

in the century. With the 1890s as a hinge, we might discern a single story of political reasoning that extends from the Daoguang reign to the 1920s, from statecraft to the party state.

Another implication with long-term resonance is the range of covers available for dissenting popular societies in the absence of a constitutionally protected civil society. Two that appear in these articles are: *routinized secrecy* (sometimes of cultish origins) and *elite patronage* (whether open or covert). The first provided cover for non-elite activists (such as the anti-Manchu *paoge*) who lacked access to high-level protection. To a certain extent the second protected dissenting intellectuals, to the point where reform movements were actually encouraged by persons in high places (e.g., Zhang Zhidong's patronage of *Shiwu bao*, an outgrowth of his personal brain-trust; to say nothing of the Guangxu emperor's short-lived patronage of Kang Youwei!). Absent a strong civil society, such covers continue to shield agents of change in China, for better or worse. Their origins, of course, long antedate the nineteenth century.

Perhaps the nineteenth century is best viewed as a permanent summons to flexible thinking. Our old categories of "foreign" and "domestic" no longer fit under distinct rubrics; the cultures of China and the West no longer are conceivable as impact and response, sender and receiver, not even as distinct and incompatible entities. "Modern" and "traditional" are lost in a miasma of ambiguity: how "modern" is the political thought of the 1890s? How "traditional" are Wei Yuan's or Zhang Taiyan's Confucianism? None who immerse themselves in the nineteenth century can emerge without a healthy feeling of scholarly unease. We fasten our old academic dichotomies upon that century at our peril.

THE BUSINESS OF VACCINATION IN NINETEENTH-CENTURY CANTON

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Introduction

Lu Xun (1881–1936) wrote a vivid account in 1933 of his first vaccination when he was two or three years old in his home town, Shaoxing. He was vaccinated at home, instead of in a vaccination bureau, "meaning that it was probably a grand occasion." He could still remember the vaccinator as a man "with a plump, round, and reddish face, wearing a big pair of tinted glasses." What struck him most was that the vaccinator spoke a language that was totally incomprehensible to him, like the one "spoken by mandarins," and his appearance "was similar to that of a mandarin."¹ Lu Xun's memoir also tells us other interesting details about vaccination during the late nineteenth and early twentieth centuries: vaccination bureaus were common but only seasonal in major towns; vaccination was far from universal while traditional variolation was still a choice. Lu Xun was typically sensitive to local traditions, but here he misses a central point in the story of vaccination in China. Praising Shanghai as "probably the most civilized place in China" because vaccination there was popular and convenient, he ignored the fact that, as far as vaccination was concerned, Canton should have been the city of reference since the technique was first introduced into that city in the early years of the nineteenth century and the practice became widely accepted there first.

The story of the introduction of Jennerian vaccination in China via Macao and Canton is a story told many times, especially by Chinese historians, sometimes in great detail.² One of the first English accounts can be found in

¹ Lu Xun, "Wo de zhongdou" (My vaccination).

² The most important works included: Chen Yuan "Niudou ru Zhongguo kaolue" (Study of the introduction of vaccination in China); Peng Zeyi, "Xiyang zhongdou fa chu chuan Zhongguo kao" (Study of the introduction of Western vaccination in China); Fan Xingzhun, *Zhongguo yufang yixue sixiang shi* (History on the conceptualization of preventive medicine in China); Liang Qizi (Angela K.C. Leung), "Ming-Qing yufang tianhua cuoshi zhi yanbian" (Development of preventive measures against smallpox in the Ming-Qing period); Liao Yuqun, *Qihuang yidao* (Chinese medicine). A more complete list of Chinese works on the subject is provided by Chang Chia-feng, "Shijiu shiji chu niudou di zaidihua" (The indigenization of vaccination in the early nineteenth century).

H.B. Morse's *Chronicles of the East India Company Trading to China*, first published in 1926.³ The story was told again in greater detail in *History of Chinese Medicine*, co-authored by K.C. Wong and Wu Lien-teh in 1936. In this book, the authors described how Alexander Pearson, surgeon to the East India Company in China, practiced vaccination in Macao, around 1802,⁴ a few years before the arrival of the Spanish Balmis expedition with a new supply of lymph, and wrote a pamphlet on the technique that was to be translated into Chinese by George Staunton in 1805 with the support of a Cantonese *hong* merchant. The establishment between 1805⁵ and 1810 of a charitable vaccination dispensary by *hong* merchants in their Public Hall in Canton, employing one of the first Chinese vaccinators, Qiu Xi, who published his own book in 1817, was also mentioned with details.⁶ Wong and Wu, as well as historians writing the story in Chinese, considered the spread of the technique in Canton to have been smooth during the nineteenth century.⁷

In this paper, we step aside from the grand narrative of the heroic introduction of vaccination in China, and try to answer questions that interested Lu Xun: Who were the vaccinators? Who were the other actors in the story? What kind of institutions were the vaccination bureaus? How did society perceive this curious, foreign technique? We shall also look more closely at Canton, where vaccination was first publicly practiced. In other words, we shall examine the social fabric allowing the smooth dissemination of a new technology into a nineteenth-century Chinese urban society. We shall also look at an emerging medical culture in a metropolis that, unlike Shanghai and Beijing, was far from the political and cultural centers of late imperial China, and yet was a city where business and commerce occupied a central place in people's daily life.

The vaccinators

Who, then, were the vaccinators? Sources show that indigenous Cantonese became the main vaccinators soon after the initial introduction of the practice in Macao. According to Pearson, before the arrival of the Balmis expedition

³ Morse, *The Chronicles of the East India Company Trading to China*, vol. 3, 16–17.

⁴ Wu Lien-teh wrote in the *Chinese Recorder*, August 1936, 474, that "Alexander Pearson imported the new virus from Bombay for use in Canton in 1802 against smallpox."

⁵ W.C. Milne provided the date of 1805 as the establishment of "a vaccine establishment at Canton"; see his notices written for *Chinese Repository*, January 1847, 27, and again in his *Life in China*, 56.

⁶ K.C. Wong and L.T. Wu, *History of Chinese Medicine*, 277–8. The 1835 Gazetteer of Nanhai County dated the establishment to 1810; see 1835 *Nanhai xianzhi*, 1869 reprint, 44:30b. Milne's dating (1805) is probably closer to the truth, as Qiu Xi's preface to his 1817 book on vaccination claimed that by then the dispensary had been functioning for more than ten years. See below.

⁷ Some historians emphasized the obstacles faced by vaccination, especially the resistance of inoculators and religious leaders. Such resistance was also seen in Europe in the initial stage of the introduction of vaccination (see Hopkins, *Princes and Peasants*, 83; Sköld, *The Two Faces of Smallpox*, 387). Such resistance did not prevent the wide spread of vaccination in Canton.



Figure 1. Vaccinator: The portrait of the Anhui vaccinator Dai Changzuo, in the book he edited, *Yinzhong niudou xinshu* (A new book on the method of cowpox vaccination), 1888

from Manila, "[vaccination] had been quite extensively conducted by the Portuguese practitioners at Macao, as well as by myself among the inhabitants there and the Chinese. . . . I had instructed several Chinese in the details of [vaccination], after the best manner I could, and they practiced it extensively as well at a distance from as under my inspection." How then did he choose his trainees? "The class of Chinese, who are now the vaccinators, are generally taken from those who are or have been employed about the British Factory." These first Chinese vaccinators conducted vaccination "extensively throughout the city of Canton and country around."⁸ W.C. Milne (1815–63), an associate

⁸ Pearson, "Report to the Board of the National Vaccine Establishment" (1816), 36–41.

of Robert Morrison (1782–1834) of the London Missionary Society, also confirmed that native practitioners attended Pearson's regular classes, and were later in charge of the vaccination dispensary in Canton.⁹ Chinese employed or associated with the East India Company were involved in the introduction of vaccination in other ways as well. The translation of Pearson's vaccination pamphlet, for example, was achieved "with the assistance of a Chinese who follows the medical profession."¹⁰

We learn more about these first vaccinators in Chinese sources. The 1835 gazetteer of Nanhai County mentioned the same account given by Pearson and later by Morse, and provided the names of the first vaccinators who practiced in the charitable dispensary established by *hong* merchants: Liang Hui, Qiu Xi, Zhang Yao, and Tan Guo. From a later gazetteer, we know that they came from three counties—Panyu, Xiangshan, and Nanhai¹¹—that had jurisdiction over Whampoa, Macao, and the city of Canton respectively. It is well known that Western merchants trading with China were confined to these three places before 1842.¹² The four vaccinators were thus very likely to have been employees or associates of the British Factory as mentioned by Pearson. Among the four, we know more about Liang and Qiu. Liang was described in the gazetteer of Panyu, his hometown, as a wealthy and charitable merchant. "He heard about vaccination brought by Westerners, and spent a huge sum of money to learn it. The lymph was transmitted from the Western ocean and very expensive. [He] spared no money and every year he practiced and did not ask for a cent [in return]." We also know that he later left the Canton dispensary and returned to Whampoa, his hometown, probably to continue vaccinating.¹³

Qiu Xi, known as A-Hequa or Dr. Longhead to Westerners,¹⁴ was the most famous Chinese vaccinator since he was the author of the first and most influential Chinese book on vaccination, published in 1817, after Pearson's translated pamphlet. His book, *Yindou lue* (A brief account of inducing pox) was to be re-published many times throughout the nineteenth and the early twentieth centuries, often with other vaccination books.¹⁵ A Canton native, he was 32 and working as purveyor to the British company in Macao when

he heard about the new technique. As he had never had smallpox before, "the foreign doctor" vaccinated him. He then "experimented with it on my family and friends and found it effective. The charitable gentlemen of the Co-hong entrusted me with the task [of administering vaccination] in their Public Hall. For more than ten years, those who came [to be vaccinated] were in the hundreds, if not thousands. . . ."¹⁶ Qiu exerted his authority as the master vaccinator not only through the publication of his book, but also, as we shall see later, by servicing the political elite, and by training not only local and out-of-province disciples, but his own sons, nephews, and disciples to be his successors' in what would become the Qiu "family business" that had influence on a national scale.

