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Boundaries and classification: the cultural logic of treating foreign medicine

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From the 16th to the 19th centuries, Western medicine emerged in China and was considered dangerous by Chinese residents. Relatedly, Chinese medical practitioners have attempted to use knowledge based on traditional Chinese medicine to explain the principles of Western medicine. From the 19th to 20th centuries, traditional Chinese medicine (TCM) was introduced to the United States, and American residents also described it as dangerous; they believed that TCM could only be accepted after scientific verification and explanation. This article uses the method of historical anthropology to explain these phenomena using boundaries as an analytical concept. This article finds that when foreign medicine crosses borders, it causes the disorganization of local classification systems. When a local classification system cannot provide a suitable location for foreign medicine, such medicine is easily regarded as dangerous by residents. The key to solving this problem is to use local classification systems to reinterpret foreign medicine. Reinterpreted by these local classification systems, foreign medicine can gain legitimacy within local societies. Based on this, the current article attempts to illustrate not only that science is a classification method but also that the boundary between science and nonscience is cultural in a sense, thereby undertaking corresponding cultural functions in daily life.

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Introduction

The WHO established the Global Centre for Traditional Medicine in March 2022 and held The First WHO Traditional Medicine Global Summit on 17 and 18 August 2023 in Gandhinagar, Gujarat, India, to catalyze ancient wisdom and modern science for the health and well-being of people and the planet (WHO, 2023). Medicine has always been shared across regions. With the Age of Sail, the opening of new shipping routes facilitated the spread of medicine to new regions. Today, allopathic medicine has established institutional dominance in most countries around the globe, while complementary and alternative medicine (CAM), such as traditional Chinese medicine (TCM) and ayurvedic medicine (AM), has spread to countries in Europe and the Americas.

Since the entry of TCM into the United States, acupuncture has rapidly developed into a specialized unorthodox medical system (Baer et al., 1998). As of 2018, 47 states in the United States and Washington D.C. had passed legislation recognizing acupuncture. However, TCM faces many challenges before full acceptance can be achieved in the United States, including the restrictive evidence-based mindset of allopathic medicine (Park et al., 2012). For example, acupuncture is currently used primarily for pain relief rather than for the treatment of a wide range of diseases, and Chinese herbs cannot be registered with the U.S. Food and Drug Administration (FDA). This suggests that there is still a long way to go to promote the widespread use of CAM in the health field.

At the same time, the spread of allopathic medicine in developing countries has not been without resistance. The ethnography of South America suggests that by rejecting biomedicine, developing countries have gone on to express a critique and reflection on globalization, colonialism, and modernity (Wayland, 2004). In Peru, villagers often used herbal medicines before modern medicines, expressing their desire to revive their Andean identities and escape the grip of biomedical power over them (Gold and Clapp, 2011).

These cases show that the acceptance of foreign medicine is a long and tortuous process that is influenced by politics, the economy, and even the military (Wolffers, 1995; Venit-Shelton, 2019; Baum, 2021). This process is also influenced by culture because foreign medicine, as a product of a foreign culture, challenges local knowledge, concepts, and customs. Therefore, it is necessary to understand the treatment of foreign medicine in local society from a cultural perspective to facilitate the dissemination of allopathic medicine and various forms of CAM, thereby improving human well-being. In cultural studies, the concept of boundaries provides a viable analytical framework for studying medical communication. As Lamont and Molnár (2002) emphasize, the concept of boundaries is an important tool for mapping how knowledge models are disseminated across countries and influence local institutions and identities. In this study, we found that when foreign medicine first enters local society, it is sometimes easily imagined as dangerous medicine. The concept of boundary provides a means for explaining this phenomenon, and the process of localization of foreign medicine is found to be a reclassification process around the boundary.

This manuscript will take the history of Western medicine entering China from the 16th to the 19th century and the history of TCM entering the United States from the 19th to the 20th century as examples to illustrate the cultural response of local society to the entry of foreign medicine. The reason for choosing these two periods is that although medicine has always been in a state of communication, the large-scale introduction of Western medicine to China began in the 16th to 19th centuries, and TCM entered the United States on a large scale in the 19th to 20th centuries. Taking China and the United States as examples, two

