The Cambridge World History of Human Disease

CAMBRIDGE
UNIVERSITY PRESS

VI.2 Diseases of the Premodern Period in China

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Old Diseases

It is very difficult to trace precisely the historical development of particular epidemic diseases in China. First, traditional Chinese medical terminology is based on a system hardly translatable into modern Western terms. Second, not only the concepts of disease, but the diseases themselves have changed, so much so that it is impossible to determine whether an ancient classical term meant the same thing when used in premodern texts, or to find the exact modern counterpart of a disease discussed in old texts.

Only during the second half of the nineteenth century did diseases in China begin to be scrutinized by Western medical practitioners, and as late as the early twentieth century, it was difficult to construct a complete picture because "there were classes of disease that were rarely brought for treatment to modern doctors" (Polunin 1976).

One principal feature of the traditional Chinese medical system (a system that achieved classical form by the second century) that makes it difficult to identify individual epidemic diseases in premodern China is the ancient categorization of both epidemic and endemic diseases along with other afflictions into a large group labeled *shanghan* ("affection by cold," although today it is the modern term for typhoid fever). Ge Hong, one of China's most important early medical thinkers, specified in the early fourth century A.D. that the *Shanghan* diseases included not only those caused by winter cold but also those caused by spring warmth and by seasonal *liqi* (epidemic "breath"). However, he conceded that differences among the origins of the three types of diseases were slight and they should therefore be grouped into a single category. This ambiguous conception of epidemic "fevers" as part of a more general category of "cold fevers," despite some minor modifications, remained relatively unshaken in Chinese medical thought until the seventeenth century (late Ming and early Qing dynasties).

Widespread epidemics during the late Ming dynasty (Dunstan 1975) induced certain medical thinkers to reject the entire *shanghan* theory because most of the diseases they were called on to treat were found not to be caused by winter cold. The most representative of these pioneer thinkers was Wu Youxing, a seventeenth-century native of the epidemic-stricken eastern Jiangsu region. His work *Treatise on Warmth Epidemic Disease,* written in 1642, put forward the theory that seasonal epidemics were caused by deviant *qi* ("ether") in the atmosphere (Dunstan 1975). The "warm factor" was now favored over the "cold factor" as cause for the disease. Even diseases such as smallpox that had traditionally been considered manifestations of the body's internal "fire" or "poison" were now grouped with communicable diseases caused by external *qi*.

Even this important development in understanding the etiology of epidemic diseases in premodern China does not help us understand all diseases in this period in Western terms. Insufficient descriptions of the symptoms of diseases in medical texts as well as in local gazettes and dynastic histories where most of the information on epidemics can be found constitute the main obstacle to such understanding. Moreover, China's vast size implies regional differences in disease history that are still grossly unappreciated. At the present stage of research, with the exception of a few diseases that are easily identifiable, the best guesses as to the identity of most remain highly hypothetical.

Old and New Diseases

The sixteenth century can be considered a watershed in China's disease history. With the coming of European traders to China's southeast coast and the intensification of international commercial activities in South and Southeast Asia, China entered the world community and a few new epidemic illnesses entered China. Scarlet fever, cholera, diphtheria,

and syphilis are the more important ones to be added to the reservoir of older diseases that had been ravaging China for centuries. Among the latter were smallpox, pulmonary diseases, malarial-types of fevers, other febrile illnesses, dysentery, and possibly plague. However, the social and demographic impact of the new diseases on China after the sixteenth century is a field largely unexplored despite its important historical implications.

Smallpox is one of the oldest diseases known to China. An early sixth-century medical work claimed that the malady (then called *luchuang,* "barbarian boils") was introduced around A.D. 495 during a war with the "barbarians" in northern China (Fan 1953; Hopkins 1983). Little is known of the development of smallpox thereafter, until the late eleventh century (Northern Song period) when treatises on the disease written by pediatricians first appeared.

