Congruences in Chinese and Western Medicine from 1830–1911: Smallpox, Plague and Cholera

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A close examination of three examples, smallpox, plague and cholera, suggest that for acute infectious diseases the Chinese viewed the symptomologies, the causes, and the rational treatments of these illnesses in many ways similar to that of their contemporary Western counterparts. Rather than holding an opposing, clashing or incongruent system of medical thoughts for these common, well-recognized infectious diseases, the Chinese were prepared, by a long tradition of ontological thinking, to be receptive to the adoption, incorporation or modification of Western medical ideas in the late nineteenth century.

INTRODUCTION

A common view of the interplay between Western medicine and Chinese thought is one of incommensurability and, at times, conflict. This view, often expressed in popular accounts of Chinese medicine for Western readers, has several problems. First, these accounts tend to treat Chinese thought with regard to medicine as a coherent, internally consistent system of belief and to neglect the broad, pluralistic base of Chinese medicine. Second, such accounts are heavily ahistorical, frequently comparing two thousand year old accounts from China with twentieth century Western medicine, and, in the case of the period of focus in this paper, ignoring the fact that nineteenth century Western medicine as it was introduced to China was significantly different from Western medicine of the mid and late twentieth century. These problems seem so obvious that it is surprising that they even exist, but they probably reflect the embryonic stage of scholarly inquiry into these topics. Initial broad generalizations require refinement and qualification once detailed investigations reveal the essential complexities of nature, man and society.

One way to examine the interaction of Western medicine and Chinese culture is to get beyond theoretical and philosophical generalizations and to examine and compare, as best one can, specific examples of individual categories of illnesses. One would like to know just what Western physicians did and thought, how their Chinese patients viewed their actions and what were the Chinese views about the same illness. These questions are matters of both practice and theory. Even the most unschooled, illiterate patient can, and usually does, have ideas and theories about his or her health problems. These ideas can influence the choice of medical practitioner sought and the modes of practice which are accepted. Since the patient-physician interaction is essentially an individual act by ordinary people in a society, studies at this level add understanding about medical beliefs to that obtained by reading literati texts and palace documents, representative of the scholar class and "official" medicine in China. It is, of course,

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important to ask about the Western and Chinese concepts of the specific categories of illness, themselves. Some recent scholars have argued rather pessimistically that attempts to understand Chinese medicine are, a priori, contaminated by the necessity of our Western epistemological approaches, such as categorization itself [1]. We certainly must be sensitive to such problems, but should be able to avoid the more obvious traps. Thus, I am hesitant even to use terms such as illness, disease, or sickness because of their specific and general connotations in our language. To find a more neutral term, perhaps we might use “chief complaint,” the term Western physicians have used for a long time to indicate the patient’s own reason for seeking the services of a physician. Such an approach was suggested previously by Topley in her anthropological study of measles and “fright injury” among urban Chinese in Kowloon [2]. The idea is to try to avoid any specific implication of a diagnosis, and instead, to focus on the patient’s own conception of his or her status.

In many instances, it is difficult to group Chinese patients seen by Western physicians in China by their chief complaints, partly because of the lack of detailed records, but also because of the tendency of Western physicians to render the complaints into Western, diagnostically contaminated, terms. Still, for some kinds of complaints it should be possible to group them for study and analysis. An example of one such study that has been quite successful is that carried out by Arthur Kleinman and his colleagues on what we would call mental illness in modern China [3]. This paper is limited to several acute infectious diseases, partly because these illnesses were well-known in China, the “chief complaint” being generally recognized both by the Chinese and the Westerner and partly because these diseases became the focus of Western physicians in China who were eager to apply new knowledge of the germ theory to individuals and to problems of public health in China. Parallel and complementary analysis of other categories will be informative in supporting or limiting generalizations about Western medicine in China, but for illnesses of a more chronic nature, such as malaria, leprosy, and cancer, to suggest several examples, the analysis will probably be much more complex.

