, and scholars rarely study them.

3 Research methods

Based on relevant literature on acupuncture needles and previous research on this set of acupuncture needles, the following research methodology protocol is proposed. Firstly, the study observes each component of the set, including needle containers, needles, and tags. Then, it uses precision instruments to measure their length and weight, and record as well as translate the text on the attached labels. The authors consult experts in cultural relic identification, TCM acupuncturists, as well as professionals in museums both domestically and internationally to obtain identification and handwritten textual evidence.

In addition to visual observation, the XTL-I continuous variable magnification stereomicroscope (magnification 7.5X-35X) was used to conduct an in-depth exploration of the entire set of acupuncture needles at different magnifications, including embroidery on the needle holder, fabric, ribbon, as well as the needle body, handle, and tip. An electronic eyepiece (wide-angle field of view: WF10X) was used to take photos and videos of it.

The authors take the acupuncture needles out of the needle holder, lay them flat and neatly, and number the acupuncture needles from 1 to 10, ordered from the longest to the shortest (Fig. 3). A Pentax-K5lls (DA17-50 mm) SLR (single-lens reflex) camera is used to shoot from above, ensuring that the details of each part of the needle holder and acupuncture needle, as well as the front and back information of the tag, are clear enough. A digital caliper (Pro's Kit, PD-151) and an electronic scale (Sunny Hengping Instrument, FA2104) are used to measure the length, quality, etc. of the needle holder, acupuncture needle, and tag respectively.

According to English writing habits and context, the text on the tag is recognized. For difficult-to-recognize handwritten letters, Dr. Mike Cummings, director of the British Medical Acupuncture Society (BMAS), and Dr. Peter Eckman, an American acupuncturist, were consulted separately. The authors translated the full text into Chinese, and sorted the information into Tables 3 and 4.



Figure 3 The needle holder and ten needles with labels of blue writing (source with permission from: the Museum of Western Studies on Chinese Medicine).

4 The components of the set of needles

This set of acupuncture needles includes one fabric needle holder, ten metal acupuncture needles, and eleven paper tags (Fig. 3). In May 2020, this set of acupuncture needles was appraised by the Yunnan Provincial Cultural Relics Appraisal Expert Committee as a national third-level precious cultural relic. The appraisal certificate is stored in the Museum of Western Studies on Chinese Medicine of Yunnan University of Chinese Medicine. According to the embroidery and materials of the needle holder, the shape of acupuncture needles, along with the color and patina on the surface of the needle bodies, cultural relic experts determined that it was from the late Qing dynasty to the early Republic of China, with silver as its main metal component.

4.1 The Chinese silk embroidered needle holder

This needle container is about 273 mm long, about 6 mm wide, and weighs about 40g. It is flat and tubular in shape (Fig. 3 and Table 1). The main body of the silk

needle holder is embroidered with peony leaves on *Da Hong Se Su Duan* (大红色素缎 the holder cover made of red silk satin), using *Tie Bu Xiu* (贴补绣 the embroidery of stitching other clipped-and-pasted cloth on the cover) to present a three-dimensional effect. Peony is known as the “King of Flowers”, and red is the color of celebration in China. The composition is concise, with identical front and back sides. *Hei Su Duan* (黑素缎 black silk satin) are stitched over the edges of the cover, while on the top of the cover is a *Ru Yi Xiang Yun Tou* (如意祥云头 the embroider of a cloud pattern) with a slightly wide opening and an oval-shaped flat bottom on both ends of the holder. *Ru Yi Xiang Yun Tou* is beautifully shaped and resembles an auspicious cloud, symbolizing good fortune and goodness in traditional Chinese culture. Both sides are decorated with *Yin Se Pan Hua Jie Di Dai* (银色盘花结缘带 the silver silk strip woven into various patterns). There is also a button on the holder top for closing and opening. The lining is made of blue linen cloth, which is sewn in a closed manner near the opening of the needle holder.²³⁻²⁵ Under microscopic observation,

Table 1 The Chinese silk embroidered needle holder (source from: The Museum of Western Studies on Chinese Medicine)

Name	The needle holder's length (mm)	The needle holder's side length (mm)	The maximum width (mm)	The minimum width (mm)	The silk strip's length (mm)	Thickness (mm)
Parameter	273.00	232.92	62.60	42.07	435.92	25.67

the inside of the needle holder is filled with wood chips to facilitate the insertion and fixation of acupuncture needles.

4.2 Acupuncture needles

The appearance of all the ten acupuncture needles is dark brown without obvious metallic luster. The needle body can be attracted by a magnet, indicating that the needle body contains iron. All needle handles are wrapped in dark red copper wire (Fig. 4), and the needle body is straight or slightly curved with a sharp tip. Needles 1-8 have slender needle bodies and are shaped like pine needles. Needles 9 and 10 have cylindrical needle bodies, and the tips are shaped like *San Leng Shi Jian Cu* (三棱式箭镞 triangular arrowheads) with thin and sharp edges and grooves on the side. Table 2 contains the specific parameters (Table 2).

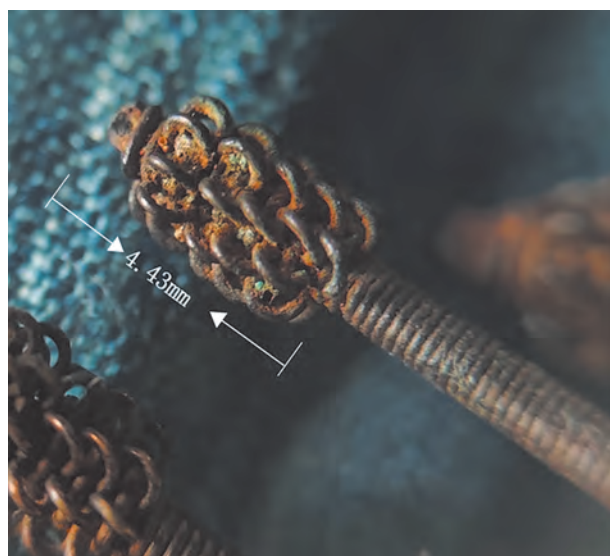


Figure 4 No.7 Needle handles (observed under higher magnification of the microscope: a 40x objective lens and a 10x eyepiece) (source with permission from: the The Museum of Western Studies on Chinese Medicine).

4.3 Text and translation of tags

Each needle handle is tied with a beige paper tag of blue pen and pencil writing in English (Fig. 1 and Fig. 2). The needle holder tag is about 71 mm long, 45 mm wide, and weighs about 0.8g. The acupuncture needle tag is about 43 mm long, 21 mm at its widest point, 17 mm at its narrowest point, and weighs about 0.2g.

4.3.1 Needle tags

The original text and translation of the needle holder tags are shown in Table 3 (Table 3).

4.3.2 Acupuncture needle tag

The blue ink handwriting on the acupuncture needle tag indicates the name of the disease, and the pencil handwriting indicates the part of the body, as stated in the needle holder tag. According to the original tag meaning, spelling and punctuation were revised to make it more in line with English word spelling and grammar habits (Table 4).

5 Discussion

The previous owner of this set of needles, prior to their return to China, was Soulié de Morant. It is not known whether he collected them during his time in China or after returning to France. On April 20th, 2012, Ariel Briens, Granddaughter of Soulié de Morant, donated this set of acupuncture needles to the museum of Western Studies on Chinese Medicine. And on April 25th, 2020, this needling set was recognized as the national third-class cultural relic in China.

5.1 About the needle holder

In ancient times, common containers for storing needles included needle cases and needle boxes, which were often made of bamboo, wood, or metal.¹⁹ There are also needle bags that resemble *Xue Ye* (靴掖 wallets

Table 2 Acupuncture needles (source from: The Museum of Western Studies on Chinese Medicine)

No.	The needle body's length (mm)	The needle handle's length (mm)	The needle end's length (mm)	The needle body's diameter (mm)	The needle's weight (g)
1	200.41	26.21	18.77	0.88	1.1798
2	146.46	19.26	8.27	0.90	0.8940
3	112.82	19.48	8.05	0.89	0.7683
4	81.99	14.58	7.08	0.59	0.2857
5	65.00	14.94	6.99	0.72	0.3333
6	51.22	12.70	5.98	0.60	0.2023
7	39.09	9.76	4.43	0.55	0.1344
8	20.47	9.99	5.10	0.58	0.1134
9	50.48	29.18	7.43	2.03	1.9174
10	26.28	14.50	5.58	1.20	0.4420

Table 3 The original handwriting text of the needle holder tags (source from: The Museum of Western Studies on Chinese Medicine)

Blue ink writing (The original text)	Pencil writing (The original text)
The old Instruments, for Chinese doctors to Acupuncture, whole 10 pieces of a suit, Keep in the Embroidered Bag.	The (Blue-ink/pencil) to showing of (Name of diseases/parts Body).

Table 4 The original handwriting text of the needles (source from: The Museum of Western Studies on Chinese Medicine)

No.	Blue ink writing	Pencil writing
1	Headach[e], Cellular[,]dropsy, Abdominal dropsy.	Abdomen or belly. Head
2	Cough, Asthma[,] Croup, Vomiting blood[,] hemorrhage or bleeding.	Thorax or Chest &; Back. Ribs
3	Menorrhagia, Amenorrhoea, Dyspepsia.	Navel &; Nipple or teat.
4	plague or pestilence. Yellow fever, Jaundice	Loins Shoulder, Breasts.
5	Delirium tremens. Epilepsy, Insanity or madness.	Back of the neck, Back, Vertebral Column, Spinal Column or Chine.
6	paralysis of one side, paralysis, Gout, Rheumatism.	Elbow, humerus, leg, hip, Femur.
7	Earach[e], Deafness, Sore eyes, difficult[s]micturition[,] Fainting[,] quinsy.	Ear, Eyes, penis, vagina, middle finger, Jaw, Neck, throat.
8	loss of Consciousness, Convulsion, Cold, Catarrh, Gonorrhoea, Gravel,	Temple, Brain, Cheek, Nose, Tonsil, fingers.
9	Nausea, Vomiting, Purging or opening abscess. (Removing Blood.)	Arm, Calf of the leg.
10	Diarrhea, Sun-storke[stroke], Cholera, (Removing blood.)	Tongue.

that can be placed in boots), but the embroidered needle holder described in this article has not been seen before. It is believed to be a modified embroidery fan-shaped holder, and the other end is designed to be sealed so that embroidery needles can be inserted, fixed, and protected. When this set of needle tools is collected, 10 embroidery needles are inserted inside the embroidery fan-shaped holder, so this article refers to it as an “embroidered needle holder” for consistency.

5.2 About acupuncture needles

The corresponding tags of the needles mention the body parts and disease names suitable for each acupuncture needle. Since this set of needles is from the Qing dynasty, this article will compare it with the records in the large medical series *Yu Zuan Yi Zong Jin Jian Ci Jiu Xin Fa Yao Jue* 《御纂医宗金鉴·刺灸心法要诀》 *Golden Mirror of the Medical Tradition Compiled by the Emperor: Essential Teachings on Acupuncture and Moxibustion*

compiled by the Qing government (Part 5: Volume 79~Volume 86).

The original text reads:

“长针式图。注：经之八曰，长针者，取法于綦针，针长七寸，为其可以取深邪远痹也。

English translation: Illustrations for long needle note that in the eighth line of the Nine Needle Therapy Formula, the long needle, derived from the *Qi* needle (綦针 long needle used to sew clothes in ancient times), is seven *Cuns* (寸, 1 *Cun* approximates 3.33 cm) long, which can be used to remove pathogenic factors and illness in the depths.

毫针式图。注：经之七曰，毫针者，尖如蚊虻喙，取法于毫毛，长三寸六分，其必尖如蚊虻喙者，取其微细徐缓也。

English translation: Illustrations for filiform needle note that in the seventh line of the Nine Needle Therapy Formula, the filiform needle, derived from fine hair, is 3.6 *Cuns* long and as sharp as a mosquito or a gadfly’s mouthparts. During the filiform needle treatment, the needle should be inserted slowly with slight lifting and thrusting.

锋针式图。注：经之四曰，锋针者，取法于絮针，刃三隅，长一寸六分，其上去八分，下留八分，刃三隅者，盖直壮而锐，可以泻热出血也。

English translation: Illustrations for ensiform needle note that in the fourth line of the Nine Needle Therapy Formula, the ensiform needle, derived from the *Xu* needle (絮针 short needle used to sew cotton-wadding quilts), is 1.6 *Cuns* long. The needle has a triangular prism with three edges and is 0.8 *Cuns* away from both the tip and end of the needle. The three straight, thick and sharp blades are used to relieve heat and blood.”²⁶

From the length of the needle body, needles 1 and 2 are more in line with the description of “long needles”. According to the tag content, needle 1 is suitable for the abdomen and head, and is used to treat headaches and abdominal edema. Needle 2 is suitable for the chest and back and is mainly used to treat coughs, asthma, wheezing, hemoptysis, bleeding and other diseases. The relatively thick muscles of the abdomen, chest and back are more in line with the records. From the shape, needles 3-8 are more in line with the description of “filiform needles”. Regardless of the shape or length of the needle body, needles 9 and 10 are very close to “ensiform needles”. According to the tag content, needles 9 and 10 are both suitable for bleeding, which is consistent with the record in the above-mentioned *Yu Zuan Yi Zong Jin Jian*.

5.3 Tag handwriting

Regarding the tag content, we compared Soulié’s manuscript handwriting and believed that it was not written by him personally. Therefore, the author inferred that this set of needles should have been collected or studied by others. The tags are mostly written in blue ink and pencil on both sides, occasionally appearing on the same side. It is believed that it is due to the completion of the

other side when one side is not enough to write. Some words are misspelled, which may be due to the author's mistakes or the spelling of words in different eras.

The Science Museum Group in the UK has a collection of needles that have something in common with the needles described in this article.²⁷ The following information was obtained by contacting staff at the Museum and the Wellcome Collection in the UK.

The needle set is in the Wellcome Collection in the UK, but is currently on long-term loan to the Science Museum Group in the UK. According to the information provided by Ms. Stephanie Cornwell, archivist of the Wellcome Collection, and Ms. Selina Hurley, curator of medicine at the Science Museum Group, the needle set was acquired by Mr. Harry Greenwood Butterfield in 1976. The set contains nine acupuncture needles and is stored in a blue fabric case. The set also has labels attached to the ends of the needles, which bear messages written in pencil, resembling handwriting of two individuals, with the names of body parts. All of them are the names of body parts, except for “four limbs”, “mouth”, “knee” and “instep”, which can be recognized so far. “Instep”, all other labeling information is mentioned in the needle labels of our collection.

The results shows that foreigners were quite interested in Chinese acupuncture implements and used to annotate the relationship between different needles and the treatment of diseases with labels.

6 Conclusion

In conclusion, the holder of the acupuncture needles in the collection of the Museum of Western Studies on Chinese Medicine is exquisite, and the shape of the acupuncture needles is similar to those commonly used in modern clinical practice. The needle holder is made from a modified embroidered fan-shaped cover, and the attached English tags are also detailed. It is extremely rare to find such a complete set of acupuncture needles from the late Qing dynasty within collections in France, and they are also uncommon in China. This may reflect the collector's curiosity about the use and treatment of acupuncture needles, and it has certain reference value for the study on the dissemination and influence of acupuncture and TCM in the Western world.

Through the collection of this set of acupuncture needles by the collector Soulié de Morant in this article, it provides new insights into the evolution of acupuncture instruments and the history of their global dissemination. Currently, it is common to use uniform sizes of disposable needles for treatment in hospitals, and the needles discussed in this article are quite rare, except that most of them are used in collections as works of art. This set reflects a period of aesthetic and therapeutic avenues in the evolution of needles, and also bears witness to a period in the history of the development of acupuncture in China and the West.

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Ethical approval

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

Author contributions

WANG Han drafted and corrected the manuscript; PANG Yichao and ZENG Ruilin were responsible for proofreading; WU Kai guided and revised this article. All the authors have read and agreed to the published version of the manuscript.

Conflicts of interest

WU Kai 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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An Investigation of Moxibustion Treatment for Abscesses in the Song Dynasty: Focusing on the “*Jiu Ai Tu*”

WANG Li^{1,*}

Abstract

Jiu Ai Tu (*The Moxa Treatment*) from the Song dynasty is the earliest surviving painting that focuses on the subject of acupuncture and moxibustion. This paper takes the medical activities depicted in the artwork as its research object and systematically analyzes the external treatment methods for abscesses during the Song dynasty reflected in *Jiu Ai Tu*. By examining the understanding of abscesses during that period, the paper explores the level of development in external medicine techniques. By analyzing the medical awareness and behaviors of patients when facing such severe illnesses, it aims to explore the societal cognition and experiences regarding health and disease. The paper attempts to present the folk medical ecology of the Song dynasty represented by *Jiu Ai Tu*.