That pediatricians wrote of smallpox suggests that by this time it had developed into a childhood illness among the Chinese population (Leung 1987b). The technique of variolation using human pox was first practiced in the lower Yangtze region not later than the second half of the sixteenth century, and vaccination became popular in the early nineteenth century, when Jennerian vaccination techniques were introduced through Canton. Yet, despite the early practice of variolation, smallpox was rampant in China, especially in the north (the Manchus and the Mongolians were the most vulnerable, and two of the Manchu emperors died of the disease) where variolation was much less practiced than in the south (Leung 1987b).

Malarial-types of fevers (*nue* or *zhang*) first appeared in medical texts in the seventh century, when the economy of the subtropical regions south of the Qinling Mountains became of great importance to the northern central government. From the twelfth century on, after northern China was occupied by the Jurchens and the Song government fled to the south, specialized medical books on malarial fevers and other subtropical diseases believed to be caused by the "miasma" (*zhangqi*) of these regions appeared in increasing number (Fan 1986). Some scholars believe that temperatures during the Tang period (A.D. 618–907) were probably higher than those of today, which suggests that the northern limits of diseases associated with the southern climates (malaria, schistosomiasis, and dengue fever) were further north than they are today (Twitchett 1979). The number of victims of these diseases was therefore likely to be larger than previously thought. In fact, malaria was still a major killer in South and Southeast China during the early twentieth century (Chen 1982).

The history of plague in China is a controversial subject. Some believed that it arrived in China in the early seventh century (Twitchett 1979), whereas others date the first appearance in the 1130s in Canton (Fan 1986). Yet both of these views are based at least in part on simple descriptions of symptoms (appearance of *he,* "nodes"; or *houbi,* "congestion of the throat"), which is far from conclusive evidence. By tracing the development of plague epidemics in the Roman Orient, and in Iraq and Iran from the mid-sixth century to the late eighth century, D. Twitchett (1979) has argued that at least some of the epidemics that struck China from the seventh and eighth centuries were those of bubonic plague. By contrast, those who feel that plague burst out as devastating epidemics only in the early thirteenth or fourteenth century (McNeill 1976; Fan 1986) suggest a possible relationship to the European Black Death of the same period.

Unfortunately, there is no direct evidence to support either of the above hypotheses. Even as late as the seventeenth century, when China was again struck by a series of epidemics, it is impossible to prove that these were outbreaks of plague (Dunstan 1975). The first epidemic in China, which we have substantial reason to believe was plague, was that first striking Yunnan in 1792. It then spread to the southeastern provinces of Guangdong and Guangxi, up the Chinese coastline to Fujian and to the northern part of China (Benedict 1988). But it was only in the late nineteenth century that medical works on the "rat epidemic" (*shuyi*) began to be published (Fan 1986).

In addition to the epidemic diseases discussed above, several endemic ailments were likely to be equally devastating. Among these were pulmonary diseases (probably pneumonia and tuberculosis), dysentery, various fevers (the *shanghan* category of fevers), which probably included typhoid fever, typhus, and possibly meningitis, cerebrospinal fever, influenzas, and the like. Most popular almanacs and family encyclopedias of the Ming–Qing period that contained chapters on common illnesses and their treatment mentioned dysentery, the *shanghan* diseases, and coughs. Skin diseases, *huoluan* (prostrating fever with diarrhea), beriberi, and *nue* (malarial-type fever) were also frequently discussed (Leung 1987a).

Perhaps some notion of the relative importance of these endemic diseases, especially in southern China, can be gleaned from surveys done in Taiwan

during the Japanese occupation period (1895–1945). The disease that caused the highest mortality in Taiwan from 1899 to 1916 was malaria. In 1902, it accounted for 17.59 percent of mortality among the native Taiwanese, causing 4.62 deaths per 1,000. Malaria was followed by dysentery and enteritis until 1917, after which "pneumonia" became the region's biggest killer (4.42 deaths per 1,000 in 1935). Next in importance was dysentery (2.55 deaths per 1,000 in 1935), whereas other contagious diseases including parasitic ailments accounted for 1.5 deaths per 1,000 in 1935 (Chen 1982).

That pulmonary diseases and dysentery persisted as the major fatal diseases among southern Chinese from the premodern period to the early twentieth century seems obvious. The secondary place that Ming–Qing almanacs accorded to the malarial-type fevers, despite the fact that malaria was the principal killer in nineteenth-century Taiwan, can be explained by the fact that few, if any, of these almanacs were written by authors from subtropical and frontier regions. It is also possible that malaria was confused with some of the *shanghan* diseases in almanacs.