This paper will focus on the time period from the introduction of Western medicine into China in the 1830s until the end of the Qing Dynasty in 1911. By this time, Western medicine had gained sufficient official, if not popular, acceptance to be incorporated as Chinese government health policy with the establishment of the North Manchurian Plague Prevention Service, headed by an ethnic Chinese physician trained in Western medicine. The examples discussed in this paper suggest that there was considerable overlap between the Chinese and Western views of the symptomatologies, the causes and the rational treatments of acute infectious diseases. Rather than holding an opposing, clashing or incongruent system of medical thoughts for these common, well-recognized infectious diseases, the Chinese were rather prepared, by a long tradition of ontological thinking, to be receptive to the adoption, incorporation or modification of Western medical ideas in the late nineteenth century.

WESTERN AND TRADITIONAL MEDICINE IN LATE IMPERIAL CHINA

First, it is important to recall the changing state of Western medicine during this period. Western doctors in China reflected these global changes: the emergence of laboratory and physiological studies, hospital-based clinical teaching, the germ theory of disease, anesthesia and public health: in short, “scientific medicine.” It may be, too, that the physicians who went to China as medical missionaries were more adventurous and less conservative than their colleagues back home and were even more anxious to advance new ideas in their attempts to “modernize” China along Western lines. Nineteenth-century Western medicine, however, had little to offer for help in individual cases of infectious diseases. For this category of diseases, Western doctors were about as
effective in addressing their patients’ chief complaints as were the practitioners of the various forms of traditional Chinese medicine. Western physicians employed the rhetoric of “scientific medicine” but stood helpless in the face of plague, cholera or typhoid.

What of Chinese medicine of this period? The Qing period (1644–1911) was one of turmoil, reassessment, revisionism, and heterodoxy in medical thinking. This means that simple generalizations fail to convey the complexity and diversity of Chinese medical theory and practice. The diverse medical thinking during the Qing included “classical” ideas of systematic correspondences based on yin-yang [陰陽], wu xing [五行], ideas of illness as an “enemy” complete with military terminology such as “battle plans” and “strategic formations” using drugs as “troops.” However, there were also tracts with no mention at all of the yin-yang theories and with novel classifications of drugs and prescriptions. Other writings contain new attempts to incorporate demonology into the medicine of systematic correspondences [4].

The illnesses we call smallpox, plague and cholera stand as examples of important acute infectious diseases which were common in China in the nineteenth century and which were recognized by both the Chinese and Westerter as serious and frequently of epidemic prevalence. By comparing what we know about the Western approach to these diseases with the Chinese views, we may better understand the basis for the complexity of interactions between these two cultures.

SMALLPOX

Smallpox is probably the best studied example for such a cross-cultural comparison, because what constitutes the disease seems to present little ambiguity in the two cultures. The earliest description of clinical smallpox ([痘瘡] dou chuang: bean–like sores) in China (and perhaps anywhere) is reputed to be in a text by the third century alchemist, Ko Hung (281-361). By about 1000 AD, a practice known in the West as variolation was being practiced in China as prevention for smallpox. The Chinese method consisted of nasal instillation of a powder made from the dried scabs from patients with mild cases of smallpox. The person so inoculated soon contracted a case of smallpox, usually mild with uneventful recovery. Solid immunity to the disease resulted along with some degree of scarring. Since the facial scars indicated protection from subsequent attacks of smallpox, these scars were called “the flowers of heaven,” and gave the affliction its name ([天花] tien hua); variolation was referred to as “buying the flowers of heaven.” Usually children were inoculated because it was thought that they were most mildly attacked. This procedure of inducing a mild case of smallpox was based on the empiric observation that survivors were likely to be spared during subsequent epidemics. Protection was thought to last as long as the scars.