After the formation of the first group of Cantonese vaccinators, vaccination quickly spread in the Canton area and more local practitioners joined the activity. The British surgeon seemed to have a strategy at the beginning that proved to be successful: "It is no way unfavorable, either to the chances of disseminating or preservation of the practice, that it has become a source, both of reputation and emolument to the Chinese, who have engaged in it, and who conduct it extensively throughout the city of Canton and country around, as well at the station specified."¹⁷ Half a century later, the American Presbyterian medical missionary practicing in Canton, John Kerr (1824–1901), observed that "there are now so many persons devoted exclusively to the business, and interested in the preservation of the virus, that there is no danger of its ever being lost. Several persons have made fortunes from the practice, and those first engaged in it have obtained an enviable fame among their countrymen as great benefactors of the race."¹⁸ The first vaccinators quickly seized the introduction of the European technique as an opportunity for acquiring wealth and fame, with the acquiescence of the British medical personnel, who simply wanted to attract more indigenous practitioners to maintain the art and the lymph, especially when their own activities were confined to Macao and Canton city.

More vaccinators were trained in Canton by Protestant medical missionaries from the 1860s onward. John Kerr wrote in 1866 that "the pupils of the [Canton] hospital are also encouraged to practice vaccination." In the 1868 report, he told the reader that two local vaccinators who came to the hospital for fresh lymph "were taught in the dispensary."¹⁹ It is difficult to estimate the

⁹ Milne, *Life in China*, 56–7.

¹⁰ Morse, *The Chronicles of the East India Company Trading to China*, v. 3, 16.

¹¹ 1835 *Nanhai xianzhi*, 1869 reprint, 44:30b; 1879 *Guangzhou fuzhi* (Gazetteer of Guangzhou Prefecture) 163:40a–b.

¹² Morse, *The Gilds of China with an Account of the Gild Merchant or Co-hong of Canton*, 72–3.

¹³ 1871 *Panyu xianzhi* (Gazetteer of Panyu County) 47:10a; 1879 *Guangzhou fuzhi* 163:40a.

¹⁴ K.C. Wong and L.T. Wu, *History of Chinese Medicine*, 278.

¹⁵ According to *Quanguo zhongyi tushu lianhe mulu* (Union catalogue of medical books in China), 517–8, at least 62 different editions of this text were published in China, not including reprints of the book with other texts on vaccination, see 518 et seq.

¹⁶ Qiu Xi, preface to *Yindou lue* (A brief account of inducing pox), 5a–6b; main text, 4a.

¹⁷ Pearson, *Yingjili-guo xinshu zhongdou qishu* (A wonderful book on vaccinations recently published in England), 38–9; K.C. Wong and L.T. Wu, *History of Chinese Medicine*, 278.

¹⁸ "Report of the Medical Missionary Society in China for the year 1860" (hereafter RMMS and year), 6.

¹⁹ RMMS 1865, 12; RMMS 1867, 18.

number of vaccinators in Canton at any time in the nineteenth century, though a medical report of the Maritime Customs Service stated that in 1870, "there are some fifty or sixty professional vaccinators in Canton and about half of the children in the city are now vaccinated."²⁰

The next point that interests us is the reason that so many were interested in taking up vaccination. One obvious answer is that it was a lucrative business. We have seen how Pearson and Kerr observed that early vaccinators in the Canton area gained fame and wealth. On the price of vaccination, we have an interesting clue from the famous Dr. Benjamin Hobson (1808–71) of the London Missionary Society, who talked to a native doctor in 1850: "He thought that [in Canton] nearly all children were vaccinated; he knew several native doctors who practiced vaccination, charging from 50 cash to \$1 for each patient."²¹ Huang Kuan (Wong Foon, 1829–78), a Cantonese doctor, the first Chinese to obtain a medical degree in Britain, and medical officer of the Maritime Customs Service, also recorded in 1878 that "when a doctor is called to a family to perform vaccination he takes a child with him to furnish the vaccine, for which he generally gets 50 cents or \$1 as a fee, and the child 25 cents for the lymph. Poor people may be vaccinated for 10 or 25 cents."²² Considering \$20 as the monthly salary of a senior native medical assistant in the Canton hospital, \$1.50 as the cost of a silver catheter or the burial cost of a patient in a missionary hospital in the mid-nineteenth century,²³ vaccination at home, such as the one experienced by Lu Xun, was definitely expensive, and even the fee paid by "poor people" was quite high. Though fees were charged only for private vaccination, and not in charitable vaccination institutions, it still indicates that vaccinators with good reputation could make a comfortable living. Moreover, the gratuitous or "remunerated" vaccination of poor children in Canton, as revealed in the above reports, was in fact a necessary procedure for preserving fresh lymph. In other words, "free" or "remunerated" vaccination actually constituted part of the high cost of private operation.

²⁰ Gordon, *An Epitome of the Reports of the Medical Officers to the Chinese Imperial Maritime Customs Service from 1871 to 1882*, 81. John Dudgeon repeated this observation in 1877; see his *Diseases of China*, 44.

²¹ Hobson, "General report of the Hospital at Kum-le-fau, in Canton, from April 1848 to November 1849," 18.

²² *Maritime Customs Medical Report*, no. 15, 1878, 15; K.C. Wong and L.-t. Wu, *History of Chinese Medicine*, 285.

²³ "Minutes of three annual meetings of the Medical Missionary Society in China for the years 1854, 1855, and 1856 with Dr. Kerr's report for 1855–56," 23–4 on salaries of personnel, the assistant (Kwan) Ato received \$20 each month; the price of the silver catheter in 1849 was given in the account of the "Sixteenth report of the Ophthalmic Hospital at Canton, for the years 1850 and 1851," 36. The price of the burial was provided in Hobson, "General report of the Hospital at Kum-le-fau," 49.

We know that cowpox was rare even in Western Europe and it was not easy to have access to a cow with lesions at the right stage for the direct vaccination of humans. Therefore, arm-to-arm vaccination, in which the lymph is transferred directly by contact from the pox of a recently vaccinated person to fresh lesions on the arm of a new patient, continued to be practiced even in Europe until the end of the nineteenth century. Arm-to-arm transmission raised the risk of a loss of vaccine potency, and of transmitting infectious diseases. One should bear in mind that vaccine production was conducted in Europe without any official control throughout the nineteenth century and the regulation of the quality of vaccine was established only in 1925.²⁴ The supply of good, safe lymph remained the main problem for the implementation of vaccination in China, especially in Canton, where the warm climate was unfavorable for vaccine preservation. Thus vaccinators or establishments had to obtain fresh lymph by vaccinating children continuously, arm-to-arm, throughout the year. That was one main reason for wealthy Cantonese of the nineteenth century to set up vaccine stations and employ reputed vaccinators to administer the operation. John Kerr reported in 1865 that "a vaccine establishment has been opened in the Eastern suburbs under the patronage of a wealthy native, and one of the pupils of the [Canton missionary] Hospital has been employed to operate. A young man, formerly a pupil has been employed to vaccinate in Taileung (Daliang), the district city of Shun-tak (Shunde) District. He is supported by an association of wealthy men."²⁵

These wealthy men in Canton were obviously not all innocent philanthropists. They sponsored private clinics called "*zhongdou guan*" (vaccination clinics) that were often family businesses continuing to function in the early twentieth century.²⁶ One such clinic in the early 1860s was maintained by none other than the son of the legendary first native vaccinator Qiu Xi, Qiu Chang. In 1860 John Kerr visited Qiu Chang's office where he was shown the advertisement of his vaccination business that Kerr translated into English. In this advertisement, Qiu Chang reassured his potential clients that "the virus which I use is derived directly from that brought by the *hong* merchants, and before it is used, a man skilled in detecting leprosy examines the child, and thus all danger is avoided. Those who wish to request me to vaccinate will please come to my house in the West end of 12th Street."²⁷ According to Huang

²⁴ Fenner et al., eds., *Smallpox and its Eradication*, chapter 6, 263–7.

²⁵ RMMS 1865, 8.

²⁶ There is little information on such clinics. Chen Yuan described in 1909 these clinics as "family businesses" (*shiye*) often employing unqualified practitioners. See his "Yisheng, chanpo, doushi zhuce" (Licensing of doctors, midwives and vaccinators).

²⁷ RMMS 1861, 6–7.

Kuan, writing in 1878, the Qiu family received an annual grant of 100 taels of silver for the preservation of lymph,²⁸ probably from *hong* merchants. Free vaccination to poor children in charitable establishments was the chief way for private vaccinators to procure vaccine, though we do not know the exact arrangement, financial or otherwise, between the charitable establishments and private practitioners.