countries with enormous cultural differences have similar cultural responses to foreign medicine entering local society. Notably, different periods and different countries have different names for kinds of medicine. Even in the same country, the name of a medicine can vary across scenarios. For example, allopathic medicine is called Western medicine by Chinese people, and this name has lasted for hundreds of years. Allopathic medicine is officially called clinical medicine, biomedicine, or modern medicine in China. Likewise, Chinese native medicine is called Chinese medicine in China rather than traditional Chinese medicine, but it is called TCM in the US. Therefore, this article adopts the emic perspective and respects the name of medicine in local society in a specific historical period. In the two contexts of this article, local medicine and foreign medicine have different nomenclature. For China from the 16th to the 19th centuries, this article uses “Western medicine” to refer to the medicine brought by missionaries from Europe and the US and uses “Chinese medicine” to refer to local medicine in China. In the United States in the 19th and 20th centuries, this article uses “TCM” to refer to the Chinese medicine brought to the United States by Chinese immigrants and “regular medicine” to describe the local medicine that is transforming or has completed modern transformation. As of the early 19th century, regular medicine was known for the use of heroic treatments, which involved bloodletting, blistering, emetics, purgatives, opiates, surgery, and the occasional use of lethal substances such as mercury. This was opposed to irregular physicians, who treated with natural healing encompassed through the view of *vis medicatrix naturae* (the healing power of nature) and who entrusted nature to cure patients (Phan, 2017, p. 63).

Boundaries and classification

Borders (or boundaries) play an essential place in the social science perspective, and boundary delineation implies identifying the differences and divisions of groups caused by categorization. Classification divides things, events, and facts about the world into classes and species, attributing them to each other and determining their inclusion or exclusion relationships. By classifying, combining, and arranging things in groups, humans make these individuals in groups distinct from those in other groups. They develop clear lines of demarcation between them to distinguish them clearly (Durkheim and Mauss, 1963).

Research suggests that medicine is related to boundaries in three ways. The first is the boundary of professions, science and knowledge. This boundary has been understood as the distinction between experts and regular people, science and nonscience, and occupations. The term “profession” is the embodiment of the boundary between insiders and outsiders. Each profession has its organization, access system, and industry evaluation system, thus creating a closed nature of the profession. The same is true of the work of scientists, who endeavor to draw the boundaries between science and nonscience through boundary work and thereby gain intellectual authority and career opportunities (Gieryn, 1983). However, nonexperts are not useless in the face of science; experts and nonexperts around the border interact and influence each other (Lei, 2021). Discussions of allopathic medicine (or biomedicine) and CAM are often conducted along the boundaries of science and nonscience. Mariachi and Shuval pointed out in their research in Israel that the boundaries between biomedicine and CAM represented by traditional Chinese medicine vary across fields. At the formal level, for example, in the formally promulgated bills, biomedicine discourse tries to establish strict intellectual and ethical boundaries to distinguish between appropriate biomedicine and inappropriate CAM, thus ensuring

the dominance of the former and keeping CAM in trouble; however, at the informal level of medical practice, biomedicine and CAM express mutual respect (Mizrachi and Shuval, 2005). According to Brosnan (2017), there are boundaries even within CAM, which shows that CAM has the possibility of self-disintegration. Efficacy is the ultimate goal of medicine. Under randomized controlled trials, the curative effect is considered by biomedicine to be a purely objective fact. However, discussions of biomedical efficacy ignore much of the real-world context. Efficacy also has boundaries, and it is constructed in a certain social background (Greenhalgh and Zhang, 2020, p. 71–73). As Craig (2012) puts it, efficacy is an intersubjective phenomenon negotiated between practitioner and patient in a specific socio-ecological context.

The second perspective is that of boundaries set by state ideology. The social image of science and technology is closely related to political power (Jasanoff and Kim, 2009). China's experience proves that the institutional arrangement of medicine is also boundary work. Existing studies often understand the changes in Chinese medicine from a political perspective. This means that, at various times, the Chinese government has reorganized the boundaries of medicine to achieve a certain political vision. In the early 19th century, Chinese allopathic medicine doctors realized that without political power, there was no way to popularize scientific medicine in China (Lei, 2014, p. 45). Afterward, they actively worked to forge an unprecedented new relationship between their profession and their country (Lei, 2014, p. 66). During the Mao Zedong period, Chinese society divided science into "tu science" and "yang science", where tu science indicated native medicine and was associated with terms such as native, Chinese, local, rustic, mass, and crude; yang science was foreign science and was associated with terms such as foreign, Western, elite, and professional (Fu, 2017). By establishing the boundary between native science and foreign science, Mao Zedong and other Chinese communists gave native science a higher status because it implied socialist revolutionary ideals such as self-reliance and reliance on the masses, while foreign medicine was considered to have perceived undesirable ideological tendencies and institutional prerogatives. The Chinese Communist Party was more willing to accept Soviet medicine than medicine from capitalist countries, as Russia was also a socialist country. After 1950, Chinese medical circles, through the Pavlov Learning Movement, accepted the health care system and medical technology of the Soviet Union without any criticism and rejected Virchow's 'Cellular Pathology' and Mendel's 'Genetics' (Yu, 2020). Techno-nationalism is also a concrete manifestation of the boundaries of medicine. Even in the 21st century, Chinese society is still wary of foreign advanced medical technology, and this vigilance is related to China's international competition. With the rise and entry of precision medicine, the Chinese government and medical profession have expressed concerns about the control of Chinese human genetics by foreign technology and demanded independent mastering of the related technologies of precision medicine. This shows that when new foreign medical technology reaches a local area, it is readapted to the history and system of the country; at the same time, through this peripheral translation of the scientific bandwagon, the global infrastructure of biomedical knowledge can be transformed (Au and da Silva, 2021). In addition to absorbing the achievements of foreign medicine, the development and dissemination of ethnic medicine is a priority of Chinese medical work. The Chinese government's promotion of the modernization of TCM aims to break the various boundaries of TCM set by foreign countries so that TCM and modern medicine can be fully integrated (Unschuld, 2018, p. 117). During the COVID-19 outbreak, the Chinese government actively demonstrated the effectiveness of TCM and made efforts for the world to recognize TCM