Keywords: *Jiu Ai Tu*; Abscess; Moxibustion method; Traditional Chinese medicine; Chinese external medicine

1 Introduction

Abscess is one of the main diseases in Chinese external medicine, roughly corresponding to bacterial infections in modern medicine whose cardinal symptoms include local redness, swelling, pain, and suppuration. If left untreated or treated incorrectly, it may develop into sepsis, septic shock, and even be life-threatening. In ancient times, when medical technology and hygiene conditions were underdeveloped, abscess was not only common but also life-threatening. Therefore, the disease has been taken seriously by medical experts throughout history, and many external medicine treatises were even named directly after it, such as *Ji Yan Bei Ju Fang* (*《集验背疽方》 Collected Formulas for Carbuncle of Back*), *Yong Ju Fang Lun* (*《痈疽方论》 Discussion on Abscess Formulas*), and *Yong Ju Bian Yi Lun* (*《痈疽辨疑论》 Discussion on Abscess Identification*).

The theoretical basis for treating abscesses originated from unearthed pre-Qin documents, with relevant records found in the bamboo and silk medical book *Wu Shi Er Bing Fang* (*《五十二病方》 Formulas for Fifty-two Diseases*). The earliest record of using moxibustion to treat abscesses can be found in the *Ling Shu Yong Ju* (*《灵枢·痈疽》 Miraculous Pivot: Abscesses*), which says, “When an abscess develops for four or five days, apply *ruò* (焫) to it”.¹ “*ruò*” here refers to moxibustion. The external medicine treatise *Liu Juan Zi Gui Yi Fang* (*《刘涓子鬼遗方》 Liu Juanzi’s Ghost-bequeathed Formulas*), from the Wei and Jin periods, advocated that abscess should be treated with moxibustion once it had been diagnosed, and early detection and early treatment with moxibustion was advisable. It stated that, “receiving the moxibustion treatment on the first or second day, all patients will be saved; on the third or fourth day, six or seven out of ten will be saved; on the fifth or sixth day, only three or four out of ten; after the seventh day, moxibustion is no longer effective”.² Later medical practitioners largely adhered to this theory.³⁻⁵ During the Song dynasty, several Chinese external medicine treatises emerged, making breakthroughs in the understanding of the etiology, pathogenesis, and treatment methods of abscesses. *Wei Ji Bao Shu* (*《卫济宝书》 A Treasure Book on Life Preservation and Reliefs*) pioneered the “bamboo hobbyhorse-riding moxibustion therapy (骑竹马灸法)”, while *Bei Ji Jiu Fa* (*《备急灸法》 Moxibustion Therapy for Emergency*) dedicated a section to the treatment of all abscesses with this method. The Song dynasty government attached great importance to the development of medicine and adopted various measures to encourage the open dissemination of medical knowledge. Through

¹ Institute of Acupuncture and Moxibustion, China Academy of Chinese Medical Sciences, Beijing 100700, China

* WANG Li, E-mail: 58771873@qq.com
ORCID: 0000-0002-6377-9352

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these efforts, medical ecology for various social strata, especially the general public, improved significantly. The number of resident physicians in local medicine shops and itinerant doctors increased rapidly. Among them were highly skilled practitioners and those who gained fame for treating specific diseases, becoming essential components of the medical system in the Song dynasty. The painting *Jiu Ai Tu* (灸艾图 *The Moxa Treatment*) (Note 1) by Li Tang (李唐) in the Southern Song dynasty vividly depicts the scene of itinerant doctors treating abscesses for villagers (Fig. 1).

Paintings are common visual historical materials, which are increasingly valued by medical historians. Images have the characteristic of being more visual and vivid. From the perspective of archaeology of knowledge, medical-themed artworks created by non-medical artists, especially the social life traces intentionally or unintentionally revealed in realistic images, often contain key historical information, which can compensate for the shortcomings of textual materials and even be more authentic than textual materials. As a rare pictorial form of medical history document in the history of acupuncture and moxibustion, as well as in the history of the treatment of abscesses, *Jiu Ai Tu* vividly represents the medical activities of acupuncture and moxibustion and medical technique for treating abscesses in folk in the Southern Song dynasty with vivid brushwork and rich details. The treatment methods depicted in the painting, such as direct moxibustion with multiple moxa cones, purulent discharge by acupuncture, and purging heat with plaster, directly reflects the development and application of acupuncture and moxibustion techniques in the Song dynasty, which is of great significance for understanding the development of the diagnosis and treatment of abscesses as well as the level of folk medical practices in Song dynasty. The diagnosis and treatment

of abscesses had become relatively mature by the Song dynasty, and paintings with medical activities as the theme emerged one after another, with *Jiu Ai Tu* being a representative one.

Jiu Ai Tu, also known as *Cun Yi Tu* (村医图 *Village Therapist*) or *Zhi Ai Tu* (灸艾图), is a colored silk painting, measuring 68.8 cm in height and 58.7 cm in width. It does not bear the artist's signature or seal but only two collection seals, one stating *Qian Long Yu Lan Zhi Bao* (乾隆御览之宝 *Imperial Collection of Qianlong*) and the other *Bao Yun Lou Shu Hua Lu* (宝蕴楼书画录 *Treasured Collection of Baoyun Building*). Currently housed in the Taipei Palace Museum, it is the earliest surviving painting with the theme of medical activities of acupuncture and moxibustion. Records related to the painting can be found in the *Sheng Jing Gu Gong Shu Hua Lu* (《盛京故宫书画录》 *Catalog of Paintings and Calligraphy in Shenyang Imperial Palace*): "In Song dynasty, Li Xigu's (李晞古) Moxibustion and Acupuncture Illustration..."⁶ And at present, the academic community generally attributes the artwork to the Southern Song period judging from its spatial structure, painting style and technique, and morphological details of line drawings.⁷

Scholars of traditional art history usually discuss *Jiu Ai Tu* within the framework of genre painting.⁸⁻⁹ Genre painting, characterized by a realistic style, aims to objectively reflect social life and cultural landscapes of the time. Genre painting itself carries a wealth of historical information, serving as a historical mirror that cannot be replaced by textual knowledge. In recent years, more and more medical history researchers have paid attention to *Jiu Ai Tu* and conducted detailed research on acupuncture and moxibustion treatment, both doctors and patients, diseases, acupoint selection, and the medical system of the Song dynasty.¹⁰⁻¹⁴ This paper will start with moxibustion treatment of abscesses, explore the level of external treatment technology and present the folk medical ecology in the Song dynasty.



Figure 1 *Jiu Ai Tu* (灸艾图 *The Moxa Treatment*) housed in the Taipei Palace Museum (source with permission from: <https://hongyeshan.com/post/16876.html>).

2 Theory and method of external treatment for abscesses as shown in *Jiu Ai Tu*

The painting depicts a total of six figures, including one doctor, one assistant (apprentice), one patient and three villagers. In the painting, the healer is seen holding needling instrument and making an incision on the patient's back, with two moxa cones burning at the affected area. The patient in sitting position, with his upper body bare, displays such a painful expression with clenched teeth and a contorted face, that the viewers of the picture may feel as if they could hear his screams in reality. The three villagers nearby are either tightly gripping the patient's arms or stepping on the patient's legs to help to immobilize the patient. The artist vividly presents a scene of an

itinerant doctor applying moxibustion to a patient in a realistic style (Fig. 1).

In the painting, the treated area presents with localized elevation of the skin, diffuse swelling without evident protrusion, and a dark skin color. *Ling Shu Yong Ju* holds that pathogenic coldness invades the meridians, causing stagnation of qi (气) and blood (血), leading to the formation of abscesses.¹⁵ *Zhu Bing Yuan Hou Lun* (《诸病源候论》 *Treatise on the Origins and Manifestations of Various Diseases*) states: “When the five viscera (五脏) are not in harmony, it leads to abscesses. In the case of carbuncle, the skin at lesion location is swollen and as hard as the neck skin of a cow. When the six *Fu* organs (六腑) are not in harmony, it leads to abscesses. Abscesses are marked by swollen, thin and bright skin appearance... if it is deep, it is a carbuncle; If it is shallow, it is an abscess.”¹⁶ It is speculated that the old patient in the painting should suffer from abscesses with the affected area on the upper back.

Abscesses that occur on the back are particularly dangerous, with carbuncles being more severe than abscesses, often leading to fatal outcomes. *Ling Shu Han Re Bing* (《灵枢·寒热病》 *Miraculous Pivot: Cold-heat Diseases*), mentioned that: “There are five regions in the body. First, the *Fu Tu* (伏兔 musculus rectus femoris); second, the calf; third, the back; fourth, the Back-*Shu* points (背俞穴) corresponding to the five viscera; fifth, the nape. Those who have abscesses in these five parts may die.”¹⁷ It is believed that abscesses occurring on the back are often incurable. The back is considered as the window of the five viscera and six bowels, with the Back-*Shu* points of the five viscera and six bowels located on both sides of the spine, 1.5 *cun* (寸) away from the spine. Abscesses that occur at these points are highly prone to spreading toxins along the meridians, entering the organs and causing death. According to *Liu Juan Zi Gui Yi Fang*: “The hornet’s nest flat-abscess erupts on the back, spreading from Xinshu (BL15) to the shoulder bone, if not treated within twenty days, causing death... Acanthoid abscess erupts at the Feishu (BL13), if not drained, leading to death within twenty days... Dragon-like abscess erupts on the back, spreading from Weishu (BL21) to Shenshu (BL23), causing death within twenty days if not drained.”¹⁸ In *Bei Ji Qian Jin Yao Fang* (《备急千金要方》 *Important Formulas Worth a Thousand Gold Pieces for Emergencies*), “People initially do not take abscess seriously, but it grows gradually with each passing day and may cause death even within ten days.”¹⁹ In the Southern Song period’s *Bei Ji Jiu Fa*: “There are cases where abscesses occur on the back. This is a slowly progressing disease, but its eruption is also violent. People often overlook the subtle signs and are unaware of its occurrence. Once it suddenly erupts and swells, it is too late to treat... In impoverished villages and remote alleys, where can one seek medical assistance?”²⁰ The onset of abscesses is insidious, and sometimes, it starts as tiny grain-like papules, making

it difficult to detect. However, its progression is rapid, and once it erupts, it is often too late to treat (Note 2). According to *Shi Ji Xiang Yu Ben Ji* (《史记·项羽本纪》 *Records of the Grand Historian: Annals of Xiang Yu*), “...before reaching Pengcheng (彭城), Fan Zen (范增) died from abscess on his back”.²¹ If the situation is real for the noble or landlord class, it would be far worse the poor. For them, suffering from abscesses often means waiting for death with no hope for treatment. The situation was full of misery and too painful to describe. If an itinerant doctor happened to pass by at that time, it was like grabbing a life-saving straw.

After clarifying that the elderly man in the painting is suffering from an abscess on the back, let’s take a look at the itinerant doctor’s treatment method. In the center of the picture, two moxa cones are placed in line on the affected area’s skin, and ignited simultaneously for moxibustion. The doctor holds the lower edge of the abscess with his left hand and a needle in his right hand, and the lower part of the needle tip has already penetrated into the skin (Fig. 2), suggesting an ongoing incision at the affected site. Judging by the doctor’s demeanor, it is evident that he is well-versed in treating such ailments. In view of the highly mobility of the itinerant doctors, the medicines and tools they can carry with them have the characteristics of high frequency of use, quick effect, and good curative effect, suggesting that abscesses were still a common external disease in the Song dynasty. This may be attributed to the prevalent practice of ingesting medicinal substances since the Wei and Jin periods (Note 3), along with the social upheavals and migrations of people during the Song dynasties. Furthermore, external treatment methods such as moxibustion and acupuncture, especially the former, played a crucial role in abscess treatment. Many medical practitioners believed that early and large amount of moxibustion could not only accelerate the process of its suppuration and rupture, but also prevent the abscess from invagination which may exacerbate the condition.

As for the specific treatment measures, the traditional Chinese medicine (TCM) practitioner in the painting chooses moxibustion. In fact, most of external medicine



Figure 2 Part of *Jiu Ai Tu*: the itinerant doctor treating the abscess with moxibustion (source with permission from: <https://hongyeshan.com/post/16876.html>).

monographs throughout history have advocated the application of moxibustion in the treatment of abscesses, and believed that it should be started as soon as possible. *Ji Yan Bei Ju Fang* of the Song dynasty argued that moxibustion was superior to medication in treating abscesses, and pointed out that moxibustion should be started within the first day of the onset of the disease. If there was any hesitation, the abscess would become as large as a finger with dispersed toxins and the prognosis will be poor.²² Chen Ziming (陈自明), a Southern Song doctor, particularly recommended moxibustion in his specialized work on abscesses, *Wai Ke Jing Yao* (《外科精要》 *Essentials of External Medicine*), asserting that moxibustion could facilitate the circulation of the heart's channel, which may give a way to discharge toxin and prevent its internal attacks, thus preventing the disease from developing into a severe case.²³ *Shen Jiu Jing Lun* (《神灸经纶》 *Classic of Divine Moxibustion*) also noted, "Moxibustion, if applied within the first seven days, could break up the solid masses and eliminate knots, and expel toxins from deep site to surface in most cases, and its efficacy surpasses that of medication".²⁴ It has been repeatedly emphasized in the literature that moxibustion should be used for the treatment of abscesses as early as possible, and the earlier the moxibustion is applied, the better the outcome and the higher the survival rate. The effect of moxibustion is better than that of medicine, which has also been recognized by many doctors. In terms of the amount of moxibustion applied, most physicians advocated for intensive moxibustion. If the abscess is initially painful, moxibustion should be continued until there is no pain. If there is no pain in the beginning, moxibustion should be applied until pain is felt.²⁵ It can be seen that the moxibustion treatment depicted in the *Jiu Ai Tu* is an objective reflection of the external treatment of abscesses in the Song dynasty.

In terms of techniques as shown in *Jiu Ai Tu*, two moxa cones are ignited at the same time to provide strong stimulation with a focus on the lesion so as to acquire a quick effect. Chen Ziming advocated for applying moxibustion by spreading and burning moxa on the abscess directly or putting a layer of garlic between moxa and skin as an intermedium. Garlic, being pungent and warm, can activate the medicinal effects of moxa and remove swelling and abscesses. Returning to *Jiu Ai Tu*, the method of simultaneously igniting two moxa cones (or more, depending on the size of the abscess) is not only more convenient and flexible in operation but also allows for easier observation of the local skin and muscle morphology after moxibustion. It serves as a variation for outdoor moxibustion in sitting positions. In fact, the method of igniting multiple moxa cones simultaneously was documented as early as in the *Mai Shu* (《脉书》 *Book of Channel*), unearthed from the Zhangjiashan Han tomb (张家山汉墓). The earliest using of moxibustion to treat abscesses was recorded in *Liu Juan Zi Gui Yi Fang*, as that moxibustion should be applied to the

protruding part of the abscess, then to the four sides, six sides, or eight sides of the affected area depending on the size of the abscess. Similar methods are found in the Jin and Tang dynasties' books such as the *Zhou Hou Bei Ji Fang* (《肘后备急方》 *Emergency Formulas to Keep Up One's Sleeve*), *Qian Jin Fang* (《千金方》 *Important Formulas Worth a Thousand Gold Pieces*), and *Wai Tai Mi Yao Fang* (《外台秘要方》 *Formulas of Arcane Essentials from the Imperial Library*). These methods involve simultaneous moxibustion at the affected area, 1 *cun* above and below, or 1 *cun* to the left and right, covering the surrounding areas of the lesion, acupoints, and even corresponding acupoints on the front or back of the body. The scope of treatment is no longer limited to external abscesses but extends to urgent conditions such as sudden death and acute chest pain, as well as internal diseases such as cholera and vomiting. For example, in Volume 1 of *Zhou Hou Bei Ji Fang*, there is a method for treating a patient who fell into a coma suddenly: "Measure the width of the patient's mouth with a rope to get individual measurement unit with which to locate the four points on each side of the patient's navel. Then, apply moxibustion all four points in the same time period, with three moxa cones burning on each point successively."²⁶ During moxibustion, multiple moxa cones are ignited simultaneously, as depicted in the *Bei Shi Ku Li Zhuan Li Hong Zhi* (《北史·酷吏传·李洪之》 *Northern History: Ruthless Officials: Li Hongzhi*). During moxibustion treatment, moxa cones were applied to 2 *cun* around the affected part, more than ten locations on the hands and feet, all at once.²⁷ Renowned Tang dynasty poet Han Yu (韩愈) also used the phrase "as fierce as a hunting fire encircling" to describe the scene of a moxibustion practitioner applying moxa cones.