Parasitic diseases, which ranked third on the list of high-mortality diseases in Taiwan in the 1930s and 1940s, were rarely mentioned in the almanacs. But their importance was emphasized by Western scientists who came to China in the early twentieth century. Thus G. F. Winfield claimed that fecesborne diseases caused about 25 percent of all deaths in China, especially among peasants in the rice and silk regions of the south (Winfield 1948).

Syphilis was one of the first "new diseases" that reached China. It was probably first introduced to Guangdong through Portuguese traders in the early sixteenth century, as a 1502 medical work recorded that syphilis was called the "boils of Guangdong" (*guangchuang*) or "plum boils" by the people of the lower Yangtze region. The disease was already much discussed in sixteenth- and seventeenth-century medical texts, some of which clearly stated that it was transmitted through sexual intercourse (B. Chen 1981; Fan 1986). Along with gonorrhea, syphilis probably accounted for 2 to 5 percent of all Chinese deaths in the 1930s (Winfield 1948).

Cholera probably arrived after syphilis. The modern term for the disease – *huoluan* – was in the past a name for any disease that caused sudden and drastic vomiting and diarrhea. Reliable records date the first real cholera epidemics in China from the 1820s. Like syphilis it also was first introduced in Guangdong and spread from there along the southeastern coast up to Fujian and Taiwan. It usually struck in the months of August and September.

Some scholars suspect that an epidemic in 1564, which had reportedly killed "10 million people," may have been cholera. But regardless of the possibility of cholera's presence at an earlier date, there is no question about the devastating effects of cholera in nineteenth-century and early twentieth-century China, especially in crowded urban centers (B. Chen 1981; S. Chen 1981; Fan 1986).

Scarlet fever and diphtheria came to China in the early and late eighteenth century, respectively. Scarlet fever was epidemic in the lower Yangtze region in the 1730s during the winter–spring transition and was then called "rotten-throat fever" (*lanhousha*). The contemporary epidemiologist Ye Gui (1665–1745) noticed that the illness struck all age groups and that the victims were covered with dense red spots and had red sore throats. The disease seemed to be more devastating in the north. In the Peking area of the 1930s, the estimated mortality of scarlet fever was 80 per 100,000 (S. Chen 1981).

Diphtheria was confused with scarlet fever when it first reached China in the late eighteenth century. It became widespread and epidemic in the decades of the 1820s through the 1850s, spreading from the lower Yangtze region to southwestern China and to the northeastern regions before it reached the northwest in the late nineteenth century. The first medical work on diphtheria (then called "white-throat disease," *baihoulong* or *baichanhou*) was also published in the mid-nineteenth century (Fan 1986).

It is difficult to estimate quantitatively the mortality caused by the new diseases. Their older counterparts seemed to remain on the top of the list of high-mortality diseases into the early twentieth century. However, as scarlet fever was the tenth leading cause of mortality in the Peking area between 1926 and 1932 (S. Chen 1981), and as syphilis (with gonorrhea) accounted for 2 to 5 percent of all deaths in China, their roles cannot be underestimated. Perhaps the reason why the impact of cholera and diphtheria epidemics in the premodern period was not quantified was that the former was too seasonal and the latter basically a childhood disease.

According to local gazetteers of the southern provinces, epidemics usually struck during the spring–summer and the summer–autumn transitions. This seasonability of disease prevalence was confirmed by the 1909 Foochow Missionary Hospital Report, which recorded 2,004 patients treated in May, 1,943 in June, and 1,850 in October – equaling about one third of the 17,456 patients treated during the entire year (Kinnear 1909). Dysentery was generally the biggest killer in the summer, whereas cholera did its most important damage in October.

Unlike Japan whose isolation from the important world trade routes kept major diseases away from its shores during premodern times (Jannetta 1987), China was always exposed to epidemic disease. Trade through the old silk route, war with the northern "barbarians," travel to and from India and Indochina – all brought the "old" diseases to China, whereas the coming of the Europeans by sea from the sixteenth century onward brought a few "new" ones.