as a type of scientific medicine rather than alternative medicine or homeopathy. The Chinese government's measures to promote TCM involve redefining the boundaries between modernity and tradition and between science and nonscience.

The third boundary is the symbolic boundary related to culture. Symbolic boundaries have their origins in anthropological studies of cultural categorization. In his study of religious origins, Emile Durkheim noted that totems symbolized divisions between groups and regarded them as a visible boundary symbol (Durkheim, 2008). Lamont and Molnár (2002) distinguish between symbolic and social boundaries, which they see as conceptual distinctions made by social actors to categorize objects, people, practices, time and space, and social boundaries, which are the objectified forms of social difference manifested in unequal access to and unequal distribution of resources (material and immaterial) and social opportunities. The idea of categorizing things manifests itself in collective emotions and the order of everyday life. In a study at the intersection of cognitive science and cultural taxonomy, Edelmann (2018) points out that people's everyday categorical thinking is often unconscious and depends on the cultural context in which the individual lives. When boundary breakthroughs occur in one's group, people are motivated to reclassify existing boundaries; when people outside the group challenge boundaries, they even reinforce symbolic boundaries. In the study of cultural anthropology, border crossing is seen as dangerous, dirty, and despicable. Douglas (2002) argues that when boundaries are threatened or things go beyond their proper cultural categorization, established categorizations are challenged, and people are often in danger of not conforming to the standards of others. Kristeva (1982) similarly explains the meaning of inferiority, pointing out that inferiority is a boundary and an ambiguous state and that when inferiority is used to mark a boundary, it indicates that the subject is in permanent danger. The symbolic boundaries of cultural categorization offer new possibilities for understanding the interplay of biomedicine and CAM, as well as the meanings of illness and health, as they express the desires of groups to distinguish themselves from 'others' (Durkheim and Mauss, 1963). Symbolic boundaries provide a cultural explanation for discrimination and prejudice at the societal level: people often draw distinctions based on symbolic boundaries as dignified or base, valuable or nonvaluable, and whether things are appropriate for members of society (Fiske, 1998, p. 357–411).

These three forms of boundaries are closely related to the formation and dissemination of medical knowledge. Scientific and nonscientific boundaries offer the possibility to discuss medicine as a product of culture and power. Boundaries shaped by state ideology show that medicine is often associated with politics. Most important for this paper are the boundaries in cultural categorization. In particular, if we look at the initial introduction of foreign medicine into local societies, we can find that foreign medicine is sometimes described as dangerous medicine. Boundaries in cultural categorization provide new perspectives for understanding the processes of transmission and acceptance of allopathic medicine and CAM. Medicine is seen as a representation of identity and collective emotion (Wayland, 2004; Gold and Clapp, 2011). This paper explores the cultural response to foreign medicine and the process of its reclassification by local culture. As mentioned in the introduction, we consider China from the 16th to 19th centuries and the United States from the 19th to 20th centuries.

Methods

This manuscript adopts the research method of historical anthropology, relying on various historical materials to show the difficulties encountered in the introduction of Western medicine to China in the 16th to 19th centuries and the introduction of TCM to the United States in the 19th to 20th centuries.

In the 16th century, the arrival of the Italian missionary Matteo Ricci marked the first entry of Western medicine into China (Fan, 2012, p. 2). At this time, Western medicine entered China as an appendage of Catholicism, so the image of Western medicine in the Ming and Qing Dynasties was often associated with Catholicism. The main materials used are the letters of missionaries, the memorials written by Chinese officials to the emperor, the diaries of Chinese intellectuals, and the writings of practitioners of Chinese medicine during this period. This article specifically cites the relevant medical works of Zhang Xichun, a Chinese medicine practitioner who devoted himself to the integration of traditional Chinese medicine and Western medicine at the end of the 19th century. He is often called “the school of convergence of Chinese and Western medicine”. The above historical materials show that Western medicine has been portrayed as dangerous medicine in China. Chinese native culture hopes to reclassify Western medicine under the framework of Chinese culture through the integration of Chinese and Western medicine.