In addition to moxibustion therapy, *Jiu Ai Tu* also depicts an essential step in the treatment of abscesses—incising the abscess to drain pus. The needle instrument used in the picture looks like a knife, with ridge in the middle, and the handle is wound with brownish-yellow thread-like materials, forming loop at the end. From the doctor's grip and the operational angle, it can be inferred that one side of the instrument is a cutting edge, primarily used for cutting, scratching and incising (Fig. 3).

As to the question what exactly are the tools used by the medical practitioner in *Jiu Ai Tu*, there are mainly



Figure 3 The needle Instrument in *Jiu Ai Tu* (source with permission from: <https://hongyeshan.com/post/16876.html>).

two points of view based on current research: *Chan* needles (鑱针) or *Pi* needles (铍针). Both belong to ancient nine-needle instruments, but they have different shapes and usage (Fig. 4).

The *Chan* needle, characterized by a large head and a sharp tip, is primarily used when there is heat in the head and body or the disease is on the skin with no fixed location. During treatment, it is inserted relatively shallowly, just as deep as piercing the skin. When dealing with early-stage abscesses, the *Chan* needle is often used to pierce and let blood, aiming to release heat. Yan Jianmin (严健民) believes that, according to *Ling Shu Jiu Zhen Lun* (《灵枢·九针论》 *Miraculous Pivot: Nine Needles*), the purpose of using a *Chan* needle with a “large head and sharp tip” to puncture an abscess is to “prevent it from sinking deeply and allowing *Yang Qi* (阳气) to escape”. *Chan* stone (鑱石), historically used by the ancient *Yue* (越) people to perform shallow piercings on the body surface according to certain patterns (similar to tattooing), can improve the local “obstruction” and “stagnation” state in the initial stages of swelling abscesses with yang syndrome,²⁸ but its superficial stimulation is not the method of incising abscesses and draining pus which is described as “puncture the abscess according to its size when there is pus inside it”. On the other hand, the *Pi* needle (Note 4), modeled after a sword’s edge with blades on both sides, is often used to puncture and drain abscesses, releasing pus and blood. *Yi Xin Fang* (《医心方》 *Ishinpo*) suggests using the *Pi* needle as fire needle. Depending on the size of the abscess, a sharp-edged needle, a round-sharp needle or a *Pi* needle is selected and heated before incising the abscess to drain pus.²⁹ During the Song, Jin, and Yuan periods, it was commonly used for draining pus and blood. In the Ming and Qing dynasties, the application of the *Pi* needle expanded further, not only for puncturing and piercing but also for cutting and incising as a knife used in external medicine. It was even used as a laryngeal needle.³⁰

According to the *Ling Shu Jiu Zhen Lun*, the *Pi* needle is 4 *cun*s long and 2.5 *fen* (分) wide. “Ten *fen* make 1 *cun*, ten *cun*s make 1 *chi* (尺).”³¹ The width-to-length ratio is about 1:16, which is quite different from the needle instrument depicted in the picture.

Upon closer examination, there are several needles of different shapes inserted into the doctor’s hair bun in

the painting—one with a sharp tip resembling a sword, one with a slightly pointed tip, and another with a flat circular tip (Fig. 3). These needles are different from the nine needles recorded in the *Huang Di Nei Jing* (《黄帝内经》 *The Yellow Emperor’s Inner Classic*), and there are no similar needle tools found in the literature, so their specific functions are not very clear. It is speculated that they might be medical instruments used mainly in folk medicine. In the Song dynasty, with the advancement of metallurgical technology, it was common for medical professionals to innovate and create external treatment tools according to clinical needs. In *Wei Ji Bao Shu*, there is a special article on “needle-forging” (打针法), which introduces the creation of “*Yang* needles” (阳针) for needling carbuncle, “*Yin* needles” (阴针) for needling abscess, “pus-extracting needles” (取脓针) specifically for draining pus, and “*Lei Feng* needles” (雷锋针) for needling peculiar-shaped abscess.³² Unfortunately, the detailed data of the needles is not indicated in the book, and no illustrations are drawn.

In *Wai Ke Jing Yao*, it is suggested that, when treating abscesses with thin capsule, it is advisable to use a needle to puncture and drain the pus. For carbuncles with abscesses, it is recommended to use a *Yin Bi* (银蓖) needle (a set of silver needles which is similar to a hairpin or a comb) to puncture and drain the pus. The dimensions and shapes of the two needle instruments are described as follows: “For abscesses with pus, it is supposed to treat with a needle which is made of horse bits (马衔铁), shaped like a leek leaf, with sharp edges on both sides, to incise about five or six *fen* both horizontally and vertically... For carbuncles with pus, it should be cauterized with a *Yin Bi* needle which is two-*cun* wide and six-*cun* long. During the treatment, the needle is heated until red-hot, and swiftly pressed and incised to drain the pus.”

Rupturing abscesses to drain pus is a crucial step in abscess treatment. Due to the lack of metallurgical technology, the needles used for incision and drainage of abscess during the Song dynasty were mostly made of horse bits, which was prone to breakage, and not sharp enough. This kind of needle is inconvenient to use and easy to cause damage to healthy tissue. Additionally, due to limited hygiene conditions, at that time, there are infection incidents from time to time. Therefore, in the Southern Song period, some medical practitioners

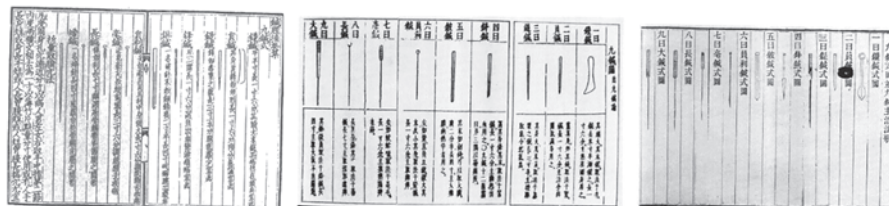


Figure 4 Nine-needle diagrams in *Zhen Jing Zhai Ying Ji* (《针经摘英集》 *Essence Excerpted from Acupuncture Classics*), *Lei Jing Tu Yi* (《类经图翼》 *Pictorial Appendices to ‘The Classified Classic’*), and *Yi Zong Jin Jian* (《医宗金鉴》 *Golden Mirror of the Medical Tradition*) (source with permission from: *Essence Excerpted from Acupuncture Classics*³³ and *Illustrated Book on the Historical Development of Chinese Acupuncture Science*³⁴).

believed that recklessly using knives and needles to rupture abscesses and drain pus led to death in eight or nine out of ten cases. As a result, they suggested using cauterization to drain the pus. Cauterization involved using a branding iron at a higher temperature, which had a sterilizing effect on the affected area. To some extent, this method avoided the drawbacks of using needles made of horse bits, making it a progress in the external treatment of abscesses.

The technique of cauterizing to drain pus also had a place in the treatment of abscesses in the Song dynasty, utilizing various tools, such as iron chopsticks or *Yin Bi* needle. The choice of tools appears arbitrary but it has a deeper meaning: The pinhole made by pointed needle is easy to close after cauterization, limiting the effect of pus drainage. Therefore, tools with flat and round heads are recommended. When cauterizing, the needle should be inserted horizontally with the opening located below the abscess, allowing the pus and blood to flow out easily without leaving any residue.³⁵ The key lies in ease of operation and facilitating pus drainage (Fig. 5). The needles inserted in the hair bun of the doctor in *Jiu Ai Tu* resemble the cauterizing tools with flat and round heads, but whether they are the cauterizing tools commonly used by the practitioner is uncertain due to the lack of conclusive evidence. It is only listed for reference among colleagues.

In the predominantly yellowish picture of *Jiu Ai Tu*, the red dots on the plaster signboard carried by the small apprentice become the only bright color in the entire picture. External application of medicated plasters directly on the affected area has a direct and rapid effect, which cannot be matched by that of oral medications. The roles of plaster application in the treatment of abscesses include three aspects: (1) When the abscess has not yet formed pus, the application of plaster should focus on clearing heat, dispelling pathogenic factors, reducing swelling, and relieving pain, making it easy to dissipate. An example is the *Song Zhi Tie Fang* (松脂贴方 turpentine stickers) for treating swollen and painful abscesses. Chen Shigong (陈实功) of the Ming dynasty believed that abscesses are most susceptible to invasion by wind and

coldness. Therefore, in the early stage or after moxibustion treatment, the abscess should be covered with Taiyi plaster (太乙膏), which can draw out toxins, promote pus drainage and also defend against wind and coldness. If there is no pus, Huafu Zixia plaster (化腐紫霞膏) can be added to enhance the therapeutic effect. (2) After the abscess has formed pus, the application of plaster can promote toxin expulsion and pus drainage. According to the *Wai Tai Mi Yao Fang*, “for the application of medicinal plasters, a hole should be made in the center of the sore, allowing the hot qi from the sore to be released ... For deep sores, fill it with cotton wool soaked with ointment, and pus will naturally come out. Continue the treatment until the pus is completely drained, and then healthy tissue will grow. For shallow sores which is not deep enough to fill in, just smear it with the ointment three times a day until the necrotic tissue is cleared up”.³⁸ From an operational perspective, this appears to be a form of external drainage. (3) When the abscess has ruptured, plaster application can promote tissue regeneration and wound healing. Additionally, *Wai Ke Zheng Zong* (《外科正宗》 *Orthodox Lineage of External Medicine*) mentions the use of an Iron-bucket plaster (铁桶膏), which is applied around the abscess after it has ruptured to tighten its root and base so as to reduce the wound area gradually.³⁹

3 Exploration of the folk medical ecology in Song dynasty represented by *Jiu Ai Tu*

The understanding of abscesses to a certain extent reflects the level of external medical technology during the certain period, and patients' medical awareness and behaviors when facing such serious illnesses are related to the overall societal experiences and perceptions of health and disease. In the Song dynasty, the official system tried to meet people's medical needs from various aspects such as medical institutions, medical education, economy trade, welfare assistance, etc., promoting the development of the medical and health services. According to the *Meng Liang Lu* (《梦梁录》 *Dreams of Liang*), the government of the Southern Song dynasty established a Bureau of Huimin (惠民局 Bureau of People's Welfare Pharmacy) in Lin'an Prefecture (临安县), which sold commonly used medicines at low prices, to provide convenience for the public seeking medical service.⁴⁰

However, after the Song dynasty's relocation to the south, economic decline resulted in a challenging health-care situation for ordinary people in remote towns, suburbs, and rural areas. This was particularly true for the majority of the population, including ordinary people and the “*Yi Ren* (役人 laborers)” group (Note 5). The social structure of Southern Song society was complex, with rural households accounting for the majority. Based on different economic capabilities, they were



Figure 5 Cautery tools in *Yang Yi Da Quan* (《医医大全》 *Complete Collection of Sores Doctor*) and cauterization tools in *Yang Ke Hui Cui* (《疡科会粹》 *Assemble of Ulceraceae*) (source with permission from: *Complete Collection of Sores Doctor*³⁶ and *Assemble of Ulceraceae*³⁷).

divided into four categories: *Guan Hu* (管户 official households), *Shang Hu* (上户 upper households), *Xia Hu* (下户 lower households), and *Ke Hu* (客户 migrant households). Among them, the *Xia Hu* and *Ke Hu*, who had little or even no income, accounted for over 90% of total households, forming the main social groups in the Southern Song society.⁴¹ They lived in poverty, and during difficult times, they often could not afford the basic means of production (Note 6), let alone medical treatment. For the general public, it was common to rely on itinerant doctors who were available in the community. They provided simple and convenient treatments and charged lower fees, and there were also those who specialize in treating certain diseases, and the therapeutic effect was reliable. In remote and impoverished areas lacking medical resources, itinerant doctors became an indispensable presence. As seen in *Jiu Ai Tu*, living in thatched cottages in rural areas, the villagers in shabby clothes with a looking of having gone through many hardships, belonged to the poor class at the bottom of society. When they suffered from diseases, they either received no treatment, or could only afford the services of itinerant doctors, which was in line with the social context of the time.

In *Wai Ke Jing Yao* by Chen Zimin of the Southern Song dynasty, the “Outline of Medications for Treating Abscesses” detailed the prescriptions used by “families living in prefectures or counties and having financial strength” and those used by “people in remote villages and those without financial means”.⁴² As for “farmers and elderly villagers in remote areas”, medications were often chosen from what was readily available in the countryside.

Compared to the Jin and Tang dynasties, there are fewer records of moxibustion therapy in the Song dynasty, especially the significant reduction in the use of simultaneously igniting multiple moxa cones, which may be related to the popularization of formulas and the intense pain caused by moxibustion. From the Song dynasty onwards, the government prioritized the development of medical technology, engaging in the verification and editing of medical books, establishing bureaus for the correction of medical texts, unifying standards, and formulating regulations. There was a focus on acupuncture education, promoting clinical practice, and witnessing significant advancements in acupuncture studies. Additionally, the prosperous commerce of the Song dynasty facilitated the nationwide distribution of medicinal herbs. The government even established bureaus for the benefit of the people, creating favorable conditions for the application of herbal prescriptions. Meanwhile, the severe pain caused by moxibustion led to a decrease in the willingness of affluent patients to undergo moxibustion therapy. The proportion of moxibustion in medical activities declined. In order to alleviate the pain associated with moxibustion, Dou Cai (窦材) introduced *Shui Sheng San* (睡圣散 Sleep Saint Powder)⁴³ which could be taken orally before moxibustion to induce immediate

drowsiness and an unawareness of pain. Despite these efforts, moxibustion no longer seemed to be the preferred treatment for the general population. According to the *Bei Ji Jiu Fa*, it states, “People of wealth and arrogance are often afraid of pain; when they are suggested to receive moxibustion treatment, they angrily reject it”.⁴⁴ After the Song dynasty moved south, moxibustion therapy was no longer popular among the upper class, and some medical practitioners openly expressed doubts about moxibustion: “Most people undergo moxibustion without proper measure, enduring pain for nothing, and rarely achieving recovery.”⁴⁵

However, although moxibustion therapy is extremely painful, it is still seen as a good remedy for curing diseases and saving lives by the impoverished population. This is the mass foundation on which moxibustion therapy flourished among the people in the Song dynasty. The creation and transmission of *Jiu Ai Tu* also suggest that, although more and more wealthy people tended to choose less painful internal treatment when seeking medical help, moxibustion therapy is still the first choice for the poor people.

The doctor in *Jiu Ai Tu*, although dressed in tattered clothes, has a firm gaze, operates calmly, and uses diagnostic and therapeutic techniques that are very consistent with the content recorded in medical records at that time, indicating that he has the opportunity to have access to relevant diagnostic and therapeutic knowledge and practice it, and has a high level of diagnostic and therapeutic skills. This is related to the openness of medical knowledge in the Song dynasty. The Song dynasty government placed significant emphasis on the dissemination and promotion of medical knowledge. Multiple directives were issued to summarize medical experiences from previous dynasties and to revise, correct, publish, and distribute medical books. Due to the high price of books, ordinary medical practitioners often could not afford them, so Emperor Zhezong of Song (宋哲宗) ordered that commonly used medical books be re-proofread and sold in small print at a lower cost for medical practitioners.⁴⁶ Emperor Taizong of Song (宋太宗) changed the attitude towards medical techniques adopted by his previous generation, like “keeping them secret” and “passing them on only to certain individuals”, and ordered people from different social classes in various prefectures and counties to contribute medical works and promised generous financial rewards or official positions as rewards. Emperor Huizong of the Song (宋徽宗) dynasty took out secret prescriptions from the imperial palace and extensively collected good folk remedies, compiling them into two hundred volumes of *Sheng Ji Zong Lu* (《圣济总录》 *Comprehensive Recording of Divine Assistance*). All these measures played a positive role in the production and circulation of knowledge, significantly facilitating the dissemination of medical knowledge across different social strata. It is the popularization and openness of medical knowledge led

by the government that enables itinerant doctors at the bottom of the medical community to have the opportunity to access the highest level of medical knowledge and apply it to their practice.