A common nineteenth century Chinese explanation for the causes of small-pox involved both host susceptibility and exogenous factors:

The poison of small-pox is contracted in the womb, so that no mortals are born free of it...If it is not disturbed, then it does not assert itself, but should infection come from another person, this excites the quiescent poison. Union [between the two entities] takes place and the outcome is an attack of smallpox.[5]

In the case of smallpox, there was a fair congruence between Western and Chinese conceptions in terms of the recognition of the illness, the preventative remedies and the etiological explanations.

Variolation had been practiced in Europe and America for at least a half century before Edward Jenner started his studies on cowpox inoculations in 1778. Variolation was
Nineteenth-Century Western physicians in China championed Jennerian vaccination as opposed to variolation for the same reasons that Jenner did: lower morbidity and mortality, absence of transmission of the disease to others and equally good protection against smallpox.

The relatively unproblematic reception of vaccination in China is suggested by the apparently frequent adoption of the method by Chinese doctors. Some Western doctors complained that these Chinese practitioners would send a child to be vaccinated, then use the pustules on the child as source of inocula for their own vaccination business, in effect, stealing the inoculum [7]. The lack of scarring, however, could be a drawback, since the “flowers of heaven” frequently were viewed positively in selecting brides, as they suggested future immunity to smallpox.

**BUBONIC PLAGUE**

In the case of plague the contrasts between Western and Chinese views appear more clearly, yet they are not so stark as to prevent eventual adoption of the Western approaches into Chinese practice.

Plague, in epidemic form, was rare in China as it was in the West, and older Chinese sources on plague are still unknown or problematic [8]. For the nineteenth century, however, things are a bit more clear. In 1894, epidemic bubonic plague came to Canton and Hong Kong just at a time when bacteriology provided new tools and concepts to better understand this illness. Scholars, both Western and Chinese, inquired into the origins and history of this frightening and mysterious pestilence. From their work, we can get an idea of both Chinese and Western views of plague in late Qing China.

For Western physicians plague was unfamiliar: Dr. James A. Lowson, the Medical Officer in charge of the Epidemic Hospital in Hong Kong, wrote:

> When the present outbreak occurred in Hongkong, the only authority I had at my disposal was the article on Plague in Quain’s “Dictionary of Medicine” by J.N. Radcliffe, the experience we have had here being to a considerable extent new to the present generation. Latterly, the article in the Encyclopaedia Britannica and Davidson’s Tropical Medicine — not to mention Hecker’s classical work — were brought to my notice. I have not been able to make myself familiar with the opinions of Cabiadis and others in print, consequently the notes on the disease which I now present are almost solely founded on experiences here during the past year. [9]
Earlier Western accounts suggest the uncertainty of Western medical opinion: in 1850 the following account was published in a newspaper:

The city of Canton, and the neighboring towns and villages are afflicted by a malignant fever. It is commonly called Typhus; some Europeans - physicians - are of the opinion that it is akin to the yellow fever of the West Indies; others think that it resembles the plague which desolated London two centuries ago. [10]

Dr. Wu Lien-teh, the great Chinese authority on plague, however, doubted that this fatal mid-nineteenth century epidemic was plague. He cited the absence of any mention of buboes, a distinctive feature of plague, from this account, as well as the self-limited extent of the epidemic as evidence against it being plague [11].

Kitasato Shibasaburo from Tokyo was invited by the Hong Kong authorities to study the epidemic in 1894. This invitation to Kitasato, a famous disciple of Robert Koch, indicated that already the Hong Kong medical view was one of an infectious disease that would yield its secrets to bacteriological investigations. By the mid 1890s, the Western model for plague was as a contagious bacterial illness. Both Kitasato and Alexandre Yersin of the Pasteur Institute isolated bacilli from blood, buboes and feces of patients with the plague and claimed that infection with this organism was the cause of plague [thus confirming the theories of their sponsors]. For the Western doctor, then, plague, like cholera and dysentery, evolved from a disease caused by filth and uncleanness in the mid-nineteenth century to a disease caused by infection with a specific micro-organism by the late nineteenth century. It took a few more years to determine the usual routes of transmission of plague; during the 1894 outbreak, the older association with “filth” was still influential, and unsanitary public latrines in Hong Kong were the primary suspect as the course of the plague because of contamination of well-water [12]. In 1889, A.P. Happer, Jr., described an aspect of the plague in Yunnan province:

On approach of the epidemic, the first victims are rats, which fearless of human beings, rush madly into their presence, and after capering around the room fall dead at their feet. [13]

Dr. Lowson explained this finding as follows:

The question of infection of rats, previous to the epidemic being noted in human beings, has been made too much of, as have several other points in connection with plague. It is only natural that as rats have their snouts about an inch above the floors of houses they are much more liable to inspire plague-infected dust than people who have their mouths at least two feet higher. Inoculation is too easy. [14]

The explanatory utility of “filth” was still appreciated, even though a “modern” bacteriological etiology had been adopted.

A Chinese account of plague in Yunnan is so similar that one is suspicious that they might be traced to a common source. “Then, in Chau-Chau [in Yunnan] it happened that in daytime strange rats appeared in the houses, and lying down on the ground, perished with blood-spitting. There was not a man who escaped the instantaneous death after being infected with the miasma.” This account comes from a poem, entitled “Death of Rats” composed in 1771 [15]. Another view of the death of rats was recorded by W.J. Simpson in 1905:
The epizootic was generally looked upon either as a sign of coming plague or as the actual disease attacking animals precedent to its affecting human beings. This latter view is held by the Chinese at the present moment and led, by those who held it, to the doctrine that plague is a soil disease attacking first the animals which burrow in the ground. [16]

A Chinese account of the Hong Kong epidemic of 1894 not only implicates rats in plague, but gives an illuminating account of some late Qing medical thought. Dr. Lowson confirmed that the treatment recommended in this account is the common one he observed in Chinese hospitals and he believed it represented "the most advanced views of Chinese Medicine." This account was published as a way to provide health advice to the Chinese population and took the form of a divination conducted by a Chinese eleemosynary group called "The Society for Offering-up Good Deeds."

The divination was by a method we might call "spirit writing". After certain purification rituals, the members of the society invited the gods to proclaim a cure for the plague by "Planchette."

By good luck they were favored by the presence of Kwan Tai [Ti] (god of war) who descended from heaven to put his hand to the pen [brush] (of the Planchette) to write out his instructions which are more than a timely warning. [17]

The writing on the planchette was interpreted and Lord Kwan's instructions and comments were then published. Some of the salient features of these comments and instructions include the following:

1) Only certain susceptible individuals are unable to resist the attacks of the pestilence. Susceptibility is directly related to immoral actions such as unfilial behavior, blasphemy and failure to perform good deeds.

2) The pestilence is viewed in demonic terms, as a fire, or as a poison, all agents which exist without the body and enter it as unwanted foreign agents.

3) Protection is focused on well-water purification and taking specific medicine:

After your repentance [for immoral acts] you should immediately take the medicines I shall herein prescribe. In addition to so doing, burn some water purifying charms in your family wells and also throw into them some garlic and some kwan chang (medicine). This is a precaution against plague because the water (in the family wells) is becoming colder and poisonous in the plague season to which has been added the filthy fluid from the bodies of the dead rats which has percolated into them from the drains. [18]

4) There is recourse to pathophysiological explanation which links the disease process in an organ (evil wind in the chest) to symptomatology (obstruction and vomiting).