R.H. Graves, the American Baptist missionary working in Zhaoqing to the west of Canton in 1861, also noted that "the Chinese doctors are obliged to hire poor children to vaccinate from" as better-off families were "superstitious of having the vaccine vesicle opened or the scab removed."²⁹ Huang Kuan explained in a report of 1878 that "Chinese mothers object to have lymph taken from the arms of their children, under the idea that it weakens their constitution."³⁰ This idea appeared to be very widespread in China. An 1874 article in the Shanghai newspaper *Shenbao* stated that children did not return after the operation to have their lymph taken, and parents preferred scratching the pustules open, letting go the lymph on the skin, to avoid its being taken by the vaccinator for fear of their children's losing their vital energy.³¹ This attitude explained why gratuitous vaccination of poor children, who were paid to have the lymph taken, was necessary to ensure continuous lymph supply. Some private vaccinators who put on the air of philanthropists were in fact shrewd businessmen making profits out of vaccination and lymph production. In Beijing of the early 1870s when lymph was hard to procure, "only one native vaccinator . . . who has branch establishments at Tientsin, and at Taiyuen-fu in Shanxi, is able to keep it up."³² These establishments explained the high prices of private practice.

Vaccination became such a profitable trade that it attracted an increasing number of quacks. Qiu Chang complained in 1852 that "of late my name has been basely counterfeited."³³ Both John Kerr at Canton and R.H. Graves at the dispensary in Zhaoqing (west of Canton) observed in the early 1860s that the native practitioners did not always use healthy lymph, and cases of smallpox after vaccination were frequent.³⁴ The complaint about quacks who used spoiled or inert lymph, or even human pox instead of cow-pox, for great profits became frequent in vaccination books and newspaper accounts, not only

²⁸ *Maritime Customs Medical Report*, no. 15, 1878, 15.

²⁹ Graves, "Dispensary at Shiu Hing," 17.

³⁰ *Maritime Customs Medical Report*, no. 15, 1878, 15.

³¹ *Shenbao*, December 29, 1874, 1.

³² Gordon, *An Epitome of the Reports of the Medical Officers to the Chinese Imperial Maritime Customs Service from 1871 to 1882*, 74.

³³ RMMS 1861, 7.

³⁴ RMMS 1862, 17; RMMS 1863, 7.

in Canton but all over China.³⁵ A common trend all over nineteenth-century China, including Taiwan, was that quacks appeared when vaccination became popular and profitable. The situation had become so bad in Canton by the turn of the century that the famous Cantonese historian Chen Yuan (1880–1971) called for regulations to license vaccinators.³⁶

How then did Chinese native vaccinators promote their business? I would say that the key to their success lay in new strategies rooted in tradition. Their strategies consisted of two parts: the elaboration of a new, hybrid technique and language partly based on traditional medicine, and the enhancement of social prestige of vaccination as a trade. Printed books on vaccination here played a key role.

Qiu Xi's influential *Yindou lue* was a model of the indigenization of vaccination in that it injected the language and concepts of Chinese medicine into the new technique, a topic that has recently been discussed in great detail by Chang Chia-feng.³⁷ Pearson taught Qiu the basic techniques as understood in the early nineteenth century, including the ways to hold the lancet, to cut the arm before inserting the lymph, to observe the pustules, and to transmit the lymph. Based on such knowledge, Qiu "indigenized" the operation by applying the language of acupuncture, naming meridian points on the arm where incisions were to be made, explaining the manifestation of pustules by evoking the traditional notion of *taidu* (foetal toxin) being liberated, and providing traditional recipes on post-operation care.³⁸ Graced with engraved drawings of children with meridian points indicated on their arms, the traditional language disguised impeccably two important breaks from mainstream traditional medical practice: application of an intrusive method involving making bloody incisions, and non-oral introduction of an animal element into the body. Moreover, writing in Canton, where leprosy was endemic, Qiu added a passage to caution against inoculating leprous children for fear of transmis-

³⁵ One typical accusation is found in the 1888 text written by a vaccinator from Anhui: "There are people who aimed only at profit and used human pox as lymph as cow pox is difficult to obtain. This will greatly ruin our affairs. . . ." *Yinzhong niudou xin shu* (A new book on the method of cowpox vaccination), preface, 2a. *Shenbao* also warned people against those quacks who ruined the reputation of vaccination. *Shen Bao*, April 29, 1873, 1. John Shepherd mentions the problem of quacks in late nineteenth-century Taiwan when vaccination was becoming popular; see his "Smallpox and the pattern of mortality in late nineteenth century Taiwan," 280–1.

³⁶ Chen Yuan, "Yisheng, chanpo, doushi zhuce," 249–50.

³⁷ Chang Chia-feng, "Dispersing the foetal toxin of the body"; see note 2.

³⁸ The use of the traditional language to describe vaccination has been described by Angela K.C. Leung "Variolation et vaccination dans la Chine prémoderne (1580–1911)" and Chang Chia-feng, "Dispersing the foetal toxin of the body."

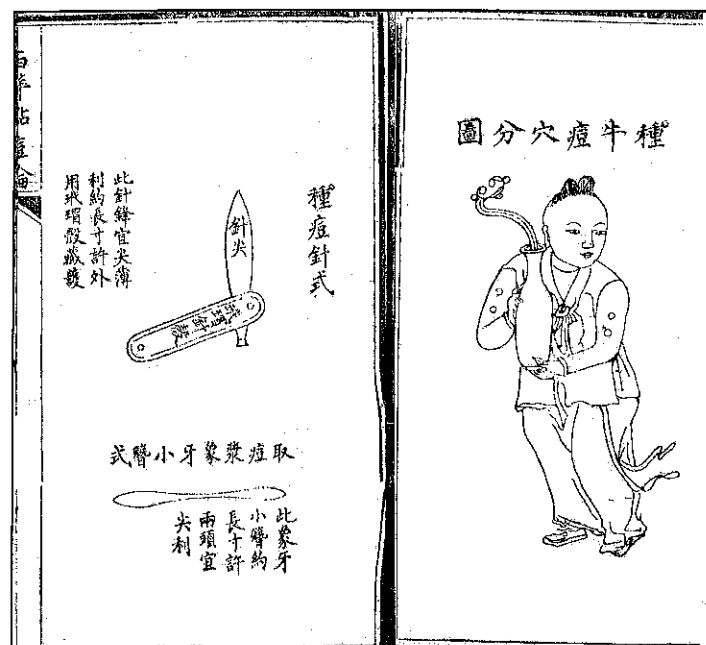


Figure 2. Qiu Xi's illustrations: Illustrations in an 1828 edition of Qiu Xi's text (*Xiyang dian dou lun* (On Western vaccination)) showing the meridian points where lymph was to be put in the arms of a young boy; the knife, called a "needle", to cut the arm; and the ivory spoon to take lymph.

sion.³⁹ Vaccination, which Pearson and his translator intended to introduce as an exotic or marvelous foreign art,⁴⁰ was thus nicely cloaked in a familiar language within the native context.

On making incisions, Qiu Xi created his own method early on. Not only did he apply the idea of meridian points, but also imposed the practice of making two incisions on both arms. Girls should be inoculated first on the right arm and boys on the left.⁴¹ This diverged from Pearson's teaching where only one incision was necessary, on either arm.⁴² Later vaccinators followed Qiu's idea

³⁹ We now know that the bacillus of leprosy cannot be developed outside the human body, and the transmission of the disease by inoculation is impossible. But this danger greatly concerned Cantonese and British leprologists working in southern China in the nineteenth century. I discuss the question in my forthcoming book on leprosy in China.

⁴⁰ See note 42.

⁴¹ Qiu Xi, *Yindou lue*, 7a-b.

⁴² Pearson, *Yingjili-guo xinshu zhongdou qishu*, 4b.

and recommended four to six incisions. Some even suggested eight or ten incisions for older children for a "more exhaustive" dispersal of foetal toxin.⁴³

On the basis of Qiu's text, other vaccinator-authors continued to elaborate on the art with a mixture of traditional medical concepts and new ideas. On vaccine production and preservation, such elaboration was necessary given the technical difficulties in the early nineteenth century. The anarchical state of vaccine production and preservation even in Europe provided a large margin for innovation for Chinese vaccinators. The problems of spurious lymph, the use of vaccine, and the inoculation method were more or less monitored by Pearson during the first stage,⁴⁴ a period when lymph supply was ensured by the "charitable vaccination dispensary" sponsored by *hong* merchants, where poor children, compensated with small gifts and premiums, were vaccinated and had their lymph extracted throughout the year.⁴⁵ After Pearson's departure from China in 1832, followed by a financial crisis of the dispensary around 1842,⁴⁶ and before or even after John Kerr opened a vaccination department in the Canton Hospital in 1859⁴⁷ providing safer imported lymph, native vaccinators developed their own methods of producing and preserving lymph.

While neither Pearson nor Qiu Xi suggested ways of producing vaccine other than arm-to arm transmission, as the vaccine dispensary ensured a continuous supply of fresh lymph, later vaccinators who did not have access to this lymph sometimes improvised their own production. A vaccinator claimed in the early 1860s to have discovered a new method: young buffaloes inoculated through the nostril with powdered human smallpox scab would develop pustules near their breasts that would be extracted for vaccination.⁴⁸ We do not know if the method was valid, inspired by the principle of "retrovaccination" already developing in Europe, or simply a fantasy,⁴⁹ but this is a good example of how

⁴³ This popular concern was described in a *Shenbao* article on January 2, 1875, 1. Vaccination texts of the later nineteenth century commonly followed Qiu's way making 4 to 6 incisions. See (*Chongkan*) Qiu-Zhao *niudou xinshu* (New book on vaccination by Qiu Xi and Zhao Kaitai), "Fanyi Yingjili yiye zhong niudou shuo," 2a. Some would recommend a maximum of 10 incisions, see *Niudou xinshu jishi* (A new book on vaccination to save the world), Wang Chunfu ed., based on Qiu Xi's text, 1865 Nanjing edition, 7a where the author recommended a maximum of 8 incisions for children older than four, and 10 for those older than ten.