In the 1850 Gold Rush era, Chinese immigrants came to the United States in significant numbers, which allowed TCM to enter US society on a large scale. This manuscript mainly uses historical materials such as news reports and medical reviews of the period to restore the attitude of mainstream US society toward TCM. Like China in the 16th century, the US in the 19th century portrayed TCM as a dangerous medicine. The scientization of TCM has also become a requirement for US society to accept TCM. In other words, the scientization of TCM has become a way for US society to overcome the image of TCM as a dangerous medicine. Our discussion also occasionally touches on current U.S. news reports to demonstrate the historical continuity of the image of dangerous medicine and the strategies for responding to it.

Crossing boundaries: the multiple dimensions of dangerous medicine

Residents' fears of dangerous medicine are not limited to concerns of physical damage but have moral, political and social connections. Thus, the image of medicine as dangerous is multidimensional.

In the 16th–17th centuries, Western medicine entered China as an adjunct to spreading religion. Therefore, the fear of Western medicine among Chinese residents first stemmed from a misunderstanding of pagan rituals. Catholic baptismal rites, for example, had been rumored to involve the priest's use of hallucinogenic drugs to control the faithful. After the death of a Catholic, the Catholic Church had a unique ritual of collecting the body and had been falsely accused of gouging out the eyes of the deceased to make medicine (Zhang, 2018, p. 100–104).

The greater misunderstanding stemmed from the moral and political dimension. As a foreign religion, Catholicism's teachings were often against traditional Chinese Confucian ethics. The Catholic Church does not shy away from socializing with strangers and allows priests to be alone with women, which was once absolutely forbidden in China. As a result, the Chinese residents often accused missionaries of raping women and trafficking in children. The missionary Matteo Ricci (2018, p. 83,107–108,277) complained in a letter to friends that his apartment and church had been repeatedly attacked by hundreds of people because of these rumors. Under the influence of the rumors, Western medicine was considered an accomplice to religion. Western drugs were portrayed as tools to help missionaries abduct children or rape women (Institute of Religious Studies of Peking University, 2003, p. 114).

The spread of Catholicism and Western medicine encountered stronger ethical and political resistance among upper-level bureaucrats because the missionaries viewed God as the source of all things (Ricci, 2014, p. 84–85), which went against Confucian doctrine. At the same time, Ricci introduced the tradition of Catholic subjects

being subservient to the Pope (Zhu, 2001, p. 86), which violated the Chinese hierarchy. Therefore, Catholicism was denounced as a cult and heretical by Chinese Confucian officials. In 1616, an official in charge of rituals wrote to the emperor, reminding him that Catholicism was against Chinese rituals and beliefs:

“Our dynasty follows the rituals and regulations from ancient times, and every time we issue an order, we emphasize that we are following the instructions of Heaven. However, the Catholics believe in the ‘Master of Heaven’, which means that they are above ‘Heaven’, This makes the common people feel confused.” (Shen, 1616)

As Catholicism was recognized as a cult, Chinese intellectuals published a variety of evil-breaking writings against missionaries. In these writings, Western medicine, like Catholicism, was seen as a dangerous force for social destabilization. More than two hundred years later, Catholicism and Western medicine were still guarded even after the success of Western medicine, represented by the Quinine, in the Qing court and among the upper echelons of officials. In 1861, a pamphlet titled *Bi Xie Ji Shi* (which means recording the facts of a cult) was published by a man with the pseudonym The World's Most Heartbreaking Man. This booklet contains many cases of dangerous Western medicine in the service of dangerous religion. For example, there is an anecdote in the book that happened in 1860:

“A church father lured the wife of a religious man into the church and gave the woman three pills, which the religious wife refused to consume. The church father thought she was not pious enough and had to be purified and excommunicated. Later, the woman was persuaded by her husband to take the pills. After taking the pills, the woman took off her clothes and ran naked through the streets, begging for adultery.” (Institute of Religious Studies of Peking University, 2003, p. 506–507)

Eventually, Western medicine had a symbolic significance as harmful to society, and it was seen as a source of social misfortune. People believed that the plague originated from Western medicine. The British used glass bottles to release poisonous gas, and anyone who contracted it would contract the plague; wearing a scented pouch with traditional Chinese drugs, such as realgar, herba asari, angelica, and mugwort, people could avoid the plague brought by foreign medicine (Institute of Religious Studies of Peking University, 2003, p. 487).