Nevertheless, the survival environment for itinerant physicians during the Song dynasty was not favorable. In contrast to the discrimination against medical practitioners (Note 7) during the Tang dynasty, the Song dynasty placed great importance on medicine from top to bottom, considering it a benevolent art and a skill of Confucian scholars. The social status of the doctors' group was significantly elevated. However, this elevation was primarily limited to physicians specializing in *Fang Mai*, while surgeons, who often had to perform crude tasks such as incising abscesses, draining pus and blood, and excising necrotic tissue, were often looked down upon as uncultured and vulgar people. Chen Ziming of the Southern Song dynasty stated when discussing the treatment of abscesses: "Abscesses are more severe than other diseases. The sages considered them the foremost illnesses among miscellaneous diseases... Nowadays, in rural areas, there are many individuals from the lower classes who specialize in this field... Most of them are vulgar and ignorant people..." He did not hide his contempt for surgeons specializing in abscess treatment. This situation was not unique to the Song dynasty, as in 12th-century Western Europe, for example, surgeons were on par with barbers and were considered the lowest class of medical practitioners, facing discrimination and exclusion from internal medicine doctors.⁴⁷

4 Conclusion

Jiu Ai Tu stands as the only visual representation of the history of acupuncture and moxibustion as well as the treatment history of abscesses, which has high and irreplaceable historical materials and evidence value. The illustration realistically depicts the treatment methods for abscesses in the back. The treatment of abscesses originated from ancient medical texts written on bamboo slips and silk, and matured during the Wei and Jin dynasties. The surgical treatise *Liu Juan Zi Gui Yi Fang* systematically proposed methods and precautions for treating abscesses, and later generations of medical practitioners often revered its teachings with little innovation. *Jiu Ai Tu* emphasizes three steps in abscess treatment: Early and intensive moxibustion, incision and pus drainage, and post-moxibustion application of poultices. It is simple and efficient, requiring no exceptionally high technical expertise, and can be easily mastered by the general public, thus facilitating its spread to more people. The illustration breaks the stereotype of people's attitudes towards moxibustion in the Song dynasty, and to some extent promotes the use and promotion of moxibustion therapy. Academically, *Jiu Ai Tu* demonstrates the technique of applying multiple moxa cones simultaneously, providing a visual representation of this method

documented in ancient medical texts, such as those found in bamboo slips, *Zhou Hou Bei Ji Fang*, *Qian Jin Fang*, and *Wai Tai Mi Yao Fang*.

Although it is generally believed that the folk application of moxibustion therapy began to decline from the Song dynasty (Note 8),⁴⁸ analyzing the medical activities depicted in *Jiu Ai Tu*, it seems that this is not the case. In terms of abscess treatment, several representative external medicine works that I have read highly praise the positive role of moxibustion in treating abscesses: blocking development, preventing aggravation, promoting recovery, and even preventing the occurrence of abscesses. The folk medical activities represented by *Jiu Ai Tu* directly confirm the widespread application of moxibustion in abscess treatment. Thanks to the popularization and dissemination of medical knowledge, the itinerant physicians in the Song dynasty had access to medical knowledge and put it into practice, and their technical level was greatly improved, thus becoming a powerful supplement to the folk healthcare system.

The four types of needles used by the physicians in *Jiu Ai Tu* are not documented in literature. Their shapes are similar to that of the nine-needle but have distinct differences, indicating that they were tools modified according to clinical needs. They may also provide image reference about the evolution and development of surgical knife and needling instruments.

Notes

1. The painting named "*Zhi Ai Tu* (灸艾灸)" in *Sheng Jing Gu Gong Shu Hua Lu* (《盛京故宫书画录》 *Catalog of Paintings and Calligraphy in Shenyang Imperial Palace*) and Taibei Palace Museum. Researchers also refer to it as "Village Doctor Painting". The main treatment method presented in the painting is moxibustion. The practitioner is an itinerant doctor who does not have a fixed place for medical practice. The medical system in the Song dynasty was relatively complete, and the government often equipped medical personnel in local prefectures and counties, such as neighborhood doctor, county doctor, township doctor, village doctor, and others. They have a fixed consultation room. When seeking medical treatment, it is necessary to go to the doctor's consultation room or invite the doctor to the patient's home. The treating place in the painting is outside the thatched cottage. Besides, the small apprentice in the painting carries a plaster signboard with him, which give the facts that the doctor in the painting is not a village doctor. Therefore, the author tends to use the name "*Jiu Ai Tu*".
2. From the perspective of modern medicine, abscesses are often caused by *Staphylococcus aureus* infections. When bacteria invade subcutaneous tissues, they form localized infectious lesions. At this stage, the manifestations are relatively mild. If left untreated, there are two possible outcomes: first, the skin may be continuously eroded, eventually rupturing and discharging pus,

leading to self-recovery. Second, if inflammation spreads, and bacteria enter the bloodstream, it may cause sepsis, septicemia, systemic inflammatory response syndrome, and life-threatening ultimately multiple organ failure. Abscesses occurring on the back are particularly dangerous. The skin on the back is thicker than that in other parts of the body, which make it more resistant to erosion. When infection occurs, bacteria often cause disseminated lesion in the body. Additionally, due to the proximity of the back to the chest and abdominal cavities, bacterial colonies are prone to implantation into the cavities and organs. So, in ancient times, abscesses erupting on the back were often fatal.

3. The trend of ingesting medicines began during the Wei and Jin dynasties, flourished in the Sui and Tang dynasties, and persisted into the Song dynasty, showing signs of gradual decline. For more details, refer to: Du WY, ed. *Journal of Tang History* (唐史论丛). Xi'an: Shaanxi Sanqin Press; 2014. p. 297. Chinese. Zhou SZ. *Health Preservation Monthly* (养生月览). Beijing: China Medical Science and Technology Press; 2021. p. 7. Chinese. The gradual application of external elixirs in clinical practice in the Song dynasty, with a predominant focus on internal administration. See: Chen GF. *Study of Taoist Canon Origins* (道藏源流考). Taipei: Xiangsheng Press; 1975. p. 398. Chinese. Further exploration of the Han, Tang, and Jin dynasty alchemical formulas and their integration with traditional medical practices can be found in He ZZ. Prescription of external alchemy among Han and Tang dynasty in the clinical practice of TCM (汉唐金石丹方与传统医学临床). *Journal of Guangxi University for Nationalities (Natural Science Edition)*, 2021;27(2):15–23. Chinese.

4. Also known as *Fei* needle (錐针). Some records mentioned the use of *Fei* needles for the purpose of lancing and draining abscesses. Regarding the term *Fei*, according to the *Zi Hui* (《字汇》 *Vocabulary of Chinese Words*), its pronunciation derived from the character *Fu* (父) and *Wei* (尾), and sounds close to *Fei* (费), meaning a small nail. Additionally, it also pronounced as the combination of *Pian* (篇) and *Yi* (夷), which sounds like *Pi* (铍). The *Su Wen* (《素问》 *Basic Questions*) commentary states: *Bian Shi* (砭石 stone needle), is now replaced with *Fei* needle. According to the *Zhen Jing ZhaiYing Ji* (《针经摘英集》 *Essence Excerpted from Acupuncture Classics*), *Fei* needle is one of the nine needles, also known as the *Pi* needle.

5. Since the Spring and Autumn periods, the concept of “four occupations”—scholars, farmers, artisans, and merchants—had already emerged due to different divisions of labor in society. Among the “four occupations”, scholars held a slightly higher status, while the others involved in farming, trading, and other activities were considered equals among the common people. For more details, refer to: Huang Z. *Hang's Daily Record* (黄氏日抄). Volume 78. p. 708–787. Chinese. (Song) Ye Shi categorized common people into three classes: commoners,

military personnel, and laborers. Among commoners, there were further distinctions based on different occupations. For more details, refer to Ye S. *Collection of Yeshi* (叶适集). Beijing: Zhonghua Book Company; 1961. p. 652. Chinese.

6. According to Xu Song (徐松), the economic conditions of typical rural households were generally poor. Items such as iron agricultural tools and plowing oxen required borrowing capital for acquisition. Some farmers joined together, pooling their resources to collectively purchase and raise oxen, sharing the animals for common use. For more details, refer to: Xu S. *Collected Drafts of the Song Hui Yao* (宋会要辑稿). Beijing: Xinhua Bookstore; 1957. p. 5914–5918. Chinese.

7. Under the influence of Confucianism's “emphasizing virtue and slighting tools” philosophy, the status of physicians has experienced a declining trend since the Han and Jin dynasties. During the Tang dynasty, even literati and Confucian scholars regarded the practice of medicine as shameful. Figures like Han Yu expressed disdain, stating, “Shamans, doctors, and musicians, people of all trades, are not esteemed by gentlemen.” In the Tang dynasty, “scholars in both court and countryside were ashamed of the title of medical practitioners, which taught their younger disciples to recite short texts and compose minor essays to seek ways of advancement, neglecting the path of medical treatment.” This sentiment is elaborated in detail in Sun SM. *Important Formulas Worth a Thousand Gold Pieces for Emergency* (Photocopy) (备急千金要方·影印本). Beijing: People's Medical Publishing House; 1982. p. 401. Chinese.

8. The decline of moxibustion therapy here does not refer to the stagnation or regression of moxibustion technology and theoretical development, but rather to the narrowing of its application scope. Mr. Yu Gengzhe has provided a detailed discussion on this topic. For details, please refer to: Yu GZ. An analysis of the background of technology choice—the changing process of the moxibustion treatment in the popular medical treatment activities from Tang dynasty to Song dynasty (唐宋民间医疗活动中灸疗法的浮沉——一项技术抉择的时代背景分析). *Journal of Tsinghua University (Philosophy and Social Sciences)* 2006;21(1):62–73. Chinese.

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Ethical approval

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

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WANG Li drafted and reviewed the article.

Conflicts of interest

The author declares no financial or other conflicts of interest.

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Curved Spine: The Shape of Spine in Taoist Body Diagrams and Its Influence on Medical Body Diagrams

ZHANG Xinyue¹, ZHANG Shujian^{2,*}

Abstract

From the early Taoist diagrams of the human body to the end of the Qing dynasty and the beginning of the Republic of China, Taoists exaggerated and deformed the human spine in a shape-shifting manner. It is likely that medical practitioners were influenced by this style of representation, and there are also numerous diagrams of the human body with the curved spine in the lateral-view diagrams of viscera and *Ming Tang Tu* (明堂图 *Acupuncture and Moxibustion Chart*), which constantly show the human torso in an elliptical “egg shape”. No later than the Ming dynasty, medical practitioners began to depict the actual physiological spinal curve of the human body. By the Qing dynasty, the depiction of the spinal curve in medical diagrams of the human figure showed a tendency to part ways with the Taoist freehand style of the previous generation. Although the representation of the curve of the spine was very crude, later medical images of the human body at least gradually straightened the spine and no longer depicted it in a shape-shifting manner. However, the curved spine in Taoist diagrams of the human body continued to exist, and the presentation of the curved spine never changed. This way of depicting its appearance, which is very different from reality, is shaped by Taoism’s special way of perceiving and viewing the body, and may also contain another form of truth.

Keywords: Spine; Diagrams of human body; Taoists; Traditional Chinese medical practitioners

1 Introduction

Modern anatomy accurately describes the four standard physiological curves of the human spine, however, in the ancient body diagrams of China, multiple physiological curves of the spine do not seem to have been paid much attention. Rather, the diagrams often show an arc with only one curve. Tracing back to the early diagrams of human body, we can see that this description style may have originated from Taoism. Taoism’s understanding of the human body had shaped the ancient people’s description of the body and greatly influenced traditional Chinese medical practitioners. Even after traditional

Chinese medical practitioners had depicted the accurate spinal curve, it still maintained a certain inertia.

The description of a human body image reflects the style of viewing the body, which is an intuitive tool for analyzing the hidden conception of the body. In Li Jianmin’s (李建民) introduction to Shigehisa Kuriyama’s (栗山茂久) *The Expressiveness of the Body* (《身体的语言》), he mentioned that one of the approach to studying the history of the body is “to analyze the traditional way of looking at the body in medicine through body-related diagrams from the perspective of images”.¹ From the perspective of images, this paper attempts to focus on the shape of the curved spine in Taoist body diagrams and analyzes its theoretical source and influence on the shape of spine in body diagrams by traditional Chinese medical practitioners.

2 Spine in the Taoist body diagrams

French scholar Catherine Despeux once described her surprise at China’s traditional medical body diagrams in *Xiu Zhen Tu: Taoism and the Human Body* (《修真图: 道教与人体》): “Whether in the traditional medical body diagrams or in the Taoist body diagrams, the shape of the human body is always shown as an oval egg, and in most cases the limbs are not drawn.” She believed that this actually reflects the myth and cosmology of the Taoist about the time when the universe was first established, “which directly described this chaotic world as egg-shaped”.² The spine is a segment of arc-shaped

¹ Institute of Chinese Medical Literature and Culture, Shandong University of Traditional Chinese Medicine, Jinan 250355, China;

² Institute of Acupuncture and Moxibustion, China Academy of Chinese Medical Sciences, Beijing 100700, China

*ZHANG Shujian, E-mail: njrb@163.com
ORCID: 0000-0003-3216-722X

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structure that forms an egg or the edge pasted on the side of the egg shape.

According to modern anatomy, in the four standard physiological curves of the spine, both cervical and lumbar curves present physiological lordosis, and thoracic and sacral curves present physiological kyphosis. In the Taoist body diagrams currently available, the four natural physiological curves of the human spine have been ignored and integrated, and almost all of the spines present a semi-elliptical shape. Except for some exceptional cases with the cervical curve, the Taoist body diagrams directly connect the thoracic curve, the lumbar curve and the sacral curve uniformly drawn as one curve, and depict the lumbar curve, which is actually lordosis, in the opposite direction, resulting in its being submerged in the semi-elliptical curve of the whole spine.

One of the earliest existing body diagrams in China is *Yan Luo Zi Nei Jing Tu* (烟萝子内境图 *Internal Anatomy by Yanluozi*) from the Taoist literature, painted by Taoist of Five dynasties, recorded in *Za Zhu Jie Jing* (《杂著捷径》 *Shortcut to Miscellaneous Writings*) of *Xiu Zhen Shi Shu* (《修真十书》 *Ten Books on the Cultivation of the True Nature*) from the Southern Song dynasty, which is included in the *Taoist Canon* (道藏) (Fig.1). In the *Nei Jing Zuo Ce Zhi Tu* (内境左侧之图 *The Left Side of Internal Anatomy*), it can be seen that the 24 vertebrae of the whole spine are all in a complete and smooth semi-elliptical curve, which not only reverses the cervical curve and lumbar curve, but also exaggerates the thoracic curve and sacral curve. The 24 vertebrae are even almost connected into a semi-circle. If we piece

the images of *Nei Jing Zuo Ce Zhi Tu* and *Nei Jing You Ce Zhi Tu* (内境右侧之图 *The Right Side of Internal Anatomy*) together, it seems that we can see a complete circle.

The human body in *Huang Di Ba Shi Yi Nan Jing* (《黄帝八十一难经》 *The Yellow Emperor's Classic of Eighty-one Difficult Issues*), which was recorded in *Taoist Canon*, named after Bian Que (扁鹊) and annotated by Li Jiong (李翱), a traditional Chinese medical practitioner in the Southern Song dynasty, forms an almost standard half circle with the spine (Fig.2).

The curvature of the spine in the Taoist body diagrams is generally treated with such simplification and exaggeration. As late as the Qing dynasty, in the widely circulated *Xiu Zhen Tu* (修真图 *Diagram of Cultivation of the True Nature*) (Fig.3), not only does it lack lumbar lordosis, but even the cervical to thoracic segment is exceptionally kyphotic, making the human body look like it has severe hunchback with rickets and is suffering from neck extension forwards.