⁴⁴ Pearson, "Report to the Board of the National Vaccine Establishment" (1821), 39-40.

⁴⁵ Qiu Xi, *Yindou lue*, 4b-5a; Pearson, "Report to the Board of the National Vaccine Establishment" (1816), 38.

⁴⁶ 1879 *Guangzhou fuzhi* 163:40a-b.

⁴⁷ RMMS 1860, 7.

⁴⁸ *Yinzhong niudou xinshu*, 24a-b.

⁴⁹ We know that the Italian Negri practiced retrovaccination, meaning humanized lymph being passed from man back to the cow, a method for increasing lymph potency, with the use of glycerol in the 1840s; see Fenner et al., eds., *Smallpox and its Eradication*, 264, 267. In Indochina, Calmette of the Pasteur Institute also used buffaloes to maintain the supply and potency of vaccine. He successfully retrovaccinated local buffaloes by using humanized vaccine and not variola virus towards the end of the nineteenth century. See Annick Guénel, "Lutte contre la variole en Indochine: variolisation contre vaccination?," 66-69.

vaccinator-authors developed their own technical specialties by combining traditional technique with the new art. Similarly some vaccination establishments bought lymph taken from local cows or buffalos in the later nineteenth century, implying local success in using bovines to make cowpox.⁵⁰

On lymph preservation, Pearson and Qiu mentioned the basic technique known in the early nineteenth century: putting dried lymph on an ivory pick kept in a goose feather tube sealed with honey and wax. According to Pearson, the potency of the lymph could thus be maintained for two months. Qiu further recommended the mixing of the dried lymph with human milk before use.⁵¹ In the latter half of the nineteenth century, thanks to the efforts of the likes of John Kerr, the technical knowledge of vaccine preservation in glycerol and in glass tubes seemed to have reached native vaccinators, who sometimes further refined or even created their own methods. Some buried the glass tubes underground to keep the lymph fresh; others sealed the lymph between two glass tablets, or recommended the use of bamboo or porcelain tubes; still others wrapped the vaccine with dried longan pulp stored inside a silver, bronze, or corn box, or used an airtight crystal box sealed by wax.⁵² Some of the techniques clearly came from the old tradition of variolation.⁵³ There were practically as many methods of preservation and vaccine traits as there were vaccinator-authors, a situation not too different from Europe.⁵⁴

On the question of disease transmission, Qiu Xi and other Cantonese vaccinators were particularly concerned with leprosy.⁵⁵ One famous Cantonese vaccinator having a “large practice” in the 1870s was said to have acquired

⁵⁰ The purchase of cowpox lymph was mentioned by the Anhui vaccinator mentioned above, in *Yinzhou niudou xinshu*, 17b.

⁵¹ Pearson, *Jingjili-guo xinshu zhongdou qishu*, 6a-b; Qiu Xi, *Yindou lue*, 9a-b.

⁵² *Shenbao*, December 29, 1874, 1; Chen Dongling, *Zhongdou qihun*, 2b-3a; Zhao Kaitai, *Zhao shi sanyao* (The three essential methods of Mr Zhao), 8b; Zha Daolun, ed., *Yindou jiyao* (A collection of essentials of vaccination), 19a-20a.

⁵³ On the refinement of human lymph preservation in variolation, see Qiu Zhonglin, “Ming-Qing de rendou fa—diyue liubu, zhishi chuanbo yu yimiao shengchan” (Ming-Qing variolation: regional spread, transmission of knowledge, and vaccine production).

⁵⁴ In Europe until the end of the nineteenth century, “individual physicians maintained their own stocks of ‘humanized’ vaccine by arm-to-arm inoculations,” and Great Britain was “flooded with cheap stuff ‘made in Germany’ and elsewhere, of unknown nature or origin. It is cheap and therefore sells.” Fenner et al., eds., *Smallpox and its Eradication*, 267. It was observed that children vaccinated with problematic lymph would not be immune. The warning against problematic lymph was frequent in Chinese press, e.g. the Christian magazine *Wanguo gongbao* (The Globe Magazine and a Review of the Times) XI:524 (February 1, 1879), 324b–325b.

⁵⁵ Qiu Xi, in his *Yindou lue* (5a), highlighted the danger of transmitting leprosy and recommended inspection of children by a leprologist to make sure that leprous children were not operated on. Benjamin Hobson also noticed this practice in Canton; see his report of 1841–42, in *Chinese Repository* 1842, 664: “The government orders two police men from the lazar house to examine all the children who present themselves for vaccination to Hequa. . . .”

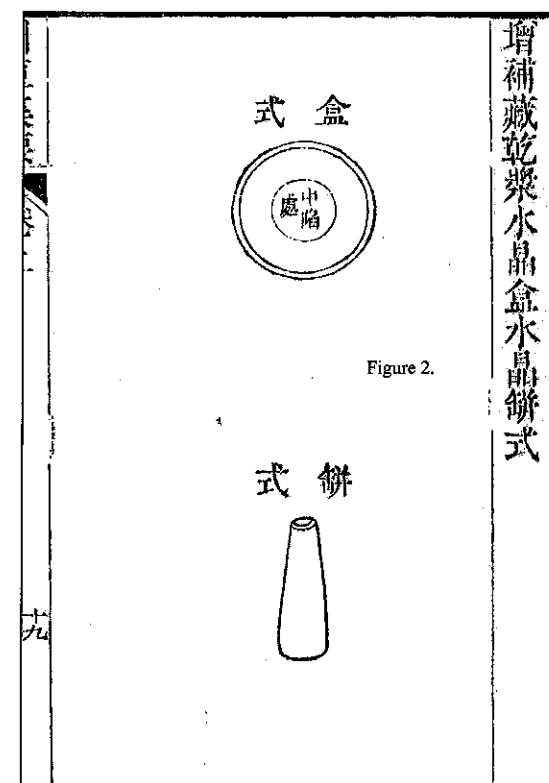


Figure 2.

Figure 3: Crystal box: crystal bottle used to keep dried lymph, a device developed by a vaccinator, illustration in Zha Daolun, ed. *Yindou jiyao* (A collection of essentials of vaccination), 1869.

his reputation from his skilful diagnosis of leprosy.⁵⁶ Practitioners in other provinces later came to be anxious about syphilis transmission instead, considering leprosy mostly a Cantonese problem.⁵⁷ Some simply suggested that sickly children should not be vaccinated for fear of transmitting their illnesses to others.⁵⁸ The increasing fear of syphilis transmission through arm-to-arm

⁵⁶ The vaccinator was called Tan Yihsing; see Huang Kuang's report in *Maritime Customs Medical Report*, no. 15, 1878, 15.

⁵⁷ Zhao Kaitai, a vaccinator from Zhejiang who edited Qiu's text in 1870 noted that while leprosy was a Guangdong problem, one should be alert to syphilis transmission. See (*Chongkan*) *Qiu-Zhao niudou shu*, text of *Yindou lue*, 4a.

⁵⁸ *Yinzhou niudou xinshu*, 14b; (*Chongkan*) *Qiu-Zhao niudou shu*, 4a.

vaccination was shared by Europeans in the early nineteenth century.⁵⁹ We do not know if the idea was brought to China by Westerners,⁶⁰ or if it naturally occurred to native practitioners, as syphilis was generically close to leprosy in late imperial medical etiology.⁶¹ The various technical designs and theoretical concerns of Chinese vaccinators revealed at the same time the presence of strong native traditions, and the intriguing possibilities of circulation of Western medical knowledge and technology of the time.

Western medical missionaries had already noticed some of the particularities of the Chinese styles of vaccination in the 1860s, and described them with appreciation. John Kerr wrote in 1861 on the method practiced by Qiu Xi's son: "His mode of operating is to make four or five transverse incisions in the arm, the lymph is transferred directly from one arm to the other. The vesicles following this mode of operating are not round and even, but oblong and irregular, but there is every evidence that the vaccination is genuine and effectual."⁶² John Dudgeon also showed his admiration for the Chinese method in the 1870s: "The mortality [from smallpox] was very inconsiderable among the vaccinated. The Chinese have taken wonderfully to vaccination, and it is productive of the best results. They have made its practice coincide with their own theories, and although there is thus an air of mystery thrown around it, the success of the operation is not invalidated. They are most particular in regard to the lymph, the condition of the child, the season of the year, etc, and their great care is rewarded with great success. The whole subject is full of interest, and useful lessons might even here be learned by us."⁶³

The seriousness with which native vaccinators developed their own techniques were matched by their efforts in building up social prestige of the vaccination on the local and national level. There were several strategies they employed to achieve this end: One was to claim an orthodoxy that was, first, European and second, "Eastern Guangdong". Another strategy was acquiring sponsorship or endorsement by bureaucrats or local celebrities that traditionally was reserved only for elite doctors. Finally, vaccination was sometimes practiced as a family business, under the aura of a famous master or forebear, often the author of a published book on the art. In brief, traditional strategies of enhancing the status of elite doctors were deployed, despite the fact that,

⁵⁹ The danger of vaccinal syphilis was recognized in Italy in 1814, Fenner et al., eds., *Smallpox and its Eradication*, 264–5.