The low mortality rate resulting from diseases in premodern Japan preceded a period of low fertility, all of which shaped Japan's demographic development (Jannetta 1987). Comparison with Japan in turn raises the question of the extent to which epidemic diseases in China may have been an important factor in its population growth. For example, did China ever experience something similar to the Black Death, which struck Europe in the fourteenth and fifteenth centuries, or the smallpox epidemics that paralyzed the Amerindian communities in the sixteenth century?

Population and Disease

Questions such as those above have always intrigued historians of China because the Chinese population has experienced mysterious declines that were *possibly* caused by widespread epidemics. One such decline of population occurred in north China in the late seventh century, whereas another was a decline in the lower Yangtze region during the ninth century. Other examples are the drastic depopulation of north China during the Mongol dynasty in the fourteenth century, and the decline during the Ming–Qing transition in the mid-seventeenth century (Cartier and Will 1971; Zhou 1983; Wu 1988). Indeed, despite the nature of Chinese sources that do not permit any precise demographic reconstruction, it is generally conceded that China's population in the tenth century remained very much the same as it had been nine centuries earlier. A significant growth, however, took place during the three centuries following the tenth century and in the early thirteenth century, when the population was estimated to have reached an unprecedented high of between 100 million and 120 million people (Cartier and Will 1971). Yet the fourteenth century was one of demographic disaster. Ho Ping-ti estimates the population level at the end of the fourteenth century to have been around 65 million, although it exceeded 130 million by the turn of the following century and soared to 150 million by 1600 (Ho 1959). Another drastic decline seems to have occurred in the mid-seventeenth century, which may have reduced the population to 83 million in 1651 (Wu 1988). Momentum was regained during the eighteenth century by the end of which the population had tripled, reaching 313.2 million in 1795. By comparison, China's population in 1686 was ony 101.7 million.

Scholars have attributed some of these drastic population declines to epidemics. Twitchett (1979), for example, argues that epidemics had some effect upon demographic trends in the seventh, eighth, and ninth centuries, and might have been one major reason for population stagnation before the tenth century. It is also tempting to attribute the mysterious but real decline of population in north China during the fourteenth century to plague, as does William McNeill (1976). Some scholars would go even further by hypothesizing that plague was ravaging northern China as early as the thirteenth century. The beginning of the century saw a series of epidemics in Hebei and Shanxi, and then an epidemic struck Kaifeng (Henan) in 1232, reportedly killing nearly 1 million people within 50 or 60 days (Fan 1986).

Moving to the late Ming period, of the sixteenth and seventeenth centuries, H. Dunstan's (1975) preliminary survey of epidemics suggests that these catastrophes also had long-term effects on population growth and that the prosperity of the ensuing early and middle Qing dynasty was the result of an easing of pressure on land resources brought about by huge die-offs from disease, as well as from war and famine around the middle of the seventeenth century.

Yet the question of the impact of disease on China's population remains controversial because of different interpretations of demographic sources (Cartier and Will 1971; Bielenstein 1975; Wang 1988). Also remaining is the question of how regional differences in population development can be related to local epidemics. Natural catastrophes like epidemics or famines were usually local rather than widespread occurrences and of smaller magnitude and shorter duration than impressionistic accounts have led many to believe. In fact, it could be argued that they were unlikely to have had long-term demographic impact (Watkins and Menken 1985).

Thus, it is perhaps most reasonable to see the presence or absence of epidemic disease in China as just one of the determining factors in long-term population growth. The unprecedented upsurge in popula-

tion during the Song period (eleventh to thirteenth centuries) is generally believed to be closely related to a series of revolutionary changes in agriculture in the more developed southern regions, especially with rice growing. The period witnessed the introduction of early-ripening rice as well as improvements in irrigation and other agricultural technologies all of which greatly increased land productivity (Ho 1959, 1969; Bray 1984). The next upsurge in population, however, was from the eighteenth century onward, a period in which there was no comparable technological revolution. Could the "stagnation" between the two upsurges be explained by differing mortality rates in which infectious diseases had a role?