Although the *Nei Jing Tu* (内景图 *Internal Anatomy Diagram*)(Fig.4), another famous Taoist body diagram in the Qing dynasty, depicted the spine with more curves, it did not follow the actual situation but rather intends to depict the “*Chao Tian Ling*” (朝天岭 heading to the mountain towards the horizon) and “*Shang Tian Ti*” (上天梯 climb the ladder of heaven) of the Taoist internal alchemy, which are metaphors for the cultivation pathway of the midline of the human body on the back. The several curves in it seem to be metaphors for the difficulties and twists encountered in the Taoist *Jia Ji Guan* (夹脊

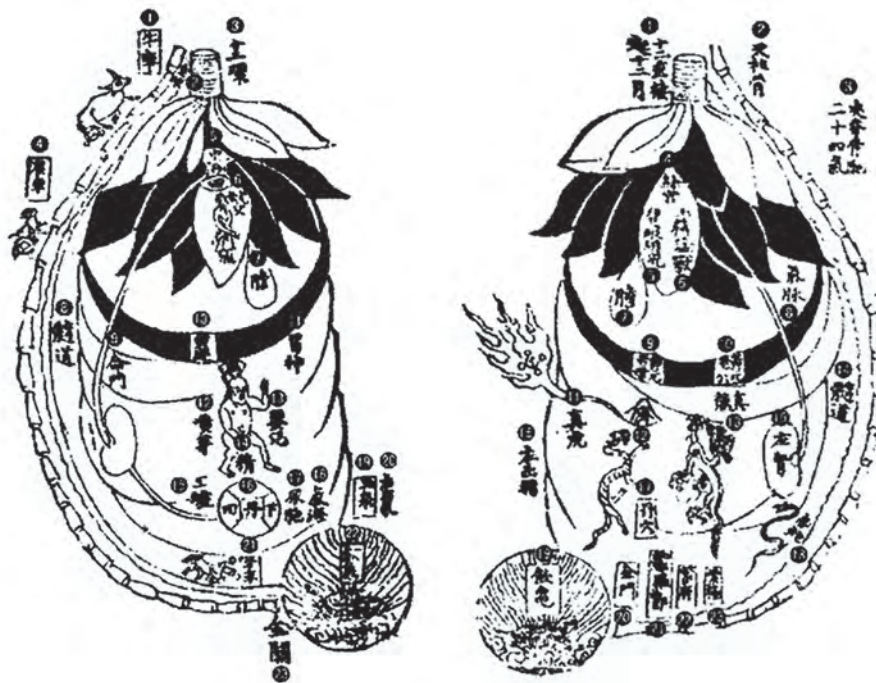


Figure 1 Five dynasties, *Yan Luo Zi Nei Jing Tu* (烟萝子内境图 *Internal Anatomy by Yanluozi*), *Nei Jing Zuo Ce Zhi Tu* (内境左侧之图 *The Left Side of Internal Anatomy*) and *Nei Jing You Ce Zhi Tu* (内境右侧之图 *The Right Side of Internal Anatomy*) (source with permission from: *Ten Books on the Cultivation of the True Nature*).



Figure 2 Southern Song dynasty, *Huang Di Ba Shi Yi Nan Jing* (《黄帝八十一难经》The Yellow Emperor's Classic of Eighty-one Difficult Issues), *Nei Jing Ce Mian Tu* (内境侧面图 Side View of Internal Anatomy) (source with permission from: *Ten Books on the Cultivation of the True Nature*⁶).

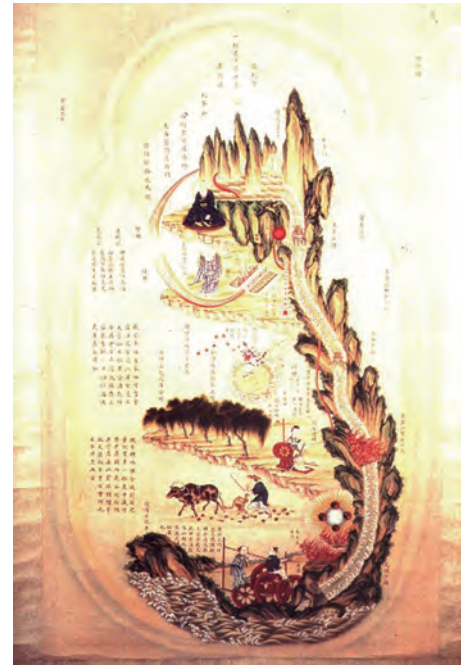


Figure 4 Qing dynasty, *Nei Jing Tu* (内景图 Internal Anatomy Diagram) painted by Ruyi Pavilion of the Qing Court, Collected in China Medical History Museum (source with permission from: *Catalogue of Ancient Medical History in China*⁶).

关 points near middle of the spine) during cultivation. The presentation of its use of landscape and geographic maps is more artistic and freehand.

3 Origins of the Taoist physical view on the curved spine

As for the reason why there are many descriptions in ancient body diagrams that are inconsistent with the modern medical understanding, in part this is merely due to the error caused by the shortage of medical technology at that time, and in part this can be said to be intentional. Japanese scholar Yoshimoto Shoji (吉元昭治) said: “If you have read books of Chinese medicine and Taoist medicine carefully, you will find that the understanding of human body in Chinese medicine and Taoism is not only in the aspect of appearance and its comparison with nature.” In particular, the understanding and description of human body in Taoism is called “strange anatomy”⁷ by Yoshimoto Shoji.

A body diagram faithfully displaying the normal physiological curves of spine in ancient China can be seen as late as *Lei Jing Tu Yi* (《类经图翼》 Pictorial Appendices to ‘The Classified Classic’) by Zhang Jiebin (张介宾), a traditional Chinese medical practitioner in the Ming dynasty, as will be described in detail in the next section. Since then, more images showing the actual curves of spine appeared in the traditional Chinese medical practitioners’ literature, while the Taoist body diagrams came down in one continuous line and had few changes. It can be seen that the ancient people did not lack an anatomical understanding of the curvature of the spine.



Figure 3 Qing dynasty, *Xiu Zhen Tu* (修真图 Diagram of Cultivation of the True Nature) in *Bei Jing Bai Yun Guan* (北京白云观 Beijing Baiyun Temple) (source with permission from: *An Illustrated Book on the Historical Development of Chinese Acupuncture*⁸).

As Taoists attach great importance to the human body, it is impossible to turn a blind eye to this. So why did Taoists consistently depict the spine of the human body in a curved way? Here, I will try to find the possible ideological sources from the Taoist theory.

First, Taoists treat human body as *Ding Lu* (鼎炉), a tripod furnace. “*Ding Lu*” is the term of external alchemy, which refers to the place where elixir is refined.⁸ Taoist practice believes that golden elixir can change the human body, “strengthen themselves with the help of external force (假求于外物以自坚固)”⁹ by refining elixirs in the *Ding Lu*. The *Dan Ding Dao Pai* (丹鼎道派 Dan Ding School) of Taoism in Wei and Jin dynasties carried forward by Ge Hong (葛洪) in the Eastern Jin dynasty attached importance to outer alchemy. After turning to the inner alchemy theory in the Five dynasties and the early Song dynasty, it changed from the original way of treating the *Ding Lu* as an external object to the human body itself, which refined the *Jing* (精 essence) and *qi* (气) in the body as medicine. Thus, the external image of the *Ding Lu* could be imagined and grafted on the human body. There are many statements about what the *Ding* and *Lu* refer to, but essentially they are all imaginations that objectified the human body. “Body as a jade stove, heart as a golden tripod (身为玉炉, 心为金鼎)”¹⁰ is a representative expression of this kind of body imagination. As for the abdomen of the stove and tripod which bears the contents, most of its edges are in outward-extending arcs. Does the depiction of the spine as an arc, which is the edge of the human body, imply the imagination of viewing the body part as stove and tripod by Taoists? The *Xia Dan Tian* (下丹田 lower elixir field) in particular plays an important role in the cultivation of Taoist inner alchemy. As the lower part of the abdominal cavity of the human body where it is located corresponds to the belly of stove, and *Zhen Huo* (真火 true fire) burns from the bottom, it can just be analogized to the fire source under the stove.

Second, Taoist constructed the pathway of the human body's essence in a ring shape, named *Zhou Tian* (周天 celestial circuit). Taoists often compare the human body to the universe. It is suspected that the phrase “the universe all relates to hand, and everything is grow out of the body (宇宙在乎手, 万化生乎身)”¹¹ already existed in the *Huang Di Yin Fu Jing* (《黄帝阴符经》 *Yellow Emperor's Scripture of the Hidden Talisman*), which is suspected to come from the Northern and Southern dynasties. Taoist imagination of human space in later generations also often appears as a sphere. The word *Zhou Tian* in ancient astronomy refers to a circle around the celestial sphere in a big ring.¹² Taoists used it for the human body, calling the cultivation of running through front and back line in the center of the body as *Xiao Zhou Tian* (小周天 lighter celestial circuit), also known as *Zhuan Lu Lu* (转辘轳 turning the well wheel) and *Zhuan He Che* (转河车 turning the river waterwheel).¹³ A saying in the Taoist classics says, “turn upside down

the wheel, fall down lamp and tree. Cosmic rotate and spirit satisfied (倒卷辘轳灯树落, 斡旋宇宙性灵圆)”¹⁴, and pursues “refining qi circular and settled (炼气圆定)”.¹⁵ These expressions all reflect the Taoist imagination about the spatial shape of the body. The *Xiao Zhou Tian* of Taoism also had an impact on traditional Chinese medical practitioners who valued the meridians. As the most valued two meridians among the eight extra meridians, the Conception Vessel (任脉) and Governor Vessel (督脉) could be called as the fourteen meridians together with the twelve regular meridians, and “establish a connection between the two meridians of Conception Vessel and Governor Vessel” became a public body knowledge. The Conception Vessel on the anterior side of the body was often not drawn in body diagrams, but formed part of the *Xiao Zhou Tian* circle in an invisible way, while what was drawn in the other part, is an arc formed by the spine and the Governor Vessel located at the same place in the middle line of the back of the human body.

In addition, Taoism pursued returning to the infant. The image of lives they admired often appears as an infant in Taoist literature. For example, there are sentences such as “twenty-four hearts in the heart ... one person in each star, add up to twenty-four stars, all look like an infant (心存二十四心.....每星中各有一人, 合二十四星, 皆如婴儿之状)”¹⁶ in the *Shang Qing Pai* (上清派 Highest Clarity Sect) Taoist classic of Eastern Jin dynasty, and “tens of thousands of divinities can be seen coming in the sky, combined with hundreds of divinities in body, shaped like an infant (乃见空中所存来者万神, 与兆身中百神, 合为一身, 状如婴儿)”¹⁷ in the *Ling Bao Pai* (灵宝派 Numinous Treasure Sect) Taoist classic of Southern dynasties of Eastern Jin. The saying from Lao Zi (老子), “The regular morality does not leave the body, and return to the state of an infant (常德不离, 复归于婴儿)”¹⁸ reflects the theory of natural relationship between human and heaven in which Taoist pursues the natural return of human nature,¹⁹ while the description of the Taoist image of the divinities as “like a newborn baby (如小儿始生之状)”²⁰ reflects the extension of this spiritual pursuit in physical form. The infant's spine has only one backward physiological curve,²¹ and the curvature is greater, which is quite similar to the spine morphology in *Yan Luo Zi Nei Jing Tu*. Will this imagination become a potential recessive projection into the expression of body diagrams? Could it be a correlation? I'd like to offer it as a conjecture here.

4 Morphology of spinal curvature in body diagrams created by traditional Chinese medical practitioners

The forms of body diagrams created by traditional Chinese medical practitioners are more diverse. According to the division of objects represented, they can be summarized as viscera diagrams, body shape

diagrams, *Ming Tang* (明堂) diagrams, and meridian diagrams.⁴ Taoism paid much attention to the internal scenery and less attention to the manifestations of limbs, meridians and acupoints. Therefore, the Taoist body diagrams could basically be compared with only part of the traditional Chinese medical practitioners' viscera diagrams (including the viscera *Ming Tang* diagrams) and meridian diagrams. The images of traditional Chinese medical practitioners' diagrams which manifest the human trunk, especially viscera, might be deeply affected by Taoist body diagrams. Such diagrams are represented by the lateral-view diagrams of viscera and some meridian diagrams and *Ming Tang* diagrams where the spine can be clearly seen. Some of the spines are still quite curved, others are relatively straight, while images attempting to represent normal physiological curves constantly appear.

There are a large number of images depicting the curves of spine like Taoism in body diagrams of traditional Chinese medical practitioners. Several influential medical books in the Ming dynasty are very representative, such as *Zang Fu Tu* (脏腑图 *Viscera Diagram*) (Fig.5) in *Yi Xue Ru Men* (《医学入门》 *Introduction to Medicine*) by Li Chan (李梴), and acupuncture texts such as the *Wu Zang Liu Fu Zhi Tu* (五藏六府之图 *The Diagram of the Five Viscera and Six Bowels*) (Fig.6) in *Zhen Jiu Ju Ying* (《针灸聚英》 *A Collection of Gems of Acupuncture and Moxibustion*) by Gao Wu (高武), and *Zang Fu Zhi Tu* (脏腑之图 *Diagram of the Viscera and Bowels*) (Fig.7) in *Zhen Jiu Da Cheng* (《针灸大成》 *Great Compendium of Acupuncture and Moxibustion*) by Yang Jizhou (杨



Figure 5 Ming dynasty, *Zang Fu Tu* (脏腑图 *Viscera Diagram*) (source with permission from: *Introduction to Medicine*²²).



Figure 6 *Wu Zang Liu Fu Zhi Tu* (五藏六府之图 *The Diagram of the Five Viscera and Six Bowels*) (source with permission from: *A Collection of Gems of Acupuncture and Moxibustion*²³).

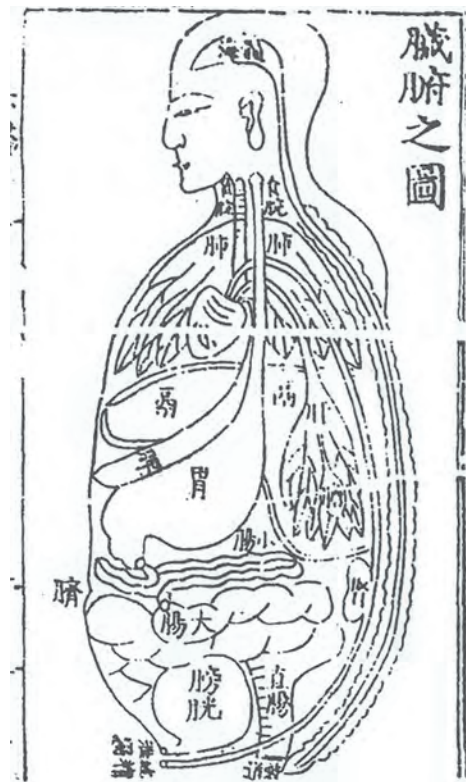


Figure 7 *Zang Fu Zhi Tu* (脏腑之图 *Diagram of the Viscera and Bowels*) (source with permission from: *Great Compendium of Acupuncture and Moxibustion* (mid. Vol.)²⁴).

继洲). The curvature in these diagrams is reduced compared with that in Taoist body diagrams. This reflected

a more realistic orientation on the one hand, and on the other hand also reflected the residual factors affected by the performance style of Taoist body diagrams.

No later than the Ming dynasty, diagrams showing the physiological curves of spine began to appear in medical literature, which is mainly manifested by the more obvious differences between thoracic curve, lumbar curve and sacral curve, it could be clearly seen that the spine was basically composed of three curves. The curvature of spine in *Nei Jing Tu* (Fig.8), a lateral-view diagram in *Lei Jing Tu Yi* by Zhang Jiebin of the Ming dynasty was already quite clear. In the Qing dynasty, it began to appear more and more, such as *Zang Fu Nei Jing Zhi Tu* (脏腑内景之图 *Diagram of the Internal View of the Organs*)(Fig.9) in *Xun Jing Kao Xue Bian* (《循经考穴编》 *Compilation of Studies of Acupoints along the Meridians*) by Yan Zhen (严振), *Nei Jing Tu* (Fig.10) in *Jing Mai Tu Kao* (《经脉图考》 *An Examination of Meridian Diagrams*) by Chen Huichou (陈惠畴), and *Du Mai Xun Xing Tu* (督脉循行图 *Diagram of the Du Meridian Pathway*) (Fig.11) in *Ci Jiu Xin Fa Yao Jue* of *Yi Zong Jin Jian* (《医宗金鉴·刺灸心法要诀》 *Golden Mirror of the Medical Tradition Essentials of Acupuncture and Moxibustion Method*) by Wu Qian (吴谦), etc. In the Republic of China, we can refer to the *Zang Fu Ming Tang Tu* (脏腑明堂图 *Diagram of the Organs and Acupoints*) (Fig.12) repainted by Hong Baorong (洪葆荣). Not until modern times did the spine description in body diagrams by traditional Chinese medical practitioners tend to follow the realistic road officially.