⁶⁰ R. H. Graves, vaccinating in the early 1860s in Canton, complained that Chinese doctors sometimes hired poor "syphilitic or even leprosy" children to vaccinate from. See his "Dispensary at Shiu Hing," 17.

⁶¹ See my "Zhongguo mafeng bing gainian yanbian de lishi" (The historical nosology of *li/lai* in China).

⁶² RMMS 1860, 6.

⁶³ John Dudgeon, *Diseases of China*, 43–4.

in the past, hands-on "technicians" did not enjoy such prestige. In a way, the European origin of the art contributed significantly to its glamour in the particular political and cultural context of Canton in the nineteenth century.

Qiu Xi's account of the history of vaccination in Europe firmly established the Western origin and orthodoxy of the art. The authorship of the influential *Yindou lue* in which he claimed to be "the first [in China] to know this method"⁶⁴ also made Qiu the ultimate authority on vaccination throughout the 19th century. Qiu Xi and his son Chang meticulously nurtured the cult of Pearson that helped enhance the authority of the Qiu family. Kerr visited Qiu Chang's home and office in 1860, ten years after Qiu Xi's death, and reported that "Mr. Yau (Qiu Chang) has in his office a portrait of Dr. Pearson, engraved from the original painting by Chinnery, and by the side of it is an account in Chinese of the introduction of vaccination by Dr. P. Mr. Yau also keeps for distribution a paper giving a concise history of vaccination, and it is gratifying to notice that the foreign source of the art is fully acknowledged."⁶⁵ In later vaccination books published outside of Guangdong Province, not only the European, but also the Eastern Guangdong origin was stressed as proof of excellence. By the 1840s, other Cantonese vaccinators besides the Qiu family began to make their national reputation. One of them, venerated as Liu the miraculous doctor ("Liu shen yi"), had apparently trained a number of disciples outside of Guangdong Province and obtained a great reputation. One disciple from Hunan wrote a book based on his teaching, and called vaccination the "method of Eastern Guangdong." Another Cantonese vaccinator called Huang Peiru was the mentor of an Anhui practitioner who wrote a text published in 1886. Yet another Cantonese celebrity, the scholar-official Zeng Wangyan (Zhuoru), a vaccinator himself, made his national fame by establishing a vaccination bureau in the Nanhai Guild Hall in Beijing in 1828.⁶⁶

Endorsement by important bureaucrats and literati was also a key element in the promotion of vaccination as a prestigious medical operation. The most famous example was a poem by Ruan Yuan (1764–1849), governor-general of Guangdong and Guangxi (1817–26). He was one of the first major officials to have the children of his family vaccinated. Upon the request of Qiu Xi, he wrote a short poem to praise the beneficial effect of vaccination, which John Kerr translated into English: "The poison of opium has been brought to China, and although the most stringent measures are used to prevent it, they do not succeed. But this foreign art of vaccination may be carried into all the prov-

⁶⁴ Qiu Xi, *Yindou lue*, preface, 7a.

⁶⁵ RMMS 1860, 6–7.

⁶⁶ Chen Dongling, *Zhongdou qilun*, includes a main text entitled "The book of vaccination by Mr Liu, the miraculous doctor"; (*Chongkan*) *Qiu-Zhao niudou shu*, 6a-b; *Yinzhong niudou xinshu*, in the 1863 preface by the Anhui vaccinator Dai Changzha.

inces, and it will only prolong life.”⁶⁷ The poem would be much quoted in Qing vaccination texts and by modern Chinese historians. The technique was thus loaded with rich political meaning early on, its value legitimized despite its “barbaric” origin. Qiu also requested poems and calligraphy from other local celebrities in Canton who had benefited from vaccination or become his friends, the majority of whom were associated with the prestigious Xuehai Academy established by Ruan Yuan.⁶⁸ These poems were printed before the main text in some editions of *Yindou lue*.⁶⁹ Other works on vaccination were published with prefaces by local officials or other dignitaries. While mainstream medical texts in imperial China were sometimes prefaced by high officials, it was rare to see the great number of poems and writings by important bureaucrats and literati that could be seen in the nineteenth century vaccination books.

An important reason why celebrities endorsed vaccination was that they had personally witnessed its efficacy. Through their practice, Qiu Xi and the first native vaccinators had carefully cultivated their relations with the powerful in Canton, merchants, scholars, and bureaucrats alike. Qiu reported that he vaccinated the infant son of Zeng Ao (1760–1831), Salt Distribution Commissioner, and that of Fu Tang, Education Commissioner of Guangdong in 1816.⁷⁰ Qiu Xi’s connection with *hong* merchants and bureaucrats was retained by his son Chang. In 1847, the Cantonese merchant Pwantingqua (Pan Shicheng 1803–73, *jinshi* 1832), serving in the Ministry of Punishments at the time, summoned Qiu Xi to practice vaccination in Beijing at the bureaucrat’s cost. Xi sent his son Chang to carry out the mission and Chang spent more than ten months in the capital to vaccinate and teach the art.⁷¹ It is unclear if Cantonese vaccinators could maintain the same privileged relations with high officials after 1842 when *hong* merchants lost their trade advantages. Native vaccinators in other

parts of China, however, remained active in seeking bureaucratic support and were often successful in obtaining invitations to inoculate children of elites. Prefaces signed by high and mid-ranked officials in vaccination texts in the latter half of the nineteenth century clearly showed this trend.⁷²

The confirmed legitimacy of vaccination, and the endorsement of celebrities, made the practice a respectable trade. Unlike traditional practitioners of variolation, normally anonymous, many vaccinators were well known local, regional, or even national figures. Not only were the first Cantonese vaccinators recognized in gazetteers, poems, and medical texts, but later, practitioners from the other provinces also made their names locally, or even nationally, especially if they had connections with Guangdong vaccinators. A most telling account was given by Wang Chunfu in 1865: “When I was touring Eastern Guangdong as a young man, I read about vaccination and a book on it in the gazetteer edited by His Excellency Ruan (Yuan), and found this intriguing. Then I met Mr. Qiu Xi and read the manuscript of his *Yindou lue*. I was full of admiration . . . In the spring of 1827, while serving a magistrate in Hunan, I heard of the great art of Mr. Yang Xusheng of Changsha, and [decided to learn from him]. Those who were studying with him then were Cheng Maoyuan of Xiuning (Anhui), Fu Dazun of Hanyang (Hubei), Wang Zhengyuan of Shexian (Anhui), and thirteen local people from Hunan . . .”⁷³ Similarly, a certain Tan Fusi from Chaling of Hunan Province was said to have traveled widely in Eastern Guangdong in 1822 and learned everything about vaccination. He then taught three students, Yang Xu (probably the same person as Yang Xusheng), Wang Yuechuan, and Deng Fuheng, with whom he introduced the technique back home.⁷⁴ By the mid-1860s, Qiu Xi was hailed as the first master of the Lingnan region, Tan Fusi and his student Yang Xu as masters of Hunan and Jiangxi, Zeng Wangyan and Zha Jiren as masters in Beijing and the Jiangnan region, and Huang Chunfu, probably the same person as the above-mentioned Wang Chunfu, claimed leadership in Shanghai.⁷⁵

⁶⁷ Ruan’s calligraphy was reproduced in *Yindou xinfa quan shu* (A complete book on the new method of inoculation), 1a-5b; the calligraphy of Kang Shaoyong, Governor of Guangdong Province (in office 1819–1821), and that of Zeng Ao (1760–1831), Salt Distribution Commissioner, also a famous calligrapher, in praise of vaccination followed Ruan’s poem in this book; RMMS 1860, 6.

⁶⁸ On the social role of the Academy see Cheng Meibao, *Diyu wenhua yu guojia rentong* (Regional culture and national identity), 164–212; and Steven Miles, *The Sea of Learning. Mobility and Identity in Nineteenth-century Guangzhou*.

⁶⁹ One example was *Yindou lue hebian* (Joint editions of *Yindou lue*), with poems praising vaccination by some twenty celebrities. This was probably the same book that John Kerr saw in Qiu Chang’s office in 1860: “Three other volumes were added [to Qiu Xi’s original one] consisting of odes in praise of vaccination, composed by those who had received its benefits.” RMMS 1860, 6.

⁷⁰ *Yindou lue*, preface by Wen Rushi, a Cantonese celebrity; 4a.

⁷¹ Qiu Chang, “Supplementary preface” dated 1862, in *Huitu yindou xinfa quanshu* (A complete and illustrated book on vaccination). Chang claimed to have vaccinated several hundred children and trained five disciples in Beijing. This preface seems to be a summary of the long advertisement that John Kerr read in Qiu Chang’s office in 1860; see RMMS 1860, 6–7. On Pan Shicheng, see Liang Jiabin, *Guangdong shisan hang kao* (Study of the 13 *hong* in Canton), 270–1, and the biography of Pan on the Guangzhou government website, http://www.guangzhou.gov.cn/node_437/node_440/node_662/2005-07/112052641959041.shtml.

⁷² In the 1886 edition of (*Chongkan*) *Qiu-Zhao niudou shu* for example, the important scholar-official, modernizer Xue Fucheng (1838–94), wrote the general preface as Provincial Administration Commissioner of Zhejiang; with three other military and civil officials of Ningbo, Shaoxing, and Taizhou Counties of the province; similarly, the 1888 edition of *Yinzhong niudou xinshu* recorded two prefaces in an earlier edition signed by two mid-ranked officials of Jiangsu Province; the 1908 edition of *Niudou zhenchuan* (True transmission of vaccination) contained a 1904 preface by a magistrate in western Hunan.