During the 16th–19th centuries, Western medicine was labeled as lascivious, cruel, killing and even spreading plague, forming the stereotype of dangerous medicine. However, the creation of the image of dangerous medicine cannot be attributed to only the closed nature of traditional Chinese society and the ignorance of the people. In the United States in the 19th and 20th centuries, science and technology were developing rapidly, and the scientific transformation of medicine was nearing completion. Like China in the 16th century, US society also described foreign medicine as dangerous.

In the 19th and 20th centuries, the United States was very wary of TCM and understood it as involving dangerous treatment techniques. In 1887, *The New York Mail* reported that in a county in the north of the US, a Chinese doctor “treated a pneumonia patient by rubbing her chest with a hot dinner plate and piercing a row of portals in her abdomen”. In the end, the patient died from treatment by Chinese doctors (Daily Alta California, 1887). Sometimes the harm of TCM was magnified. In 1919, a California newspaper described acupuncture in China as using “a needle from four to twelve inches long” (Evening Herald, 1919). In addition, the author accompanied the report with a frightening photo. In the photo, a Chinese child is receiving acupuncture treatment, but the needles used for acupuncture are extraordinarily long, piercing the child-like long arrows.

Table 1 Dimensions of dangerous medicine.

Dangerous dimensions	Medical scenarios	
	Western medicine in China (16th–19th century)	TCM in the US (19th–20th century)
Bring about physical harm	Eye gouging, kidney extraction, and uterus removal	Acupuncture is physical abuse; scary animal drugs
Immoral	Missionaries use Western medicine to harass believers	Deceive patients; break the law
Sense of political crisis	Catholicism impacts Confucian ethics	TCM is associated with dictatorship
Social harm	Use of poison gas to cause a plague	Spread disease; endanger the state

Because of the differences in diet theory, US society also felt dismay and contempt for the drugs used by TCM. Although most of the medicines used in TCM are herbal medicines, the use of some animal medicines was enough to cause discomfort to Americans. In 1895, at a session of the Southern California Medical Association, a doctor claimed that TCM was barbaric and ignorant because it used disgusting things as medicine, such as remains of dead animals, including their eyes, blood, teeth, bones, hair, and entrails; the pulverized, desiccated placenta of the parturient female; and the excrement of men and animals (Los Angeles Times, 1895). In 1875, a tourist visited a Chinese medicine clinic in Chinatown. Accompanied by the police, the tourist opened a drawer, which was divided into four equal compartments, and there were scary drugs such as charred bones of lions and tigers and dried bugs. When they saw a druggist’s apprentice preparing drugs, the visitors stated the following: “(We) glanced into a small back room where a druggist’s apprentice, naked to the waist, was compounding some witch’s brew of such direful potency that we closed the door with a bang and ran howling to the open air” (Ames, 1875). This travel note vividly reflects the feelings of Americans when they saw traditional Chinese drugs.

In the United States, TCM is sometimes associated with politics. Animal drugs were so expensive that a 1908 *Los Angeles Times* article stated that animal medicines were only available to the extremely wealthy aristocratic class, implying dictatorship behind the use of Chinese drugs (Los Angeles Times, 1908). After the founding of the People’s Republic of China, American Orientalism linked the deficiencies of civilization, including TCM, with the political corruption of the Communist Party (Venit-Shelton, 2019, p. 10). In 2020, an article in *The New York Times* argued that TCM would lead Western populations to reject the Western values of liberal democracy and universal human rights (Cheng, 2020). Although this view is not official or mainstream, there is still some room for it in society.

The use of TCM was also considered unethical and harmful to society. It was considered that there was no scientific basis for Chinese drugs to treat diseases, so in the impression of US society, Chinese doctors could rely on only deception to attract US patients. In 1907, the State Board of Medical Examiners launched a campaign against Chinese quack doctors in Los Angeles. Chinese doctors had been accused of smooth-tongued coaxing many women into receiving treatment. In one case, a patient who was charged high prices for Chinese treatment received a bottle that contained simply the juice of alfalfa stalks (Los Angeles Times, 1907). Due to a lack of proper medical theory guidance, Chinese immigrants were considered to lack good hygiene habits and were a source of disease transmission, thereby endangering the welfare of the state and of the nation (Trauner, 1978).

Above, this paper presents two images of dangerous medicine: one is the image of Western medicine as it was introduced to China in the 16th–19th centuries, and the other is that of TCM as it was introduced to the United States in the 19th and 20th centuries. As foreign medicines, they aroused the image of dangerous medicine in the local society. As shown in Table 1, the perception of danger was not motivated by only the fear of damaging the body. Foreign medicine also caused unease at the moral, political,

and social levels. The image of dangerous medicine is a socio-cultural response to foreign medicine crossing boundaries.