Although the spine depicted in body diagrams by traditional Chinese medical practitioners tends to be realistic,

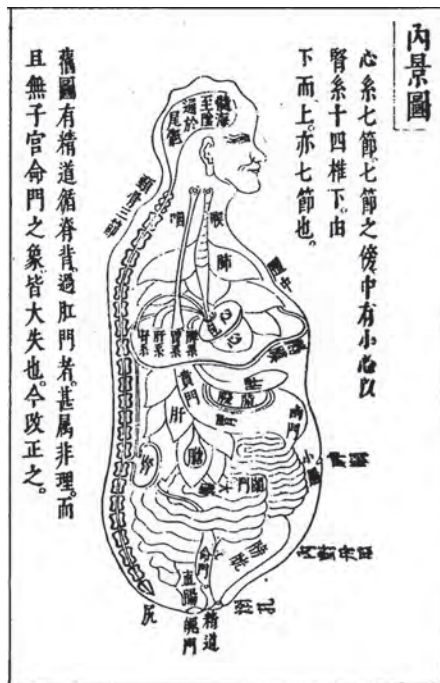


Figure 8 Ming dynasty, *Nei Jing Tu* (督脉循行图 *Diagram of the Du Meridian Pathway*) (source with permission from: *Pictorial Appendices to 'The Classified Classic'*²⁵).

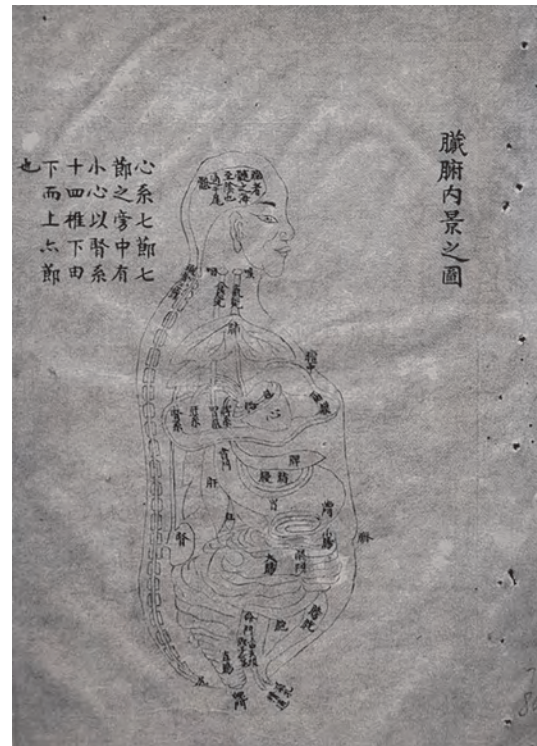


Figure 9 Qing dynasty, *Zang Fu Nei Jing Zhi Tu* (脏腑内景之图 *Diagram of the Internal View of the Organs*) in *Xun Jing Kao Xue Bian* (《循经考穴编》 *Compilation of Studies of Acupoints along the Meridians*) (source from: *Compilation of Studies of Acupoints along the Meridians*²⁶).



Figure 10 Qing dynasty, *Nei Jing Tu* (《经脉图考》 *An Examination of Meridian Diagrams*) (source with permission from: *An Examination of Meridian Diagrams*²⁷).

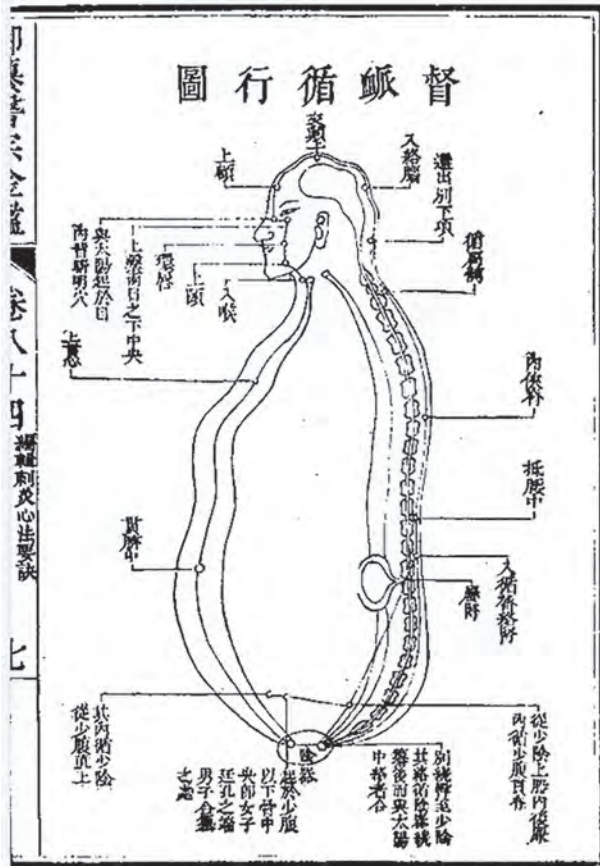


Figure 11 Qing dynasty, *Du Mai Xun Xing Tu* in *Ci Jiu Xin Fa Yao Jue* (《刺灸心法要訣》Essentials of Acupuncture and Moxibustion Method) (source with permission from: *Golden Mirror of the Medical Tradition*²⁸).

strictly speaking, these images only highlight the differences between thoracic and lumbar curve, which are only two of the four physiological curves of the spine. The thoracic and lumbar curves are the longest and contribute most of the visual presentation in the overall spine image, thus appearing at first glance to be an early image fitting the morphology of the spine in modern medical understanding. The description of the other two physiological curves—namely, the cervical curve and the sacral curve located at two ends of the spine—still has a strong nature of freehand brushwork, which is far from the actual form. Among them, the shape of cervical curve is not very clear, so its performance in the whole spine is almost in passing and ignored; the sacral curve shows a higher degree of curvature than the actual form. The sacrum and coccyx are in an inclined direction extending to the inside of the body, like pathological coccyx pronation in today’s anatomical perspective. The outer side of sacral curve, which actually corresponds to the upper lateral buttocks, was fused into the “egg shape” that designed to represent the human trunk, forming an arc at the bottom of the “egg shape”, which is also a legacy of the influence of the “egg-shaped” body representation on spine painting.



Figure 12 The Republic of China, *Zang Fu Ming Tang Tu* (臟腑明堂圖 *Diagram of the Organs and Acupoints*) repainted by Hong Baorong, collected by He Puren (賀普仁) (source with permission from: *An Illustrated Book on the Historical Development of Chinese Acupuncture*²⁹).

According to modern anatomy, the spine consists of 24 bones (7 cervical vertebrae, 12 thoracic vertebrae and 5 lumbar vertebrae); with the sacrum and coccyx counted separately, the total is 26 bones. It is more common for the number of spinal bones drawn by traditional Chinese medical practitioners to be 21, 24, or 25. No matter how many bones there are, judging from the position, the curvature of the lowest end should be regarded as the part of sacrum and coccyx, which are not greatly distinguished from other spinal bones morphologically. The sacrum S1-5 considered today were drawn as a bone that was similar to other spinal bones, but the tip of the bone at the end or its tendency to a narrow shape suggest that it depicts the coccyx rather than other segments of spine.

This way of drawing, especially the drawing in which the number of spinal bones is 24, easily corresponds to the recognition today that the spine is made up of 24 bones above the coccyx and sacrum only, which are more similar in appearance with each other, however, this 24 is not that 24. This problem is also related to the habit of viewing images: we often count the number of spinal bones from top to bottom, however, after the

analysis above, the count from bottom to top is more reasonable. Because the number of the sacrum and coccyx will definitely be included, the difference seems to be mainly in the number of cervical vertebrae shown at the other end of the spine.

Observing the vertebrae specifically, body diagrams created by traditional Chinese medical practitioners began to show spinal curvature, but they actually completely ignored the distribution regularity of vertebrae corresponding to physiological curves. In actual morphology of spine, the T1-T12 thoracic curve is kyphosis, and the L1-L5 lumbar curve is lordosis, so if the sacrum and coccyx are included, counted from bottom to top, the 1st-2nd vertebrae should be kyphosis, the 3rd-8th should be lordosis, the 9th-21st should be kyphosis, and the rest should be lordosis. However, the morphology of vertebrae in most of these diagrams, counted from bottom to top, is kyphosis in No. 1-8, lordosis in No. 9-18, and kyphosis in the rest above. This hardly matches the actual vertebrae curvature at all.

Because the sacrum was drawn too short, the sacral curve needs more bones that are supposed to be in other curves to form the “egg shape”. The lumbar curve which is supposed to be lordosis turned out to be kyphosis, and the other vertebrae above can’t correspond to the actual curvature correctly. The thoracic curve, which was supposed to be kyphosis was even drawn as lordosis in *Xin Gai Zheng Nei Jing Zhi Tu* (新改正内景之图 *Diagram of the Revised Internal Anatomy*) (Fig.13) added lately



Figure 13 Qing dynasty, *Xin Gai Zheng Nei Jing Zhi Tu* (新改正内景之图 *Diagram of the Revised Internal Anatomy*) in *Yi Lin Gai Cuo*, (*《医林改错》 Corrections of the Errors in Medical Works*) an edition of Shanghai Jingzhang Book Company (上海锦章书局) in 1995, a diagram added lately (source with permission from: *An Illustrated Book on the Historical Development of Chinese Acupuncture*³⁰).

in a recent edition of the book *Yi Lin Gai Cuo* (*《医林改错》 Corrections of the Errors in Medical Works*). It can be seen that the body diagrams by traditional Chinese medical practitioners were only beginning to realize that the curvature of spine should be demonstrated, and the specific shape of the curve was only limited to drawing the “S” bend roughly. As for which bend exactly corresponds to which curve, it is not in the consideration of performance yet.

The table summarizes the differences between the general arrangement of spinal bones from bottom to top that showing curvature in ancient Chinese body diagrams and modern anatomical knowledge (Table 1).

Although the realism in the expression of spinal curvature is not high, it still marks an important change in medical practitioners’ painting style of body diagrams. Elements that are different from the Taoist body diagrams are growing. Even if the body diagrams by traditional Chinese medical practitioners after the Ming dynasty did not show physiological curves, they at least straightened the spine and basically no longer showed the exaggerated arc. The representative paintings are, for example, *Zang Fu Ming Tang Tu* (Fig.14) in *Yi Xue Gang Mu* (*《医学纲目》 Compendium of Medicine*) by Lou Ying (楼英) in the Ming dynasty, and *Nei Jing Quan Tu* (*内景全图 Comprehensive Diagram of Internal Anatomy*) (Fig.15) in *Yi Xue Yuan Shi* (*《医学原始》 The Origins of Medicine*) by Wang Honghan (王宏翰) in the Qing dynasty, and so on. The slight curvature of the spine showed in these diagrams, seems to be an intermediate and transitional state between impressionism and realism, continuing the expression of the human body in the form of “egg”.

However, even if the spine with normal physiological curves appeared in the “egg shape”, it is still submerged in the very representative body figure of traditional Chinese medicine under the influence of Taoism. Western scholars, such as Catherine Despeux, have noticed that this was still the whole “egg shape” that mainly differed from the Western medical body diagrams. As a result, they have turned a blind eye to the quietly emerging germination of the trend towards a Western realistic style in diagrams of curved spine.

Table 1 Comparison of ancient and modern images of curvature arrangement of spinal bones counted from bottom to top

	kyphosis	lordosis	kyphosis	lordosis
Modern anatomy	No. 1-2 (sacral curve)	No. 3-8 (lumbar curve)	No. 9-21 (thoracic curve)	No. 22-26 (cervical curve)
Ancient Chinese body diagrams	No. 1-8	No. 9-18	No. 19-?	-

Note: As the spine depicted in the ancient Chinese body diagrams is more vague than the clear division in modern anatomy, the number of spinal bones sorted out here is taken as the approximate number of most of the vertebrae presented in ancient body diagrams cited in this paper.



Figure 14 Ming dynasty, Zang Fu Ming Tang Tu in Yi Xue Gang Mu 《医学纲目》 Compendium of Medicine, an edition published in the Ming dynasty collected by Library of China Academy of Chinese Medical Sciences (source with permission from: An Illustrated Book on the Historical Development of Chinese Acupuncture³¹).

The essence may still be derived from the expression of spinal curvature that does not break through the “egg-shaped” shell. It is still inherited from the traditional Chinese body diagrams derived from the lineage of previous generation. In fact, there is no definite evidence to prove that it was affected by external forces. Modern studies such as Ma Boying (马伯英) and Gao Xi (高晞)’s *The History of Cultural Exchanges between Chinese and Foreign Medicine* (《中外医学文化交流史》) commented on the *Xin Gai Zheng Nei Jing Zhi Tu* of Yi Zong Bi Du 《医宗必读》 *Essential Readings of the Medical Tradition* by Li Zhongzi (李中梓) in the Ming dynasty, saying that it is “quite similar to the human anatomy diagrams in modern times, but ... no Western influence has been seen”.³³ Dong Shaoxin’s (董少新) *Between Form and Spirit: The History Draft of Early Western Medicine Entering China* (《形神之间: 早期西洋医学入华史稿》) inspected the spread of the Western anatomical diagrams in China. He believed that several “main figures influenced by Western medicine” in the Qing dynasty “all did not respond to the Western anatomical diagrams”, that the anatomical

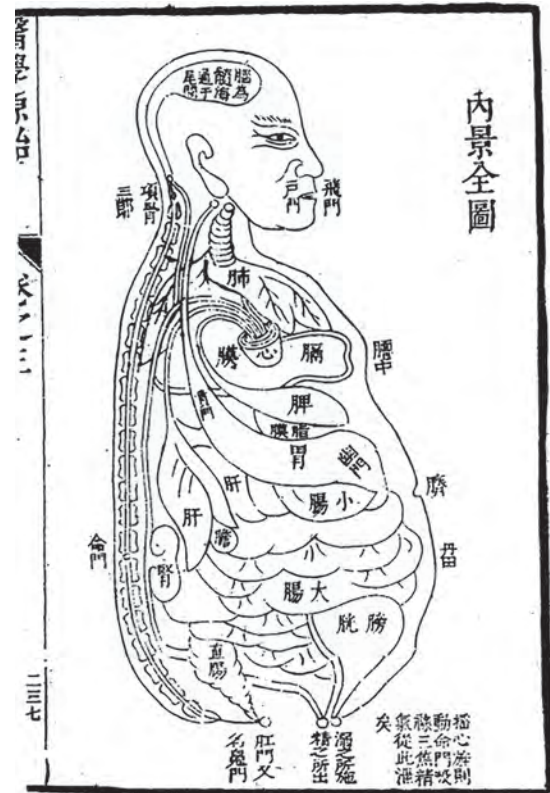


Figure 15 Nei Jing Quan Tu (内景全圖 Comprehensive Diagram of Internal Anatomy) (source with permission from: *The Origins of Medicine*³²).

diagrams in *Yi Xue Yuan Shi* by Wang Honghan were “typical internal scenery of traditional Chinese diagrams without trace of Western anatomical influence”, and that the anatomical diagrams in *Yi Lin Gai Cuo* by Wang Qingren (王清任) also “belong to the same tradition of internal scenery diagrams, with no change in form”.³⁴ Therefore, the germination of the so-called “realism” was still deeply rooted in the soil of “free-hand brushwork”. The degree of “realism” is very limited, and even transformed into another kind of distance from anatomical reality.

In conclusion, we can see from the evolution of time that lateral-view diagrams of viscera starting to depict the normal physiological curves of spine had appeared in medical literature in the Ming dynasty, but there was a large number of diagrams with a curved spine at the same time, which indicates that the influence of Taoist body diagrams still maintained a certain inertia. Before the Qing dynasty, medical diagrams depicting curves of the spine were starting to diverge from the previous generation of Taoist freehand brushwork style. The widely-spread body diagrams in Taoism still depicted the curved spine and represented the imagined human body until the late Qing dynasty and the Republic of China, while the graphic representation style of the traditional Chinese medical practitioners revealed their continuous efforts to adapt to the actual form of the

human body, although such efforts were still extremely rough.