⁷³ *Yinzhong niudou xinshu*, preface by Wang Chunfu dated 1865.

⁷⁴ *Yanfang xinbian* (New compilation of effective prescriptions), 472, preface by Tang Fangxu dated 1833; 1888 *Hongjiang yuying xiaoshi* (A modest account of the founding home of Hongjiang town) 2:4b–5a.

⁷⁵ This genealogy was established by Zha Jiren, editor of *Niudou xinshu jishi*, 15a. Huang Chunfu was frequently mentioned in *Shen Bao* as the most famous vaccinator in Shanghai in the 1870s, see December 29, 1874, 2, and January 29, 1875. K.C. Wong and L.T. Wu (*History of Chinese Medicine*, 291–2) said that Huang (Hwang Chen-foo) was originally house-surgeon of the Shanghai missionary hospital and later changed his name to Wang Chun-fu, author of the 1888 text in note 72.

Vaccinators of reputation were often invited out to practice in other regions than their own. We have quoted the examples of Qiu Chang who vaccinated in Beijing in the 1840s. The vaccination bureau of Ningbo also invited a famous vaccinator, Chen Jitong, from Jinxian, in the 1870s. The foundling home at Hongjiang town in western Hunan invited a reputable vaccinator from Wuling, a northern city of the province, to vaccinate local children in the 1880s.⁷⁶ Examples of famous vaccinators traveling around China to practice in private or in bureaus were abundant throughout the nineteenth century. It was thus not surprising that Lu Xun did not understand the language spoken by his vaccinator, as the man was probably someone with a regional or even national reputation from a different region. In other words, by the second half of the nineteenth century regional or even national markets of vaccination were developing through the inter- and intra-provincial networking of practitioners.

Established vaccinators sometimes created a family business. Zhang Chongshu from Sichuan, the brother of a magistrate in Guangdong and Qiu Xi's disciple, wrote a sequel to his master's work that was edited by his son, cousin, and disciples. He then introduced the art to Sichuan and made it his family trade.⁷⁷ The most noteworthy of such family businesses was none other than that of Qiu Xi. Xi was the sole author of the first edition of his 1817 book. But when it was re-edited and published in 1847, his sons, grandsons, and great-grandson all signed as editors. By this time vaccination had become the Qiu family business and had, moreover, received "marks of recognition from the Government in the shape of some official title."⁷⁸ Medical missionaries in Canton in 1876 reported that the "the business is still continued by his (Xi's) son at the old family residence in the 12th ward."⁷⁹ Many vaccination publications in the latter half of the nineteenth century show that the practice was kept up by a good number of family or master-disciple enterprises.

Native vaccinators were clearly the key to the successful popularization of the technique in Canton in the nineteenth century. Pearson considered the charitable vaccination dispensary financed by the Cantonese merchants as essential for lymph preservation, whereas the most crucial factor in the success of vaccination was "the agency of the Chinese vaccinators, the principal of whom, A-he-quā, . . . is a man remarkably qualified for the business by his cast of judgment, method, and perseverance."⁸⁰ One crucial strategy Qiu Xi and the first vaccinators successfully deployed, pre-empting the obstruc-

tion of traditional variolators and drugstores, was the effective acquisition of public recognition by high-profile local bureaucrats, merchants, and literati. The widely advertised appreciation of these celebrities was a powerful public signal that sealed all possible opposition to the practice.

Merchants, missionaries, and bureaucrats

Even though native vaccinators were the main agents in the spread of vaccination, the initial breakthrough in Canton happened under very special circumstances. It was contingent upon the shared commercial and political interests of British traders and Cantonese *hong* merchants in the first decades of the century, with bureaucratic acquiescence. Medical missionaries, especially American Protestant ones who had also taken advantage of this situation to establish an early presence in Canton, played an important role from the second half of the century onward. These actors played decisive roles at certain key points of the story of vaccination in Canton.

At the initial stage, foreign and Chinese merchants cleared legal and material obstacles to allow for a smooth introduction of vaccination. The publication of Pearson's translated pamphlet was the result of close collaboration between officials of the East India Company and *hong* merchants. Morse explained most fully the legal problem involved here. The pamphlet was "godfathered by Gnewqua" (Zheng Chongqian of Huilong company), "who happens to be at present at Macao and who has promised to assist in the translation and to lend the name of his Hong, without which, perhaps, it might not obtain circulation, it being indispensable that books printed in China should appear the production of or be sanctioned by some native holding a public situation." The legal concern was real,⁸¹ and to avoid political complication, this translated pamphlet was signed in Chinese by James Drummond, head of the British settlement in Canton, Pearson the author, Staunton the translator, and most importantly Zheng Chongqian the *hong* merchant, who was the key in legalizing the technique in Canton by endorsing the printed text.

The initial training of native vaccinators was, as mentioned above, done by Pearson, and the actual public implementation of the technique was sponsored by *hong* merchants.⁸² The 1835 gazetteer of Nanhai County provided

⁷⁶ (Chongkan) *Qiu-Zhao niudou shu*, preface by Zheng Xianfang, 3a-b.

⁷⁷ See *Yindoulue hebian*, 1847, 60a; his relation to Qiu Xi in Chang, forthcoming.

⁷⁸ *Yindoulue hebian*, 43a. Huang Kuan mentioned the official honorific title given to the Qiu family; see *Maritime Customs Medical Report*, no. 15, 1878, 15.

⁷⁹ RMMS 1876, Appendix, 1.

⁸⁰ Pearson, "Report to the Board of the National Vaccine Establishment" (1821), 40–41.

⁸¹ Morse, *The Chronicles of the East India Company Trading to China*, v.3, 16–17. We know that as late as in the early 1830s, the famous Cantonese book engraver, the baptized Liang Afa, had to flee Canton, having printed Christian books for Robert Morrison that illegally circulated in Canton. It was a serious crime to publish books of foreign origin without public endorsement. See the memorial of Deng Tingzhen, governor-general of Guangdong on the nineteenth day of the second month of 1835 on the Liang Afa affair, *Ming Qing Neige daku Archives, Academia Sinica*, no. 070420.

⁸² Pearson, "Report to the Board of the National Vaccine Establishment" (1816), 38: "The principal members of the Chinese commercial corporation . . . have established a fund, for affording gratuitous

the names of the *hong* merchants who created the vaccination fund: Wu Dunyuan (Howqua II), Pan Youdu (Puankequa II), and Lu Guanheng (Mowqua I),⁸³ who were leading figures of the Canton trade of the time. They were said to have donated several thousand taels of silver to implement vaccination under the charge of Qiu Xi and Tan Guo in the common meeting hall of the *hongs*. In the eyes of foreign merchants, this meeting hall, called "*Consoo*" (Gongsuo), "the property of the *Hong* merchants collectively," was a place of authority: "The entrance to it was by a flight of broad granite steps, through large heavy folding doors of a highly polished and valuable wood. Being a handsome specimen of this style of Chinese architecture, foreign visitors to Canton were taken to see it as one of the sights."⁸⁴ That vaccination took place in this grandiose place further legitimized the practice in a ritual sense and enhanced its prestige.

Why then did *hong* merchants invest so much in the promotion of vaccination in Canton? Although definite answers are impossible, it is likely that their attitudes were determined by their relations with British traders that were, and had to be, cordial for the purpose of sustaining mutually profitable trade. For Morse the relations between the two could not be more "honorable," "with never a written contract, with many an occasion of help in time of difficulty, and with much sympathy and friendliness from the one to the other." British traders paid no direct charges to *hong* merchants, "except their contributions to the '*Consoo*' guarantee fund." On the other hand the *Co-hong*, with support from the Chinese government was "now the inevitable buffer in all matters of dispute."⁸⁵ Chinese merchants, sometimes also assuming bureaucratic responsibilities for the municipality, were willing to cooperate with their foreign counterparts so long as no trouble would be created with the imperial authorities.⁸⁶ The support of vaccination was very probably considered as a gesture confirming partnership and confidence toward the British traders, who, after all, were contributors to the *Consoo* fund. As the *Co-hong* was a quasi-governmental body, the merchants were also expected to carry out public good works.⁸⁷ The establishment of the vaccination dispensary in the meeting hall was a good illustration of the unique social make-up of Canton

inoculation to the poor . . . The practice is conducted at their hall for meetings, by the Chinese vaccinator whom I have before mentioned." Qiu Xi, *Yindou lue*, 4b-5a: "I maintained the bureau at the meeting hall of hong merchants . . . the charitable gentlemen . . . donated money to establish a fund for vaccination. People come from the fourth to the ninth month. . . ."

⁸³ 1835 *Nanhai xianzhi*, 1869 reprint, 44: 30b; the three were the heads of three major Cantonese trading companies, Wu was from Yihe, Pan from Tongwen, Lu from Guangli.

⁸⁴ Hunter, *The 'Pan Kwae' at Canton before Treaty Days, 1825-1844*, 23-4.

⁸⁵ Morse, *The Chronicles of the East India Company Trading to China*, 80, 72, 67.

⁸⁶ On the character of *hong* merchant-bureaucrats, see W. E. Cheong, *Hong Merchants of Canton*, sec. II.