Disordered classification: the logic generating the image of dangerous medicine

In the previous chapter, this paper described the several dimensions in which foreign medicine crossing borders evoked visions of dangerous medicine. This chapter explains why medicine crossing borders raised those concerns, especially in political and ethical terms. In general, the image of dangerous medicine stems from the shock of foreign medicine to the local cultural categorization system. When this categorization system becomes dysfunctional, the boundaries of medicine become boundaries between the I and the others, and different medicines become markers of identity. Ultimately, foreign medicine creates a political and ethical alarm against the others and creates an image of dangerous medicine. This chapter introduces two systems of categorization: one is the four qi and five tastes that Chinese society uses to categorize food and medicine, and the other is based on US society’s determination of whether medicine is scientific. When Western medicine entered China, it could not be categorized by the four qi and five tastes classification system, which reinforced the Chinese people’s concern about foreign nationalities. In the U.S., when TCM treatments could not be scientifically explained, China was marked as barbaric and backward.

We begin by describing the confusion of categorization caused by Western medicine in China. Western medicine introduced into China in the 16th century had strong religious overtones and was not fundamentally different from TCM, so it is not surprising that it caused panic in Chinese society. However, available information shows that even at the end of the 19th century, when Western medicine appeared in China in a more modern and scientific way, the Chinese people were still very wary of it. For example, Zhang Yinhan, a Qing dynasty official who made several trips to European countries, noted in his diary that Western medicine “does not conform to natural principles and that these medicines are not suitable for health care” (Ren, 2004, p. 108).

Zhang Yinhan’s so-called natural principles relate to the basic classification of the world order in traditional Chinese philosophy. This classification regards qi as the origin of the world, and qi can be divided into yin and yang attributes so that all things can be divided accordingly. Anything that is moving, outward, rising, warm, and bright belongs to the category of yang. In contrast, things that are relatively static, inward, downward, cold, and dark belong to the category of yin. According to the degree of yin and yang, food and drugs can be classified into four categories, which are called the four qi: cold, cool, warm, and hot. Cold and cool belong to yin, and warm and hot belong to yang. In addition, TCM also uses the five tastes to make a more detailed classification of food and drugs. The five tastes are pungent, sour, sweet, bitter, and salty. Each taste has a corresponding therapeutic function. The four qi and five tastes have become the basic principles and classification system of food and drugs in China, so neither Chinese nor Western drugs can be exempt from this classification rule:

“Drugs will not exceed the four qi and five tastes of the law of classification. Both Chinese and Western drugs follow this law”. (Shun Pao, 1883)

However, it was very difficult for laboratory-made chemicals to find a place in this classification system, which led to cultural disorder and Chinese rejection of the efficacy of Western drugs. An article in 1872 pointed out:

“The names of Western drugs are different from Chinese drugs. The drugs are also very strange, the production method is peculiar, but also do not know its appearance, so the Chinese, even if they know that this is a very effective drug, also dare not take.”(Shun Pao, 1872)

Because it was impossible to categorize Western drugs in terms of the four qi and five tastes, Western medicines were regarded as strange, and the people who used them were regarded as having strange bodies. The categorization of medicine became a categorization of the I and the others. The Chinese population believed that Chinese and Western people had different bodies and internal organs and that different medicines were appropriate for different peoples:

“It must be said that the internal organs of East and West are the same, I do not believe it”. (Xu, 1903)

“Chinese drugs are taken from plants; Western drugs are close to the metal and ore. Metal and ore drugs are heavy; Westerners are strong and usually eat more beef and lamb, so they can withstand Western medicine; Chinese bodies are more tender and usually eat cereals. So their gastrointestinal function is weak, and can not withstand the metal and ore of Western medicine.”(Shun Pao, 1881)

In the Chinese context, Eastern and Western were often replaced by Hua and Yi. Hua was what China called itself, and Yi generally referred to all foreign nations. After the 19th century, Yi gradually became the synonym for all Western colonists. The concept of Hua and Yi originated more than 2400 years ago. It centered around China and opposed the interference and intrusion of foreign nations. Later, the concept of Hua and Yi was followed by Confucian intellectuals for generations. They were required to draw a clear line with foreign nations or use Chinese culture to assimilate foreign nations. The belief in strange bodies and strange medicines strengthened the border between the Hua and Yi, as well as the fear of foreign peoples.