Briefly then, it appears that the nineteenth century views of plague as caused by attack of an exogenous agent, taking up residence in the body, probably found in impure well water, and preventable by reasonable actions directed at that cause, were held by both the Chinese and Western physicians. When it came to specifics, however, discordant ideas were apparent. Just what constituted "filth" was certainly culturally conditioned. For example, the Chinese abhored immoral acts, cold water, and bodily fluids, while the Westerner was more concerned with public latrines and the ever-present dust. Likewise, the view of rats differed. Although dead rats contaminating wells seemed part of the Chinese etiology of plague, the rat as a traditional Chinese cultural icon often represented fertility and wealth.
The substantial Chinese-Western overlap in what Unschuld has called the ontological approach to illness (i.e., "the idea that a disease is either a 'being' unto itself, or is represented by a definable pathological agent") [19] appears to have existed in nineteenth-century concepts of plague. These common threads probably contributed to the fabrication of at least some consensus on how to respond to the plague in late nineteenth and early twentieth century China. Both Western and Chinese medicine soon accepted the role of the rat in bubonic plague. One account described a Chinese official in Canton who offered a bounty on rats and in one month had been inundated with over 35,000 dead rats, many of them probably bred or imported for the express purpose of collecting the bounty [20]. With the experimental demonstration of the role of rats and fleas in bubonic plague by Paul Simond in 1898 and W. Glen Liston in 1905, anti-rat campaigns gained support from Western physicians, too. "Filth" and water-borne spread became obsolete [21]. However, as noted in 1913 by Li Shu Fan, Health Commissioner of Guangdong Province, "The scheme practiced formerly of collecting rats by paying a fixed price per head is to be condemned, because this invites the wholesale importation of rats and probably plague." [22]

To be sure, there were strong objections by the Chinese populations in Hong Kong and elsewhere to many of the plague-control measures instituted by the Western-oriented authorities. These objections, however, related not so much to differing concepts of the nature of the illness as to notions as to what should be done about it. Quarantine, decontamination and destruction of dwellings were apparently rare in China [23]. Cremation and mass burials violated traditional beliefs in the need for bodily integrity after death for proper spiritual survival.

CHOLERA

My final example, cholera, is complicated by problems of disease recognition and definition. Chinese sources describe this disease by its "chief complaint": "a disease of purging and vomiting related to something huddled up in a confused manner inside the body" [24]. A single term, huo luan [½½], was used by Chinese physicians for illnesses which included a variety of diseases recognized as distinct by Western medicine by the end of the nineteenth century, e.g., acute gastroenteritis and food poisoning, as well as what we call Asiatic cholera. Prior to the nineteenth century, however, the accounts of huo luan do not include any reference to its epidemic character. Thus, when epidemic cholera appeared in China in 1820 as part of the pandemic of 1817, many Chinese writers identified it as a new disease. Hsü Tzu-mo of Kashing, wrote:

In ancient times there was no such sickness as 'contracting the tendons of the legs disease'. It suddenly appeared between the summer and autumn of the hsin szu year (1821). The symptoms are vomiting or purging or both; some with colicky pains and some without. After a little time the tendons of the legs begin to contract. The hands and feet may be similarly affected. The severer the pain, the greater the contractions, Immediately the flesh shrinks, the respiration quickens, the voice is feeble and the eye is sunken. There is intense thirst, cold clammy sweat and sinking pulse. The patient may die within a day and half and sometimes even dropped dead while walking along the street. [25]

Other sources noted that a great many people died in both Beijing and Fukien province.

A second epidemic reached China about 1837 and Chinese writers began to look for ancient accounts and some suggested that the epidemic was a severe form of huo luan, mentioned in the ancient texts. More recent scholars believe that, on balance, cholera was
probably known in China by the seventh century based on the descriptions of the muscle spasms which accompanied the vomiting and purging [26].

The Chinese ontology of cholera or huo luan, includes specific pathophysiologic explanations: first of all the meaning of the name, huo luan, suggests invasion of the body by "a thing." Second, Sui and Tang authors suggested that food, not demons were responsible for huo luan and that cold (air) in the tendons made them cramp up [27]. Third, a Yüan dynasty source gave a detailed explanation: the retained, ingested food, in combination with certain external influences, such as the cold principle, caused the yin principle to fail to ascend properly and the yang principle to fail to descend properly in their normal ebb and flow in the body. These obstructions caused the diaphragm to be drawn down, and led to vomiting and purging. All in all, this is a rather consistent and satisfying explanation for the thirteenth century [28].