5 Conclusion

Whether it be Taoists or the traditional Chinese medical practitioners, as part of the contribution to the body cognition of traditional Chinese medicine (TCM), they both demonstrate a cognition and skill style that is quite different from Western medicine. In terms of the characteristics of Chinese medicine, it “values the meridians and collaterals, neglects the muscles and bones, emphasizes the vital essence, *Qi* transformation, and neglects the physical description, emphasizes the imagination of observing the exterior to infer the interior, and neglects the essence of cutting the skin and muscles”.³⁵ This results in a more impressionistic description of TCM compared to Western medicine. Taoist medicine is even more impressionistic compared to TCM, and can be regarded as an important origin of the impressionism in Chinese medicine, which is consistent and has a profound and sustaining impact on medical practitioners. Taoist imagination of the body’s internal scenery shaped the depiction of the exterior appearance, even at the expense of contradicting what is actually seen. The body cognition reflected in it is incomparable to the precision pursued by today’s anatomical images, but the effort to pursue the “authenticity” of the human body is beyond doubt. As commented in the *History of Chinese Image Culture: Medical Image Volume* (《中华图像文化史·医药图像卷》): “There is one principle that remains consistent throughout, similar to some ideas in traditional Chinese medicine, Taoist alchemists do not focus on the substantial anatomy of the human body, but associate the human body with the natural universe instead, by transforming certain symbols, the human body and the natural universe can be translated into each other.” The curved spine depicted in Taoism reflects the body concept and way of viewing body as universe or *Ding Lu*, containing its unique cognition of the source and operation of body energy. Those descriptions that contradict the actual structure of the human body may hide another form of reality. In an era when the delicate imaging of the human body with modern technological tools is mainstream, re-examining the abstract cognitions and styles of viewing the human body that have existed in human history, may provide insights in “impressionism” that cannot be revealed by “realism”.

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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

ZHANG Xinyue drafted the article, ZHANG Shujian guided and revised the writing.

Conflicts of interest

ZHANG Shujian is an Editorial Board member of *Chinese Medicine and Culture*. He also serves as 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 Editorial Board member and their research groups.

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From Research on TCM Images to Historiography of TCM Images—Comments on *History of Chinese Image Culture: Medical Image Volume*

WEI Ran^{1,*}, HUANG Zuozhen¹

1 Introduction

Chinese medicine has a long and rich history, dating back to the classics of the Qin and Han dynasties and extending to the integration of Chinese and Western medicine in the modern era. The vast amount of literature and scholarly works in this field makes it essential to thoroughly study the history of traditional Chinese medicine (TCM) in order to understand its development path throughout the ages and boost innovation based on tradition. This is why the sages emphasized the importance of “classifying the works into different schools and tracing back to their origins” (辨章学术, 考镜源流). However, in recent years, research on the history of Chinese medicine, based on preserved or excavated textual materials, seems to have encountered a bottleneck. While there have been in-depth explorations and ground-breaking innovations, expanding the breadth of the research has proven to be challenging because the philological discrepancies in historical documents inevitably lead to prolonged debates and unresolved conjectures on certain issues. Against this backdrop, Professor Zhang Shujian’s (张树剑) book, *Zhong Hua Tu Xiang Wen Hua Shi Yi Yao Tu Xiang Juan* (《中华图像文化史·医药图像卷》 *History of Chinese Image Culture: Medical Image Volume*), shifts the focus to images and provides a new perspective for interpreting and researching Chinese medicine (Fig. 1).

The book is divided into six chapters according to the Chinese dynasties in chronological order. From the perspective of the expression of images, the book combs

in detail the development process of Chinese medicine from the pre-Qin period and the Han dynasty to the late Qing and the Republic of China. It restores the early medical society and the process of constructing TCM theories. The book also delves deeply into topics such as philosophical thoughts and medicine, medical systems, anatomical historical events, competition among various schools, and the integration and confrontation between Chinese and Western medicine. What sets this book apart from other studies on the history of images is its focus on the perspectives of the general public and society. With greater attention to the backgrounds of medicine, it emphasizes the interpretation of information in images as a major way to discuss the conflicts during the emergence, evolution, and solidification of Chinese medical theories. As Professor Zhang Shujian wrote in the afterword of this book, it is a somewhat “unconventional” history of medical images.¹

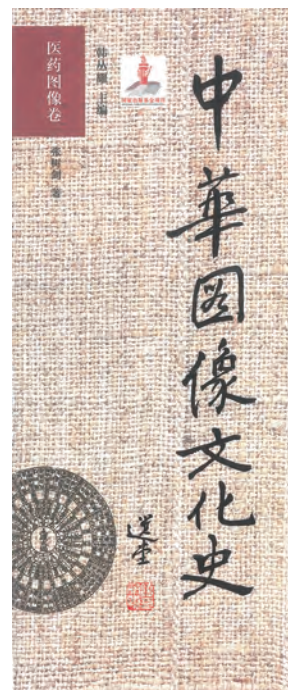


Figure 1 The frontcover of *Zhong Hua Tu Xiang Wen Hua Shi Yi Yao Tu Xiang Juan* (《中华图像文化史·医药图像卷》 *History of Chinese Image Culture: Medical Image Volume*) (source with permission from: *History of Chinese Image Culture: Medical Image Volume*¹).

¹ College of Ancient Chinese Studies, Beijing University of Chinese Medicine, Beijing 100029, China

* WEI Ran, E-mail: wei_ran_1995@163.com
ORCID: 0000-0001-6029-5814

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2 From the study of TCM images to the history of images of Chinese medicine

Images, as a medium of information, provide lifelike and vivid descriptions of real objects. They form the basis of the Chinese philosophical concept of *Xiang* (象 image) thinking. Chinese characters, also originating from images, became more and more symbolic during their development and evolution, thus replaced images as the primary medium of information due to their capability for conveying more information in a smaller space. Research on TCM images mainly focuses on modern images and images in traditional literature. Modern image research emerged earlier and has become relatively mature and well-established as a technical discipline thanks to advancements in new media technologies such as image digitization and visualization, the establishment of databases for tongue and face diagnoses, and the use of graph analysis as a technical tool. In traditional literature, images, along with texts (symbols), serve as the fundamental form of record-keeping. They carry historical content that predates the emergence of written language but received relatively less attention until later due to difficulties in preservation and replication. Therefore, image-based literature still failed to be preserved and passed down through generations as successfully as textual literature even with the invention of printing. As Zheng Qiao (郑樵), a documentalist in the Song dynasty, stated in his work *Tong Zhi Tu Pu Lue* (《通志·图谱略》 *Graphic Records in General Records*), “Why were the academic achievements after the *San Dai* (三代) in such a condition in comparison to those before (Note 1)? The Han dynasty had some remnants of their legacy, but from the Wei and Jin dynasties onwards, academic research witnessed a constant decline. It is not that the later generations did not put in as much effort as the earlier generations, but rather that the academic achievements of the later generations did not match those of the earlier generations. The reason why the academic achievements of the later generations were inferior to those of the *San Dai* and the Han dynasty is that the study of graphical records was not passed down, and as a result, practical learning was reduced to empty words.”² While lamenting the loss of image-based learning, he also emphasizes the importance of images in academia.

Fortunately, the development of modern printing technology makes image reproduction an easier task. In this way, images can better maintain stability and integrity during the copying process, resulting in fewer errors and omissions compared to texts. Additionally, while texts are abstract and heavily influenced by time, region and educational background, images are intuitive and serve as a universal language with more widely accepted information regardless of time and space. Therefore, starting from the twenty-first century, there has been a growing interest among scholars in the study of images in

traditional literature. Despite the limited number, extant TCM image-based literature exhibits a rich variety and has significant importance for scholars in understanding ancient Chinese medicine correctly. On one hand, mutual corroboration with texts can be provided to rectify any errors or omissions in the written content. On the other hand, in cases where texts are lost or ancient writings are difficult to interpret, images can supplement the missing information.

Two notable instances of concentrated research on TCM image literature were launched before. The first one was a research project funded by the Wellcome Trust. The project held the International Seminar on Imaging Chinese Medicine in Beijing from September 15th to 17th, 2005, followed by the publication of the book titled *Xing Xiang Zhong Yi* (《形象中医》 *Imaging Chinese Medicine*) in 2007 as a collection of the conference proceedings. The book featured analyses and research on a range of medical images related to acupuncture and diagnostic methods, materia medica, clinical practices, obstetrics and pediatrics, religion and health preservation, Tibetan medicine, exchanges between China and the rest of the world, as well as traditionalization and modernization, conducted by experts and scholars from various countries worldwide.³ Given that the conference aimed to promote global understanding of TCM through the introduction of TCM images, many of the papers focused on topical subjects and discussions. A greater emphasis was placed on the structure and function of the human body, as well as the social and cultural backgrounds of the images. Although there was no shortage of fascinating historical perspectives, the research lacked overall coherence and consistency in terms of its subjects and content. The second instance was a research project titled “Research on the Classification and Organization of Images in Ancient TCM Literature”, led by Researcher Hu Xiaofeng (胡晓峰) at the China Academy of Chinese Medical Sciences. It pioneered the comprehensive classification and organization of images in ancient TCM literature. Six major characteristics, five major values, and four major functions of images in ancient TCM literature were summarized.⁴ In addition, the relationship between images in ancient TCM literature and academic heritage was discussed, and an initial theoretical framework for the study of TCM images was established.⁵ The significant results of the project include multiple published dissertations and journal articles covering various fields such as traumatology,⁶ materia medica,⁷ ophthalmology,⁸ laryngology⁹ and health preservation. In 2017, the book *Li Dai Zhong Yi Gu Ji Tu Xiang Lei Bian* (《历代中医古籍图像类编》 *Compendium of Images in Ancient Traditional Chinese Medicine Literature across Dynasties*) was published. Over 3,000 selected images from ancient TCM literature were categorized into 12 sections: fundamental theories, diagnostic methods, acupuncture and moxibustion, massage therapy, materia medica, internal

medicine, gynecology, pediatrics, surgery, traumatology, ophthalmology and otorhinolaryngology, and health preservation. Each section includes an overview, classifications, characteristic images, and image catalogs.¹⁰ The book has laid a solid material foundation for research on images in ancient TCM literature. However, it is important to note that the book primarily focuses on the compilation and organization of literary materials rather than in-depth content research.

In addition, there is a noticeable disciplinary bias in research on TCM images. The studies of acupuncture, massage therapy, materia medica, pediatrics, and health preservation emerged earlier and appeared more extensive with a large number of images passing down, mainly because their theories, diagnosis, and treatment methods are difficult to describe clearly in written texts. Take images of materia medica for example. Scholars can review them as references to identify specific species of Chinese herbal medicine and analyze the evolution of pharmaceutical theories. Similarly, the significance of the *Jing Luo Tu* (经络图 *Chart of Meridians*) and the *Ming Tang Tu* (明堂图 *Images of Acupuncture Points and Meridians*) is more pronounced, as they provide a visual and clear understanding of the pathways of meridians and the locations of acupoints for contemporary and future practitioners. If acupuncture were to rely solely on textual descriptions without images, it would inevitably lead to confusion about the accurate locations of acupoints. Researcher Huang Longxiang (黄龙祥) emphasized the importance of acupuncture images in the early 21st century and published *Zhong Guo Zhen Jiu Shi Tu Jian* (《中国针灸史图鉴》 *Illustrated Book on the Historical Development of Chinese Acupuncture*) in 2003.¹¹ However, it is gratifying to note that in recent years, there has been a resurgence of interest in the study of image literature. Researchers of more disciplines have started to pay attention to the value of images and introduce more specialized image research methods, such as the research on the “word-image” intertextuality in ancient reproduction images.¹²

Looking back, research on Chinese medical images has evolved from individual topic discussions to comprehensive classification and organization, encompassed a wider range of disciplines, and resulted in many valuable research achievements. However, previous studies still have certain gaps. Firstly, the subjects are mainly medical images, rather than non-medical images with medical content. Secondly, the content has been predominantly limited to academic theories or social and cultural aspects. Thirdly, there has been a lack of coherence and long-term historical perspective, with the overall focus remaining in the field of literary studies. *Zhong Hua Tu Xiang Wen Hua Shi Yi Yao Tu Xiang Juan* breaks through these limitations in terms of subjects, content, and disciplines, pushing research on TCM images into a new realm of historical studies. Taking a chronological

approach, the book provides a coherent and in-depth interpretation and comparative study of the content and academic theories, as well as the underlying thoughts, culture, and social background, of medical image literature. It also engages in extensive and diverse discussions regarding the medical content of non-medical image literature. As a complementary study to previous literature research and an inspirational step toward future research on the history of Chinese medical images, the book embodies a pioneering advancement from research on TCM images to the study of history of images of Chinese medicine.

3 In-depth interpretation of medical images

Panofsky divided the research methods in iconology into three levels: pre-iconographic description, which involves the visual description of the frame; iconographic interpretation, which entails the interpretation of images with relevant knowledge; and iconological analysis, which explores the symbolical and cultural significance of images.¹³ The book *Zhong Hua Tu Xiang Wen Hua Shi Yi Yao Tu Xiang Juan* encompasses the three levels of interpretation in its analysis of medical images. It goes beyond a mere listing of historical image materials, medical practitioners, and theories. Instead, it places them within specific and coherent historical and cultural contexts for investigation. With a unique historical perspective, the book strives to restore the process of constructing TCM theory and explores the impact of ideological, cultural, and social backgrounds on the development of TCM theory. This approach embodies the interpretation methodology in embryology, showcasing innovative research in the field of TCM images and academic history.

For instance, in Section 5 of Chapter 1, the influence of *Tian Ren Xiang Ying* (天人相应 the natural philosophy of correspondence between man and universe) of Chinese thinkers in the pre-Qin period on the development of TCM theories, such as yin-yang (阴阳), *Wu Xing* (五行 the five elements), as well as visceral manifestation and meridians, are discussed through an interpretation of the *Huang Di Nei Jing* (《黄帝内经》 *The Yellow Emperor's Inner Classic*). It is pointed out that the medical techniques described in the *Huang Di Nei Jing* are quite simple. However, these clinical techniques were overshadowed by a veil of theoretical interpretation and formed a theoretical system, conforming to the mainstream philosophical ideas of that time. As a result, the specific clinical techniques were obscured. The reason why the theories in the *Huang Di Nei Jing* are more esteemed in later generations compared to specific medical techniques is that the medical theories “packaged” with philosophical ideas possess a more “perfect” systematicity and are thus more likely to receive explicit attention.¹

In addition, taking the anatomical illustrations and events from different periods as a starting point, the book *Zhong Hua Tu Xiang Wen Hua Shi Yi Yao Tu Xiang Juan* discusses the development and challenges of Chinese medical anatomy. It quotes the views of medical historian Fan Xingzhun (范行准) and physician Xie Guan (谢观) from the period of the Republic of China (1912-1949), stating that the slave society was the era in which medical anatomy was established in China. However, in feudal society, although anatomy did not completely disappear over thousands of years, the dissectors could not openly practice it. As a result, anatomists were unable to communicate and exchange knowledge, leading to a phenomenon where Chinese medicine progressed in terms of treatment but stagnated in scientific theory after the Qin and Han dynasties. This book further considers that the reason why anatomy couldn't be openly practiced is attributed to the Confucian ideology that shaped the ritualistic view of the body among the populace, as well as the perception of honoring the dead as the living.¹⁴ Furthermore, it compares the challenges faced in conducting anatomical activities in China with the development of anatomy in Japan and the West during the same period. For example, in Section 3 of Chapter 5, based on Wang Qingren's (王清任) *Zang-Fu* (脏腑) illustrations in *Yi Lin Gai Cuo* (*《医林改错》 Correction of Errors in Medical Classics*), the book compares the state of anatomical activities in China with that in Japan and the West during the same period (Fig. 2) (Note 2). It points out that Wang Qingren could only observe anatomical dissections at public burial grounds and execution grounds, while the West had already established openly-offered anatomical courses. *Yi Lin Gai Cuo* received little response and faced criticism from some medical practitioners, while Japan's medical community had already seen a

surge in anatomical empirical activities caused by the publication of Yamawaki Toyo's (山胁东洋) *Zoshi* (*《藏志》 Notes on the Viscera Organs*). Furthermore, the book analyzes the reasons for the gap in anatomy development between China and the above-mentioned countries. One reason is rooted in the deeply ingrained moral and bodily views that have existed for thousands of years in China. Another reason is that during that time, Neo-Confucianism remained dominant in society, which resulted in a focus on theoretical development in medicine rather than empirical evidence.¹ This research methodology does not isolate a particular anatomical image in a specific era but rather connects and juxtaposes images from different periods, placing them in the context of time and space for comparative analysis and interpretation. In this way, the position and role of anatomical images in the development of Chinese medicine are demonstrated and the coherent historical perspective of the *Zhong Hua Tu Xiang Wen Hua Shi Yi Yao Tu Xiang Juan* is highlighted.