Stagnations in "preindustrialized" populations occurred when high or moderately high fertility rates were balanced by similarly high mortality rates resulting from uncertain food supplies and unavoidable diseases. It is generally agreed that in Asia, where marriage was early and nearly universal, fertility was higher than in preindustrialized western and northern Europe, where women married late and forced celibacy was more common (Coale 1986). Therefore, a stagnation in population development in China can best be explained by high "normal" mortality rates.

Subsistence crises were always a constant threat to the Chinese, which, by causing undernutrition (if not death from starvation), reduced their resistance to disease. The prevalence of dysenteries, *shanghan* (discussed earlier), and respiratory diseases might be an indication of general dietary deficiencies (Polunin 1976). Certainly, beriberi, which was often discussed in the family encyclopedias, could cause death directly or indirectly by leaving the individual less able to resist diseases, whereas infantile beriberi has proven to be a major killer of nursing infants in thiamine-deficient populations.

In addition, parasitic diseases probably killed millions of peasants because the use of human feces as fertilizer was a universal practice for centuries. Flooded rice fields were also breeding grounds of mosquitoes – the carriers of malaria and other infections. In addition to malnutrition and agricultural practices, poor hygienic conditions, especially in some of the southern provinces and frontier regions, must also have been an important factor in encouraging insect-borne diseases like malaria and plague. Other important factors that could account for high morbidity rates, especially in urban centers in the late Ming period, were the absence of sewage and water control, and the inflow of masses of vagrants from poorer areas to the centers who were most likely carriers of contagious diseases (Liang 1986; Leung 1987a).

Thus, with fertility rates already high, the demographic upsurge of the eighteenth century is best explained by a remarkable decline in mortality. At least the initial stage of the upsurge can be explained in terms of mortality decline, although subsequent increases in populations were likely to have been generated largely by the internal dynamics of an already huge population. The industrialization of the period was neither important nor modern enough to cause a significant rise in tuberculosis.

Ann Jannetta (1987) suggests that the practice of infanticide and abortion in Tokugawa Japan was a sign of attempts to control fertility because of an already slowly declining mortality. This may also have been the cause in China, for it was the case from the late seventeenth century onward that foundling homes were widely established, possibly reflecting increasing infanticide and child abandonment. Interestingly, the only precursor to this movement was in the thirteenth century when China experienced its first population boom (Leung 1985).

Decline in Chinese Mortality

Why then did mortality decline? Ho Ping-ti's (1959, 1978) findings on the introduction of new crops from the Americas during the sixteenth century provide us with one of the more persuasive answers. These easy-to-grow crops – for example, sweet and white potatoes and maize – may well have substantially stabilized food supplies for the poor in less fertile and mountainous regions. D. H. Perkins (1969), however, suggests that changing cropping patterns and rising traditional capital inputs increased crop yields per acre. Either way an improved food supply was certain to have reduced the chances of starvation for the people and consequently their susceptibility to various diseases.

Some would argue that long-term climatological evolution was the main factor: the post–fifteenth-century population growth, its decline in the mid-seventeenth century, as well as the explosion in the eighteenth century, all corresponded to climate changes of the time (Eastman 1988). Here even the changes in food production and the disease factor can be considered as affected by the climate.

Another important factor that should be considered is that in its earliest stages, a mortality decline is the result of lowered mortality rates for the young. This was the case in modern Europe and in Japanese-occupied Taiwan (Chen 1982; Riley 1986).

The health of the mother is an important variable in infant mortality, whereas better resistance to childhood diseases typically explains a reduced mortality in children over one year of age. Surely mother's education and infant mortality are directly related; however, the relationship is impossible to verify in this period. In addition, the lowering of mortality in children in modern Europe and early twentieth-century Taiwan was closely linked to the improvement in general hygiene (Chen 1982; Riley 1986). Unfortunately, it would be mere speculation to say anything about the improvement in the hygienic conditions (especially the provision of clean water for drinking, washing, and bathing) in premodern China at this stage, and in any event, there must have been enormous regional differences.