Chinese society used the boundaries of Hua and Yi to distinguish Chinese medicine from foreign medicine. Correspondingly, US society used the boundary between science and nonscience to form the distinction between I and others. Starting from anatomy and physiology, US society criticized Chinese medicine as utterly unscientific. In their view, TCM, which could not be scientifically explained, was unlikely to be therapeutic at all. An article from 1869 states:

“While the millions of glands, ducts, nerves, and fibres, which the anatomist and every qualified practitioner in these western countries understand, is to a Chinese doctor altogether a terra incognita... Without a knowledge of physiology and anatomy, how can they understand the nature of disease or know whether the various organs are in a healthy or unhealthy state and know what remedies are able to reach them (to) repel disease and restore them to their wonted functions?“(Loomis, 1869)

Taking science as the standard, TCM was believed to be based on “superstitious notions and practices” by missionaries in the 19th century; TCM surgery was called “most primitive and crude”; Chinese society was full of “foolish and injurious customs” (Yates,

1877, p. 114–115). The boundaries of science had gradually shifted from measuring medicine to measuring nations because only ignorant and backward nations would use such unscientific medicine. Therefore, TCM indicated semicivilized nations as to their medical practice, and China was described as an “unenlightened” country (Yates, 1877, p. 115). US society regarded Chinese medicine as witchcraft, and China was imagined as a witchcraft country, with both the emperor and the people fascinated by witchcraft (Dudgeon, 1870, p. 267). Science originally established the boundaries of medicine and later the ethical boundaries of nations. Ultimately, the image of dangerous medicine led to the image of a dangerous nation. Accepting scientific health guidance, US health and cleanliness were embraced as integral aspects of national identity; in contrast, those who were perceived to be unhealthy, such as Chinese men and women, were considered dangerous and inadmissible to the nation (Shah, 2001, p. 11–12).

Reclassification: the cultural nature of the TCMization of Western medicine and the scientificization of TCM

Foreign medicine challenged the classification system of the local community, which made the rulers worry that foreign medicine would subvert social stability and stimulate the public’s imagination about its dangers. The best way to solve the culture shock brought by foreign medicine crossing boundaries was to use the local cultural classification system to reclassify or explain it.

In the history of Chinese medicine, Chinese doctors attempted TCMization of Western medicine (meaning the transformation of Western medicine into Chinese medicine). They attempted to incorporate Western drugs into the Chinese cultural classification system of the four qi and five tastes. Aspirin, for example, is a highly modern and scientific drug that is widely used in clinical treatment even today. The mechanism of aspirin’s effectiveness is familiar to modern pharmacology but was unfamiliar to 19th-century herbalists and the general population. In the late 19th and early 20th centuries, aspirin was mainly used in China for antipyretic and analgesic purposes, but the remarkable efficacy and modern pharmacological explanations could not convince the Chinese. As a result, some TCM doctors attempted to reclassify aspirin using the Chinese classification system. Zhang Xichun, a famous doctor in the 19th century, observed that Western medicine used aspirin to treat fever. However, Zhang had a different opinion on the mechanism of aspirin’s efficacy than Western medicine. In his clinical use of aspirin, he found it had a strong ability to make people sweat. Based on his experience in Chinese medicine, Zhang attempted to include aspirin in the classification system of the four qi and five tastes. Under Zhang’s explanation, the chemical aspirin was finally positioned as an acidic, cool-tasting substance in the four qi and five tastes of food and drug taxonomy. Zhang’s efforts led to the conversion of aspirin from a Western drug to a Chinese medicine that could be used in conjunction with other herbs. In clinical practice, Zhang advocated the use of aspirin and plaster together to treat fever (Zhang, 2002, p. 145, 323, 255).

In the 19th and 20th centuries, many Chinese intellectuals attempted to explain the efficacy of Western medicine in terms of the four qi and five tastes. Experts in the history of Chinese medicine refer to this group of intellectuals as “the school of convergence between Chinese and Western medicine”. Taking pharmacology as an example, the so-called convergence of Chinese and Western medicine is precisely the reclassification of Western medical knowledge into the traditional Chinese cultural system.