⁸⁷ See Liang Jiabin, *Guangdong shisan hang kao*, 394-413.

city in the early nineteenth century, where merchants, foreign and Chinese, were key engineers in civic affairs.

Cantonese merchants would continue to assume such a role, but without the partnership of their European counterparts, in the later nineteenth and early twentieth centuries. They sponsored numerous charitable halls in the province to provide various forms of relief to the urban populace, especially medical services including free vaccination.⁸⁸ The first of such institutions, the Aiyu Charitable Hall, was set up in 1871 at the very site of the old *Consoo* hall, with an initial fund of \$60,000, causing much suspicion from Westerners this time. Missionaries considered the enterprise as an attempt "to show to their own people, and to the world that they can maintain benevolent institutions of their own, on a scale that will throw into the shade anything done by foreigners," and that the wealthy businessmen managing the hall were "too shrewd . . . to continue the supply of large amount of money, unless some object, which they approve, is attained thereby."⁸⁹ It was simply natural for big businessmen to continue exerting their influence in civic affairs in a deteriorating environment with a declining government and growing distrust between natives and foreigners. Vaccination remained a major function of these charitable halls, which employed practitioners to inoculate in remote parts of Guangdong, or even Guangxi Province.⁹⁰

The importance of British merchants in the promotion of vaccination, on the other hand, decreased after the abolition of the East India Company's China monopoly in 1834, and especially after the opening of Canton in the 1840s. The vaccination dispensary was shut down during this period, and was re-established only in 1852 "by the favor of the old *hong* merchants, Howqua, Pwantungqua, and others," as reported by Qiu Chang, now given the task of operating this institution.⁹¹ The establishment, however, did not survive the fire of 1856 that razed all the *hong* buildings.⁹² From the 1860s onwards, medical

⁸⁸ There are many examples in gazetteers and in monographs of individual charitable halls. One remarkable example is the volume edited by Deng Yusheng, *Quan Yue shehui shilu chubian* (First compilation of social records of the entire Guangdong Province), which recorded at least six charitable halls that provided free vaccination. See also Michael Tsien, *Nation, Governance, and Modernity in China*, 24-29; E. Rhoads, "Merchant associations in Canton, 1895-1911," especially 104-105.

⁸⁹ RMMS 1872, 8-9.

⁹⁰ E. A. Aldridge reported from Haikou, Hainan in 1881 and 1883 that a vaccinator from Hong Kong Tung Wah Hospital, a charitable institution financed by Cantonese merchants, paid regular visits to Hainan Island, performing about 4,000 and 6,500 vaccinations respectively in those two years. See *Maritime Customs Medical Report*, no. 21, 1881, 75, and no. 25, 1883, 14. Organizers of the Guangren charitable hall in Canton city (1890) also claimed that they paid vaccinators to practice in remote parts of Guangdong and Guangxi Provinces before the charitable hall was established. See Deng Yusheng, *Phuan Yue shehui shilu chubian*, "Liang-Yue Guangren shantang," 2b.

⁹¹ RMMS 1861, 7; Qiu Chang, *Huitu yindou xinfa quanshu*, preface.

⁹² The old Canton Ophthalmic Hospital established by Peter Parker in an old factory building was also burnt to the ground in the same fire; see Kerr 1857, 18-19.

missionaries and increasingly those from America were more active in the promotion of vaccination. John Kerr opened a vaccination department in the Canton Hospital in 1859 where children were vaccinated every Thursday. Other than vaccinating the poor, "the Hospital will be a source from which to supply virus at all times to all parts of the south of China." Kerr had also prepared a tract that he distributed in Canton on the preservation of the scab in a warm climate.⁹³ He was probably introducing virus preservation in glycerol and in glass tube, a method being developed in Europe in the mid-century.⁹⁴

At the same time new missionary dispensaries were opened in Foshan (1860) and Zhaoqing (1861), and Wuzhou in Guangxi (1866). R. H. Graves, in charge of the Zhaoqing dispensary, listed vaccination as his major task.⁹⁵ Kerr's hospital performed vaccinations from 1859 onwards and in 1863, 1,494 children were reported to be vaccinated.⁹⁶ By this time, keen competition arose between native vaccinators and medical missionaries. While claiming success in vaccinating a growing number of children, missionaries criticized native vaccinators for using bad lymph and for their ignorance in lymph preservation. The Canton Hospital itself would remain for some years a main supplier of fresh lymph to local vaccinators who had connections with the missionaries. Kerr wrote proudly in 1867 that "this hospital is the only institution in China where a supply of lymph is kept on hand."⁹⁷ We thus have good reasons to believe that it was at least partly based on such services that native vaccinators created their own modes of lymph preservation in the latter part of the century.

However, one should note that despite such contributions, medical missionaries never considered vaccination as their major task. Missionary hospital reports throughout the nineteenth century were largely filled with descriptions of spectacular surgery that were to impress not only the Chinese, but also readers in the West. Vaccination was only mentioned and practiced on the side and its importance was on the decrease. In 1874, fifteen years after Kerr established the vaccination department in his Canton Hospital, he prided himself on 1,084 surgical operations, but only 250 vaccinations.⁹⁸ It is interesting to note that even Pearson did not like practicing vaccination. In his 1816 report he stated

⁹³ RMMS 1860, 7-8. The vaccine department inoculated some 700 children in 1860 with fresh lymph obtained from a colonial surgeon of Hong Kong.

⁹⁴ RMMS 1861, 5-6.

⁹⁵ Graves wrote in the 1880s that "My first efforts were confined to vaccinating the children on my country tours." *Chinese Recorder* 17/11, November 1886, 433; RMMS 1866, 6.

⁹⁶ RMMS 1861, 4; RMMS 1862, 5, 17; RMMS 1864, 3; the mid-1860s seemed to be peak years of the hospital's vaccination department.

⁹⁷ RMMS 1866, 12; RMMS 1867, 9. Other missionary hospitals performed the same task about a decade later: the Gutzlaff Hospital in Shanghai distributed about 150 tubes of lymph to natives for use in Shanghai in 1879. *Maritime Customs Medical Report*, no. 19, 1880, 19.

⁹⁸ RMMS 1875, 3.

that "I am now released from the laborious, and here, peculiarly irksome task of personally conducting the vaccination—my care being limited to inspection of the pustules."⁹⁹ The lack of glamour in the task probably discouraged most missionaries from practicing personally, and from promoting it energetically. Before the maturing of germ theory leading to the development of laboratory medicine at the end of the century, vaccination as a technique grown out of folk experience did not inspire much intellectual excitement. Like Pearson, medical missionaries preferred leaving the job to natives.

The absence of bureaucrats in the vaccination story in Canton was perhaps more surprising. Throughout the nineteenth century, there was no significant bureaucratic involvement in the popularization of vaccination in Canton, other than the passive act of endorsing the technique by poetry and calligraphy reproduced in vaccination books. This differs from the active participation of local officials¹⁰⁰ who organized or inaugurated vaccination bureaus that were growing rapidly in other provinces from the mid-century onward.¹⁰¹ There were examples of Guangdong bureaucrats attempting to be more interventionist in the later nineteenth century but without success. Governor-General Zhang Shusheng (1824-84, native of Anhui) set up a new vaccination station in Canton in 1880-81 in which he had some 40 petty expectant officials trained as vaccinators and sent to practice in the 72 districts of the province. This official attempt was a failure as the populace refused their service.¹⁰² The aborted attempt contrasts interestingly with the success of the above mentioned Cantonese scholar-official Zeng Wangyan in setting up one of the first vaccination bureaus in Beijing in 1828 inside the Nanhai *huiguan*. The bureau, run by the guild's managers, became a model and its regulations were often copied by other bureaus. The merchant-official Pwantinggua in 1847 repeated

⁹⁹ *Chinese Repository* 1833, 36.

¹⁰⁰ The vaccination bureau in Nanjing was inaugurated in 1834-35 by the governor-general Tao Zhu (1779-1839) in an Anhui ritual hall (indicating the involvement of Anhui vaccinators), and re-established in 1871 again by officials. See 1871 *Jiangning fu chong jian Puyu tang zhi* (Record on the re-establishment of the charitable institutions in Jiangning Prefecture) 5:13a. Post-Taiping vaccination in Jiangsu Province was officially sanctioned; see *Jiangsu shengli* (Regulations of Jiangsu Province), I, 1876, 9a. The 1883 vaccine bureau attached to the founding home of Hongjiang was also set up by local officials authorizing the employment of an outside vaccinator. See 1888 *Hongjiang yuying xiaoshi* 3:2a-3a.

¹⁰¹ On the rapid development of such institutions see my paper, "Variolation et vaccination dans la Chine prémoderne (1580-1911)," 64-70. The bureaucrats' role is clearly revealed in an 1869 proposal drafted by a Fujian scholar urging bureaucratic leadership in the promotion of vaccination, see Jin Dong, "Tiao-chen dafu tongxing niudou zhangcheng" (Guidelines for the propagation of vaccination) and "Da mo lian fanglun tongxing niudou shu" (In response to official X on the propagation of vaccination). In the second text, the author noted that he was writing in 1870. Jin Dong considered local gentry arrogant, corrupt, and incompetent. He also recommended the total banning of variolation.

¹⁰² According to E.A. Aldridge writing in Haikou, "the people would have nothing to do with [these vaccinators]." *Maritime Customs Medical Report*, no. 25, 1883, 14.

the enterprise, summoning Qiu Xi's son to the capital.¹⁰³ The early and efficient involvement of merchants and native practitioners in vaccination enterprises in Guangdong left no space for later bureaucrats to exercise their influence.