However, the early practice of variolation against smallpox is a possible factor in explaining the decline in Chinese mortality. An eighteenth-century smallpox specialist, for example, claimed that over 80 percent of the children of wealthy families in China had been inoculated (Leung 1987b). On the other hand, the majority of children were not inoculated, and clearly, no single factor is likely to serve as an explanation. Avenues of research that may prove fruitful in examining the question of reduced infant and child mortality include changing concepts of pregnancy, childbirth, and infancy (Leung 1984; Furth 1987); the attitudes behind the nationwide establishment of foundling homes; improved hygiene and immunization; and traditional diet therapy based on the humoral dimensions, and the whole folk nutritional science built largely on empirical observation (Anderson 1988).

If we are uncertain of the positive effects of new developments in agriculture, new crops, or variolation on reducing mortality, we can at least be confident that diseases no longer hindered long-term population growth, and that the contribution of disease to the mortality rate was no longer as great as it had been in the past, despite the introduction of some new diseases from the sixteenth century onward. Improved therapy and medication may have played a limited role in reducing the importance of disease, as, for example, the increasing use of herbal-based drugs (before the introduction of quinine in the eighteenth century) to fight malaria instead of the more dangerous arsenicals used in the Ming–Qing period (Miyasita 1979). But like variolation, the effects of herbal-based drugs, probably only used by small sections of the population, are difficult to estimate.

Certain institutional changes may have had some indirect effects on mortality rates. The Song state in the twelfth and thirteenth centuries took responsibility for providing medical help to the poor through public pharmacies. The Mongol dynasty continued this tradition by creating a nationwide system of "medical schools" to train local doctors. Yet, the tradition began to decline in the late fourteenth century, and by the late sixteenth century such institutions had largely disappeared. To some extent, this void was filled by local philanthropists who took responsibility for providing regular medical help to the needy from the seventeenth century on. They organized charitable dispensaries that provided the local people with medical care and medicines, and sometimes decent burials for the dead. These public but nonstate medical organizations could be found in many urban centers in the eighteenth and nineteenth centuries (Leung 1987a), and the free or very cheap medical treatment offered must have provided at least a minimum of necessary care to the urban poor. Moreover, the burying of dead bodies collected from the streets also helped to upgrade the sanitary conditions of these urban centers. According to an 1860 report by the American Presbyterian missionary in Shanghai, John Kerr, the local charitable dispensary, which was staffed by eight or nine Chinese physicians, was visited daily by 300 to 500 individuals "of all classes" (Kerr 1861).

After weighing the many changes that together brought about the mortality decline in China, we find it probable that an improved supply of food, which strengthened the nutritional status of the general population, was the most important factor from the late seventeenth century onward. The spread of variolation and an increasingly denser network of charitable dispensaries in the same period may also have contributed to a reduction in mortality, especially in southern China. Improved hygiene and child care practices were also probably important factors in bringing about what seems to have been a decline in infant mortality rates, but this has yet to be demonstrated.

Chinese Medicine

Discussion of some prominent features of Chinese medicine and the traditional reaction of the people toward disease will help us understand the Chinese system and allow us to gauge its relative effectiveness from the modern point of view. Quarantine, which was a common practice in Europe from the fifteenth century onward, was never widely practiced in China. There were, however, instances of isolation of individuals for certain diseases such as smallpox and especially leprosy.

Apparently, lepers were put into "lazaretto"-type hospices as early as the Qin dynasty (221–207 B.C.), and examples of such institutions are also found in sixth-century sources (Xie 1983). Unfortunately, there is no systematic documentation relating to hospices, and there is only sporadic mention of them in later sources. In the mid-nineteenth century, for example, we know that leper hospices existed in eastern Guangdong, where interned lepers were allowed to marry only among themselves. Moreover, their offspring were freed only after the third generation, when the genetic "poison" was believed to be exhausted (Liang 1982). In the same period, leper hospices were also organized by overseas Chinese communities in Batavia (Yang 1842).