Based on the Chinese conception of cholera as resulting from morbid excess of "cold," treatments were aimed at warming and stimulating the vessels. As one Western physician noted in the mid–nineteenth century, "... despite their fanciful theories, [the Chinese] pursued the same therapeutic course which in the West has been found most efficacious." [29]

China suffered widespread epidemics of cholera in 1862, 1883, 1902 and 1926 with many more years of local epidemics [30]. The general approach to the afflicted person by Chinese medicine as well as Western medicine, at least in the nineteenth century, seemed very similar, that is, supportive therapy. Prior to the bacteriological model for cholera, Western medical opinion was fragmented: some favored miasma as the cause, some favored environmental deficiency models, and some favored some form of micro-organisms as the cause. Many were just baffled [31]. Later in the nineteenth century, following the work of Snow and Pettenkofer, suggestions for boiling drinking water developed in the West. Such recommendations were largely unnecessary in China since there was already the longstanding cultural practice of only drinking boiled water and not eating raw vegetables. Other recommendations for sanitary reform, however, were resisted in China as well as in the West.

Late nineteenth and early twentieth century Western therapies for cholera were attempts to counteract the massive diarrhea of cholera by cautious administration of various natural products such as camphor and essential oils or antiseptics such as potassium permanganate. Such treatments had their counterparts in the Chinese pharmacopeia, and were not likely to seem strange to the Chinese.

By the time specific vaccines for cholera, along with parenteral salt and water replacement schemes, were introduced into China during the early Republican period, Western medicine had enjoyed some success and considerable political patronage in the control of pneumonic plague in Manchuria. This work on pneumonic plague (as distinct from rat-borne, bubonic plague) paved the way, because of the chronology, and to some extent because of its success, for the acceptance of the newest Western ideas on cholera.

For cholera, then, we can discern in Chinese thinking, considerable overlap with Western ideas, especially before the relatively recent adoption of bacteriological models, vaccines, and electrolyte replacement therapies.

**CONCLUSIONS**

These three examples suggest that for acute infectious diseases, the Chinese viewed the symptomatologie the causes and the rational treatments in many ways similar to that of their contemporary Western counterparts. Rather than holding an opposing, clashing or incongruent system of medical thoughts for these common, well-recognized infectious diseases, the Chinese were rather prepared, by a long tradition of ontological thinking, to
be receptive to the adoption, incorporation or modification of Western medical ideas in the late nineteenth century.

Consideration of various socio-political forces acting for and against the acceptance of Western medicine in China highlight the struggles between Western imperialism and Chinese nationalism on one hand and between several strata within Chinese society on the other [32]. These analyses illuminate critical aspects of the relations of Western medicine to Chinese culture, yet they tend to treat Western medicine and Chinese people as undifferentiated entities. Thus, at one extreme, plague, cancer, trauma and mental illnesses are all lumped together, or at the other extreme, a single disease, for example, plague, is taken as representative of all cases. While acknowledging that the socio-political context is an essential part of the historical reconstruction, a richer and more understandable picture of the Westernization of Chinese medical thought and practice requires more attention to the conceptual congruences as well as mismatches concerning the nature of specific illnesses. While diagnosis and therapy are operationally easier to observe, they represent to a large extent, the consequences of particular ontological views about the illness. Further, while diagnosis and therapy are more likely to indicate the views of the medical professionals, it may be the beliefs held by the general population which ultimately determine the acceptance or rejection of specific medical ideas and practices. The examination of the "ontology of specific illnesses" which I have suggested in these few pages may be able to clarify some of these issues.

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