Furthermore, this book examines the relationship between the rise of Neo-Confucianism in the Song dynasty and the philosophizing of TCM theory. It discusses the exchange between Chinese medicine and Islamic as well as ancient Greek medicine during the Jin and Yuan dynasties based on the *Hui Hui Yao Fang* (*《回回药方》 Medicinal Formulas of the Hui People*) (Fig. 3). It explores the imagination and understanding of the human body's structure and anatomy in Taoism based on the *Nei Jing Tu* (*内景图 Diagram of the Internal Texture of Man*), a Daoist diagram of the internal circulation of man. *Zhong Hua Tu Xiang Wen Hua Shi Yi Yao Tu Xiang Juan* points out that throughout history, mainstream philosophical trends have continuously influenced medical theories and the spiritual principles, yin-yang and *Wu Xing*, and the Confucian concept



Figure 2 Zang-Fu Illustrations in *Yi Lin Gai Cuo* (*《医林改错》 Correction of Errors in Medical Classics*) (source with permission from: *History of Chinese Image Culture: Medical Image Volume*).

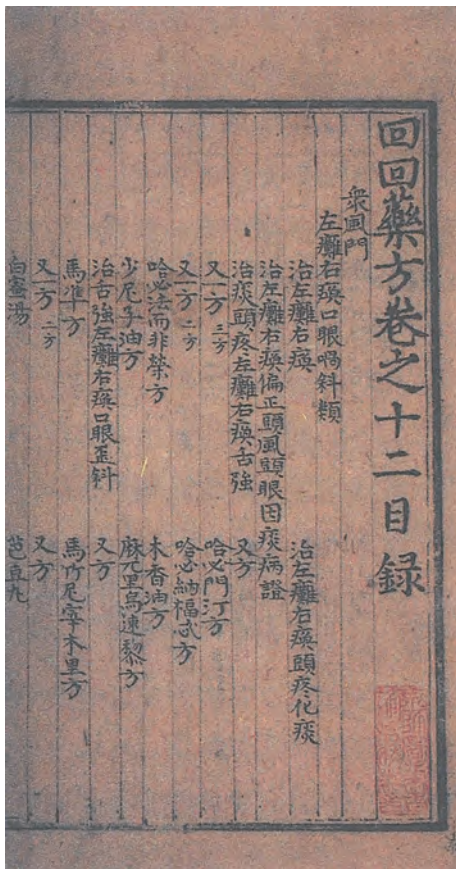


Figure 3 Contents page of *Hui Hui Yao Fang* (《回回药方》*Medicinal Formulas of the Hui People*) (source with permission from: *History of Chinese Image Culture: Medical Image Volume*).

of Balanced Harmony have all served as important inspirations for medical theories.¹ Therefore, recognizing the relationship between medical theories and ideological, cultural, and social backgrounds is of significant importance in studying the generation and evolution of academic research on TCM.

4 Diversified research on non-medical images

Another innovation in the research on Chinese medical images in *Zhong Hua Tu Xiang Wen Hua Shi Yi Yao Tu Xiang Juan* lies in the selection of literary materials. It expands the scope of research to include non-medical literature and engages in diversified discussions around their medical content. Such an approach aligns well with the development direction of the study of medical history because the collision and integration of internal history and external history will be an important trend in the future. This also means that the objects of medical history research should not be limited within the discipline. Scholars should pay attention to in-depth interpretations of richer historical materials and further analyze how history as a whole shapes and reshapes medicine. *Zhong Hua Tu Xiang Wen Hua Shi Yi Yao*

Tu Xiang Juan is commendable for transcending disciplinary boundaries and perspectives, interpreting the medical information in images with an objective view, and reconstructing the medical social culture of the time.

For instance, in Section 2 of Chapter 3 of this book, a detailed observation of the Song dynasty painting *Qing Ming Shang He Tu* (清明上河图 *Along the River during the Qingming Festival*) reveals depictions of scenes such as a beverage shop, an incense and herbal medicine shop, a medical clinic, and a medicine stall. Based on these discoveries, the development of medical studies during that time is explored.¹ In Section 3 of the same chapter, the book utilizes Li Tang's (李唐) painting *Cun Yi Tu* (村医图 *Village Physician*) from the Southern Song dynasty to depict specific medical scenes during the Song dynasty. It further discusses the practice of itinerant doctors, the development of surgical procedures, and the clinical applications of anesthetics and plasters during that time.¹

In Section 2 of Chapter 2 of the book, an analysis of the correspondence between renowned figures of the Wei and Jin dynasties, such as Wang Xizhi (王羲之), Wang Xianzhi (王献之), Zhang Xu (张旭), and Lu Ji (陆机), reveals the prevalence of ingesting mineral powder during that time. It discusses the Taoist beliefs underlying the trend and the understanding of death and the body among the upper class influenced by these beliefs. Taoism believed that through cultivating inner alchemy or ingesting external alchemical substances, one could attain immortality, achieve longevity, and transcend death. Emperors such as Qin Shi Huang (秦始皇), Emperor Wu of Han (汉武帝), Emperor Yang of Sui (隋炀帝), Emperor Taizong of Tang (唐太宗), and Emperor Xianzong of Tang (唐宪宗) all sought ways to attain immortality and longevity by resorting to strange and esoteric methods, even at the expense of their own lives. The practice of ingesting mineral powder refers to consuming mineral-based medicines such as *Wu Shi San* (五石散 powder of five minerals) and *Han Shi San* (寒食散 powder of cold food) in pursuit of immortality (Fig. 4). The temporary sensations of mental excitement, increased physical strength, and clear-mindedness caused by the mineral medicines led the literati to believe in their efficacy in achieving longevity. However, in reality, prolonged use of mineral medicines would cause severe harm to the body. This practice fundamentally reflects the ruling class's fear of death and desire for perpetual power. The book reveals the pathological view of the body, that individuals resorted to harmful practices in pursuit of an immortal body under the influence of Taoist beliefs in immortality. It points out that although many literati of that time were aware of the detrimental consequences of mineral medicines on their health, they were unable to free themselves from the pursuit of immortality and thus remained trapped. This further demonstrates the deeply ingrained nature of this

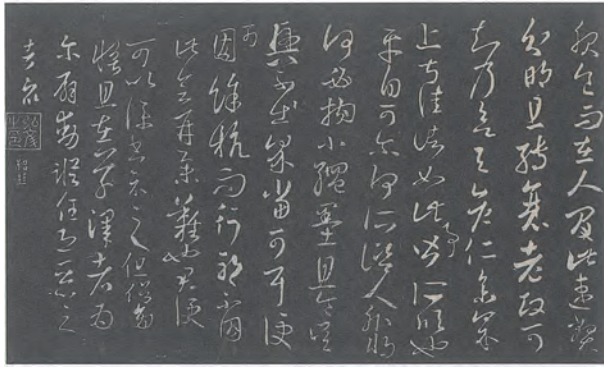


Figure 4 Wang Xizhi's (王羲之) *Fu Shi Tie* (服食帖 Letter about Taking the Powder) (source with permission from: *History of Chinese Image Culture: Medical Image Volume*¹).

pathological view of the immortal body.¹ Furthermore, the book also analyzes and discusses the views on the body and death held by the common people during the feudal period of China, under the dominance of mainstream Confucian thought. It explores how this ideological background influenced the development direction of TCM theory.

Another example is the ongoing discussion throughout the book regarding the status of medical practitioners. Most of the literature in this section is not purely medical texts, as the status of medical practitioners is often indirectly reflected in the level of their official positions, the attitudes of historians, and the opinions of the general public. Previous studies have mainly focused on exploring the relationship between the status of medical practitioners and the social system, while *Zhong Hua Tu Xiang Wen Hua Shi Yi Yao Tu Xiang Juan* extends its research perspective from these non-medical images to the relationship between the status of medical practitioners and the evolution and construction of medical theories. The author of the book argues that the transformation of the status of medical practitioners during the Song dynasty propelled the theoretical development of Chinese medicine. Before the Song dynasty, medicine was considered a *Fang Ji* (方技 technical skill) or *Xiao Shu* (小术 minor craft) due to its nature of natural techniques and practice. As a result, medical practitioners were regarded as peddlers seeking personal gain with a quite low social status of the “artisan” class. It was not until the Song dynasty that the status of medical practitioners significantly improved with the proactive attitude of rulers. Moreover, the popular belief that “the achievements of a good physician are equal to those of a good statesman” led many unsuccessful literati to study medicine, giving rise to a group known as “Confucian physicians (儒医)”. In the book, Section 4 of the Chapter 3 argues that the emergence of Confucian physicians had two significant impacts on the construction of medical theory. Firstly, there was a noticeable increase in the quantity of medical work. Before the Song dynasty, due to the limited educational backgrounds of medical

practitioners, the theoretical achievement of their writings was relatively low. However, the Song dynasty witnessed a surge in writing and theorizing because medical practitioners of that time with a literati background were influenced by the Confucian thinking of “inseminating noble ideas” and possessed a solid foundation of knowledge. Secondly, the emergence of Neo-Confucianism during the Song dynasty and the rise of the epistemological concept of “to investigate things is to attain knowledge” resulted in the gradual detachment of the reasoning methods of Confucian physicians from clinical practice, evolving into metaphysical deduction.¹ Therefore, at that time, the popularity of the theory of *Yun Qi* (运气 the movement of qi) caused medical theory to become more philosophical and mystical, which greatly influenced the establishment of accurate medical theory. Taking history as a lesson, one may wonder, after centuries of development, whether our research on TCM theory today truly breaks through the barriers of traditional thinking.

Zhong Hua Tu Xiang Wen Hua Shi Yi Yao Tu Xiang Juan explores various interdisciplinary discussions as mentioned above. It either conducts comparative discussions on old topics from new visual images or examines old images from new angles. As one of the highlights of the book, such a research methodology demonstrates the author’s problem awareness and interdisciplinary research expertise while highlighting the book’s diverse perspectives.

5 Conclusion

The publication of *Zhong Hua Tu Xiang Wen Hua Shi Yi Yao Tu Xiang Juan* has propelled the research on TCM images from a focus on textual studies to the realm of historical research. It has opened up a new field for the study of TCM images and established a basic framework for integrating medical images with non-medical images, as well as integrating image content with medical theories, thoughts, culture, and social backgrounds. The book deeply explores the literary value, practical value, innovative value, artistic value, and academic value of TCM images,⁴ representing a successful interdisciplinary study combining image analysis, textual studies, and historical research.

Indeed, the book also has some shortcomings. For example, although the book reveals the disconnect between techniques and theory in medicine, it does not delve into why medical theories were developed on the basis of abstract philosophical ideas rather than practical techniques and empirical knowledge, nor does it explore the characteristics or challenges encountered in the inheritance and development of medical theories under this influence. Furthermore, the book extensively discusses the impact of society, culture, and ideology on the academic development of TCM. However, it might overlook the reciprocal influence of TCM on these

traditional cultural elements. Early views influenced by “cultural determinism” often suggested that the characteristics of Chinese culture determined the TCM culture. However, with in-depth research, the academic community gradually realized that the exchange between TCM and traditional culture is not unidirectional but rather mutually influential from a cultural perspective.¹⁵ As the medical historian Liu Peng (刘鹏) has pointed out, besides examining the academic development of TCM from a socio-cultural perspective, it is also important to explore its impact on societal culture, as well as politics and economics. This aspect has often been overlooked in previous research and should be considered as a potential direction in future research on the academic history of TCM.¹⁶

In the present-day context of TCM advocating for a “return to tradition”, whether it is in the realm of textual research or clinical practice, we should focus on approaching the academic theories of TCM from diverse perspectives and methods instead of simply delving into piles of ancient documents. By doing so, we can unveil the mystique surrounding TCM academic theories and restore the “self-expression” of the people of their time. It is also hoped that more scholars will pay attention to the historical study of TCM images as a new field of medical history research and work together to contribute to the medical development of China.

Notes

1. The *San Dai*, namely the Three Dynasties, comprises the Xia (夏, c.2100-1600 BC), Shang (商, c.1600-1100 BC) and Zhou (周, c.1100-256 BC) dynasties.
2. *Zang-Fu* is a collective term for internal organs which are divided into two major categories, namely the five *Zang*-organs and the six *Fu*-organs.

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Ethical approval

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

Author contributions

WEI Ran was responsible for the conception of ideas and the drafting of the paper. HUANG Zuozhen supervised the project and secured funding to support the research.

Conflicts of interest

The authors declare no financial or other conflicts of interest.

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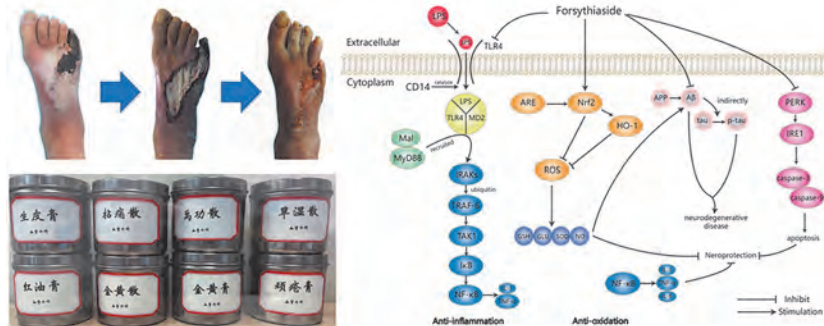
Introducing Integrated Traditional Chinese and Western Medicine

Clinical and Research Team Led by Doctor Zhang Lei



The Integrated Traditional Chinese and Western Medicine Clinical and Research Team is led by Chief Doctor Zhang Lei (张磊), who is devoted to research on the prevention and treatment for peripheral vascular disease with integrated traditional Chinese and Western medicine. The team was established in 2018 and now consists of eight clinical vascular surgeons, including two Ph.D.s and six masters. Notably, Doctor Zhang Lei, the team leader, holds the esteemed position of the director of the vascular surgery department at Yueyang Hospital of Integrated Traditional Chinese and Western Medicine, Shanghai University of Traditional Chinese Medicine (SHUTCM). In addition, he also serves as one of the vice chairpersons of peripheral vascular disease branch of China Association of Chinese Medicine, a member of peripheral vascular disease branch of China Association of Integrative Medicine as well as several other national and regional medical associations. Besides, he is a doctoral and master's supervisor.

Using traditional Chinese medical theory to analyze and treat diseases is a characteristic of this team. The team members inherit and develop several traditional Chinese medicine (TCM) masters' theories and propose the *Qi Xue Jing Shen* Differentiation Theory (气血精神辨证理论 A theory for differentiating syndrome from the four levels of qi, blood, essence, and spirit). The team is adept at preventing and treating peripheral vascular disease with classic and original oral and topical formulas, such as *Xiao Zheng Tong Mai Fang* (消癥通脉方 Blood Stasis-eliminating Vessel-unblocking Formula) and *Jin Huang San* (金黄散 Golden Powder). *Qing Jin Shu* (清筋术 Tendon-debriding Operation), a special external treatment method for treating diabetes foot, is used by this team and has achieved an excellent curative effect. Furthermore, Western medical therapies, such as surgical operations and interventional therapy, are widely applied in their clinical practice. The team uses TCM methods to increase curative effects and reduce the side effects of those therapies. Overall, the team adopted the concept of integrated Chinese and Western medicine and achieved satisfactory clinical effects in treating diabetic foot, lower extremity arteriosclerosis obliterans, vasculitis, thromboangiitis obliterans, erysipelas, limb lymphedema, and various chronic intractable ulcers.



To verify clinical efficacy, explore the mechanisms and innovative clinical methods, the team members conduct extensive related researches. The team focus on traditional Chinese medical theories and molecular mechanisms of TCM formulas and single herbs in treating peripheral vascular disease. Meanwhile, the team conducts extensive clinical observations and reports them. The team has successively undertaken and participated in 6 research projects at various levels and published over 50 academic papers.

The team is dedicated to spread TCM culture worldwide. The team members undertake part of the education work at SHUTCM and affiliated hospitals for international students, teach students from Japan, Thailand, etc. In May 2024, the team leader, Dr. Zhang Lei, gave a lecture at the 34th Conference of the European Wound Management Association (EWMA) in the UK.