As for smallpox-quarantine measures, there is at least one instance on record. In 1645, when the Manchus had just conquered Peking, they decreed that all smallpox victims and their families be banished 40 *li* (about 3 miles) from the city wall. The policy was still in force in 1655 (Hopkins 1983; Leung 1987a). Yet, as noted above, these were exceptional instances, and it is difficult to understand the Chinese lack of interest in quarantine (Leung 1987a). Ethics, however, probably had something to do with it. Moralists like Zhu Xi of the twelfth century, for example, condemned the "abandoning" of one's relatives and friends who fell victim to contagious diseases. Rather, one should risk infection by remaining behind to care for the sick, and there existed some conviction that moral power thus manifested would somehow keep the epidemic spirit away (*Huizhoufu zhi* 1502). On the other hand, the concept that diseases were caused by broad environmental influences – ether or vital energy (*qi*), wind (*feng*), fire or heat (*huo*), and water (Xie 1983) – would also seem to have discouraged quarantine measures.

Chinese medicine as a body of knowledge to fight disease never developed into a "science" as it did in Europe from the seventeenth century onward. For the scholar, medicine was a respectable field of study linked to philosophy, although the practicing physician was not accorded a high social status (Hymes 1987; Leung 1987a). Medical skills were transmitted within families and not by government-authorized institutions. The Imperial Academy of Medicine (*taiyiyuan*) trained doctors only for government service and for the imperial family, and had no obligation to standardize medical knowledge or control the medical profession. Under such circumstances, medicine had a tendency to become "democratized," because all educated people had access to medical literature. Popular Ming–Qing almanacs and encyclopedias must also have reinforced this trend (Leung 1987a).

As in premodern Europe, peddler-doctors, self-trained midwives, women-pharmacists and other "heterodox" healers flourished especially in the countryside. Women and children were often treated by female healers exclusively (Leung 1987a). In 1759, a book on the principles and practices of peddler-doctors, *A Collection of Proper Methods* (*Chuanya*), was published by the scholar-pharmaceutist Zhao Xuemin. The work was based on his interviews with a peddler-doctor and reveals a long tradition of popular healing that relied heavily on acupuncture, purging either through *ding* (provoked vomiting) or *chuan* (provoked diarrhea), and other methods (*jie*) that aimed at stopping symptoms instantly. Yet healers who practiced these "violent" methods were the lowest stratum in a system that emphasized memorization of abstract theories from the medical classics, subtle diagnosis, and a long and respectable family tradition of medical practice.

More often than not during epidemics, state financial aid was used for buying coffins to bury the dead (Leung 1987a), and people, high and low alike, commonly resorted to rituals and shamanistic practices when illness struck. Indeed, healing by charms and amulets (*zhuyou ke*), which had its roots in antiquity, was part of the curriculum of the Imperial Academy of Medicine since Tang times. Diseases and especially epidemic diseases were firmly believed to be caused by unpacified ghosts and spirits of the locality; thus rituals were essential in disease avoidance (*Huangchao jingshi wenbian* 1897). Individuals afflicted by illness were likely to ask help from various deities, or to correct moral faults that were believed to be the source of the physical corruption (Leung 1987a).

Such fatalistic attitudes toward illness and lack of total confidence in medicine should not be cause for surprise. To a certain extent, this behavior is still prevalent among the Chinese populace today.

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Published by the Press Syndicate of the University of Cambridge
The Pitt Building, Trumpington Street, Cambridge CB2 1RP
40 West 20th Street, New York, NY 10011-4211, USA
10 Stamford Road, Oakleigh, Victoria 3166, Australia

First published 1993

Printed in the United States of America

Library of Congress Cataloging-in-Publication Data
The Cambridge world history of human disease / editor, Kenneth F. Kiple ; executive editor, Rachael Rockwell Graham ; associate editors, David Frey . . . [et al.] ; assistant editors, Alicia Browne . . . [et al.].
p. cm.
Includes indexes.
ISBN 0-521-33286-9 (hc)
1. Medicine – History. 2. Medical geography. 3. Epidemiology. I. Kiple, Kenneth F., 1939–
[DNLM: 1. Disease. 2. History of Medicine. QZ 11.1 C178]
R131.C233 1993
610'.9 – dc20
DNLM/DLC
for Library of Congress 92-4173
CIP

A catalog record for this book is available from the British Library.

ISBN 0-521-33286-9 hardback