In US society, the scientificization of TCM has become the threshold for accepting TCM. For example, ephedra (Ma Huang), a traditional Chinese drug, has been used in China for sweating for thousands of years. This drug did not receive attention in the United States until 1887 when a Japanese chemist successfully

extracted ephedrine, which was proven to have a scientific curative effect. In 1931, a pharmacology paper praised the scientific study of ephedra with chemical methods:

“Primitive medicine almost always involves empiricism and sometimes superstition but is often based on some keen observation. Such an observation, when confirmed and well appreciated, then becomes a sound principle in modern medicine.....many other drugs that in China were believed to have unlimited therapeutic value, but have never been subjected to careful, critical, scientific investigations. And it is such investigations that may yield fruitful results. The recent introduction of Ma Huang into Western medicine is a good illustration.” (Chen, 1931)

According to statistics, in 1925, the United States’s ephedra imports were still 0. In 1928, the United States imported more than 1,000,000 pounds from China (Chen, 1931). This shows that science not only plays a role in explaining the efficacy of drugs but also gives US society a great sense of security because it proves that drugs from foreign countries can be reclassified by science. Thus, since TCM entered the United States, the demand for the scientificization of TCM has been constant. A news commentary in the *New York Times* on May 11, 2020, shows the ambivalence of US society toward TCM. Based on a systematic review and meta-analysis, this article concluded that acupuncture appears to be an effective and safe treatment for gastroesophageal reflux disease and that acupuncture was even more effective than omeprazole in a comparative trial involving 60 patients. However, acupuncture should not be recommended as a standard treatment method because it lacks systematic research and scientific proof (Bakalar, 2020). This commentary shows the dilemma of TCM in Western society and the cultural function of scientific boundaries. This demonstrates that a safe and effective treatment is also a potentially dangerous medicine. Only when TCM has been validated through a scientific approach does it become safe and acceptable. From this perspective, the sense of danger stems from crossing cultural boundaries rather than from the potential damage to the body caused by the treatment. Scientificization is essentially a process of cultural assimilation and reclassification, which means that TCM is divorced from tradition and locality. Tu Youyou was awarded the Nobel Prize in Medicine for the extraction of artemisinin through ether after being inspired by ancient Chinese medical texts. However, US society is convinced that the prize is for the specific scientific procedures Tu Youyou used to extract the active ingredient and make the chemical drug rather than for traditional medicine (Johnson, 2020). It also demonstrates that US society recognizes only scientific methods and procedures and believes that TCM needs to be scientific to be given an appropriate and acceptable medical status.

The TCMization of Western medicine and scientificization of Chinese medicine are essentially cultural rituals of reinterpreting and reclassifying foreign medicine through local culture, transforming Western medicine into Chinese medicine and primitive medicine into scientific medicine. Through this ritual of recategorization, foreign medicine is made safe and acceptable. This security is not only about the health effect of medical technology on the human body but also about the cultural, social, and political security brought about by cultural acceptance.

Conclusion

This manuscript outlines the history of the introduction of Western medicine to China from the 16th to the 19th century and the introduction of TCM to US society from the 19th to the 20th century. When foreign medicine enters local societies, it leads to a failure of the local cultural categorization system. Unable to find a

place in the local categorization system, foreign medicine tends to reinforce the boundary between the I and the others, which arouses the local society’s fear of foreign peoples and the imagination of dangerous medicine. As a result, even if a medicine is safe and effective, residents are hesitant to use it. The way to solve this crisis is to try to reclassify it with the local culture. Thus, the TCMization of Western medicine and the scientificization of Chinese medicine are both processes of reclassifying foreign medicine. It is particularly important to emphasize that, even now, the scientificization of Chinese medicine is not only an attempt to explain why Chinese medicine is effective but also to bring a sense of cultural security to the people in the process.

This study still has shortcomings. First, this study cannot account for all medical communication. For example, it is difficult to find an image of dangerous medicine in the history of exchanges between China and other Asian countries until Japan accepted the concept of science. Second, even medical exchanges between China and the US have not always been under dangerous medical restrictions. There is evidence that TCM was embraced by many Americans even after the Chinese Exclusion Act was enacted in the United States in the 19th century (Marcus and Chen, 2011). This shows that the reality of medical communication is complex and changeable. Foreign medicine becoming dangerous medicine is just one result of the spread of medicine. Finally, this manuscript also does not address the history of Chinese society’s acceptance of Western medicine in the 20th century or the political and economic reasons behind it. Lei’s works explain this very well for us (Lei, 2014).

The significance of this study is that using the concept of border in anthropology as an analytical framework provides an explanation of the reasons for the rejection of foreign medicine in medical communication from a cultural perspective. This manuscript shows that the TCMization of Western medicine or the scientificization of TCM is not only medical communication but also cultural communication. Science assumes cultural functions in daily life. The concepts of boundary and dangerous medicine therefore remain instructive for promoting medical communication.

Data availability

Data sharing is not applicable to this research, as no data were generated or analyzed because the materials used are publicly published news reports or biographies without questionnaire or interview data.

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Author contributions

All work on this manuscript was done by one author.

Competing interests

The author declares no competing interests.

Ethical approval

Ethical approval was not needed, as the study did not involve human participants.

Informed consent

This article does not contain any study with human participants performed by the author.

Additional information

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