Reception in Canton

The combined efforts of merchants, missionaries, and especially native vaccinators rendered the reception of vaccination in the Canton area rapid and smooth in the early nineteenth century. According to Pearson, "by the time the British Factory removed from Macao to Canton in that season [of 1805], a degree of confidence had been established in its favor; and in the course of the winter and spring months of 1805–6, and during the raging of the small-pox [February–June 1806], the numbers brought for inoculation were great." Moreover, to him, there was a definite pattern of reception: "It certainly has spread greatly here from among the lower classes of society, so as to have become general among the middling rank, and to be frequently resorted to by those of the higher conditions." The progress was so smooth that Pearson had to concede that it was "with fewer obstacles from prejudice than could be anticipated, especially in a Chinese community," and, consequently, "epidemics were milder than before."¹⁰⁴ This progress was without interruption throughout the nineteenth century, despite all the wars and unrest in southern China. Writing in the 1850s, Hong Kong Governor John Davis quoted Pearson to state that "the practice of vaccination has acquired great stability among the Chinese of Canton Province, of every condition. . . . It appears that [vaccination], if it fails occasionally, though very infrequently . . . invariably mitigates the severity of small-pox."¹⁰⁵ By the early 1860s, John Kerr of the Canton hospital observed that the virtues of vaccination "are fully known and appreciated in Canton and its vicinity, and perhaps throughout this Province."¹⁰⁶ Huang Kuan reported from Canton in 1878 that there were professional vaccinators even in villages, practicing on their own account or hired by the gentry, and "at least 95% of the children of the city receive the benefits of vaccination."¹⁰⁷ The Cantonese themselves were also aware of their unique openness to the new technique, as commented by an author of the 1879 *Gazetteer of Guangzhou Prefecture*,

¹⁰³ This was quoted in full in (*Chongkan*) *Qiu-Zhao niudou shu*, 15a–17b. In the regulations, the book-keeping and accounting of the bureau were carefully described. The Nanhai *huiguan*, residence for Cantonese candidates of the imperial examination, also had other commercial functions; see Liu Zhenggang, *Guangdong huiguan lungao* (A discussion on *huiguan* of Guangdong), Shanghai *guji chubanshe*, 11–12; For the 1847 enterprise, see note 71.

¹⁰⁴ Pearson, "Report to the Board of the National Vaccine Establishment" (1816), 37–9.

¹⁰⁵ Davis, *China*, vol. 2, 234–5.

¹⁰⁶ RMMS 1858 and 1859, 7.

¹⁰⁷ *Maritime Customs Medical Report*, no. 15, 1878, 15.

"Now all inhabitants here know the virtues of vaccination, but such appreciation is not yet shared by those outside the province."¹⁰⁸

Canton was indeed an exceptional case of early acceptance of vaccination. For more than half a century, the art was not fully appreciated in other major metropolises such as Shanghai, Ningbo, Hangzhou, Fuzhou (Fujian Province), and even Hong Kong. The main obstacle seemed to be, as in Europe, traditional inoculators.¹⁰⁹ In 1850, it was reported that despite the great efforts made by Dr. Lockhart of the London Missionary Society to bring vaccination to Shanghai, "multitudes seem not to care whether it be secured by them and their children or not." Generally, "the people appear on the whole to prefer their own plan of inoculation, which is practiced on almost every child," as observed by another foreign resident of the city.¹¹⁰ After the suppression of the Taiping rebellion, Chinese bureaucrats and philanthropists joined missionaries in Shanghai to multiply their efforts in promoting vaccination, but again ended up complaining about stubborn resistance. In the major newspaper *Shen Bao*, a number of articles described the frustration of activists in the 1870s: the interruption of lymph supply, the distrust of the Chinese population, the sabotage of traditional variolators, pediatricians, and drug sellers.¹¹¹ As late as 1881, the medical officer in Shanghai, Jamieson, complained that vaccination was not as intensive as in a place like Haikou on Guangdong's Hainan island.¹¹²

In Ningbo in 1851, Dr. Macgowan reported that "The Chinese have been slow in availing themselves of the blessings of vaccination, although it has been largely practiced at Canton for many years."¹¹³ Similarly, in Fujian, just north of Guangdong, as late as the 1870s, an activist complained that while traditional variolation still dominated, vaccination texts did not circulate and the majority of the rural population refused to be vaccinated.¹¹⁴ Even the reception in Hong Kong, a British colony since 1842, seemed slow. Benjamin Hobson wrote in 1844 that the efforts to extend vaccination in the colony had been unsuccessful, especially when traditional variolation "has been extensively performed

¹⁰⁸ 1879 *Guangzhou fuzhi* 1879, 163:40b.

¹⁰⁹ Qiu Zhonglin, "Ming-Qing di rendou fa," provides the most up-to-date account on variolation.

¹¹⁰ *Chinese Repository*, July 1850, 390; March 1851, 158.

¹¹¹ *Shenbao*, June 5, 1873, 1; 2 December 29, 1874, 1; 2 and January 29, 1875, 1. Jamieson, the Maritime Customs Medical Officer in Shanghai in 1875, observed that vaccination became popular after the death of the Emperor of smallpox, see *Maritime Customs Medical Report*, no. 25, 7; K.C. Wong and L.T. Wu, *History of Chinese Medicine*, 291–2.

¹¹² *Maritime Customs Medical Report*, no. 21, 1881, 83.

¹¹³ *Chinese Repository*, August 1851, 534; Macgowan reported that "When at Hangzhou, I met with an advertisement of a physician who devoted himself to this art; and a few months since, an itinerant doctor visited this city, but met with no better success than foreign physicians in attempting to introduce the practice".

¹¹⁴ Jin Dong, "Tiaochen dafu tongxing niudou zhangcheng" and "Da mo lian fanglun tongxing niudou shu."

in the immediate vicinity of our houses by native practitioners."¹¹⁵ The real spread of vaccination seemed to occur only after 1872, when severe smallpox epidemics broke out, and after the active involvement of the indigenous Tung Wah Hospital,¹¹⁶ created on the same model as native charitable halls in Guangdong. It was only during the last two decades of the nineteenth century that significant increase in the popular confidence in vaccination emerged in other parts of China, including peripheral regions such as Taiwan.¹¹⁷

The successful role played by native vaccinators in the Canton region during the first decades of the nineteenth century was unique not only in China, but also in Asia. A comparison with Japan and Indochina will show this point. In Japan, the first vaccine lymph was brought by a Dutch scientist to Nagasaki in 1820 but was a total failure. The Japanese had to wait for the introduction of the Chinese version of Pearson's treatise, probably by Peter Parker, the American missionary doctor of the Canton hospital, in 1838.¹¹⁸ Its Japanese translation appeared only in 1842. The first vaccination clinic was established in Edo as late as 1858 by the shogun. Vaccination as a full public health activity only began in the late 1860s, as part of the Meiji reforms.¹¹⁹ In Indochina, after the lymph was introduced in 1821 by Despiaua, a surgeon in the service of the king of Cochinchina as witnessed by Pearson,¹²⁰ vaccination was practiced almost exclusively by a few French colonial specialists with little participation of local vaccinators even towards the turn of the century, which was the main cause of the sluggish development.¹²¹ Both examples of Indochina and Japan show that, as in Europe, the successful spread of vaccination depended essentially on the efficacy of the state, or activism of the medical profession.¹²² In some cases, like Russia in the nineteenth century, it was an association of elite professionals closely related to the government that promoted vaccination.¹²³ The Canton situation in the first half of the nineteenth century was indeed unique.

¹¹⁵ Hobson, "Report of the Medical Missionary Society's Hospital at Hong Kong under the care of Benjamin Hobson", *Chinese Repository*, July 1844, 380.

¹¹⁶ K.C. Wong and L.T. Wu, *History of Chinese Medicine*, 289; on the Tung Wah Hospital, see Sinn, *Power and Charity*.

¹¹⁷ Shepherd, "Smallpox and the pattern of mortality in late nineteenth century Taiwan," 279.

¹¹⁸ Miyajima, "The history of vaccination in Japan," 23. It is likely that Peter Parker was responsible for the introduction of the text to Japan. He lent the text to a Japanese man in 1838 on a trip from Singapore to Japan during which he also vaccinated a Japanese old man. See "Journal of an expedition from Singapore to Japan, with a visit to Loo-choo by Peter Parker, 1838," *Chinese Recorder* 7/6, 1876, 392-3.

¹¹⁹ Jannetta, "Public health and the diffusion of vaccination in Japan."

¹²⁰ Pearson, "Report to the Board of the National Vaccine Establishment" (1821), 40.

¹²¹ Guénel, "Lutte contre la variole en Indochine," especially 71-79.

¹²² Hopkins, *Princes and Peasants*, 89-96.

¹²³ Pratt, "The Free Economic Society and the battle against smallpox."

Conclusion

The study of vaccination in early nineteenth-century Canton demonstrates how the introduction of this new, foreign medical technology helped to carve out a new space for public health in traditional society. Native vaccinators here played the key role, with the support of Chinese and foreign merchants, as well as medical missionaries, without significant bureaucratic involvement. Vaccination was thus institutionalized in Canton before the emergence of the awareness of the necessity of a strong, modern state to organize public health.

The entrepreneurial activities of the early vaccinators were crucial to this success. Their propaganda efforts and their prestigious social connections smoothed the way for popular acceptance of vaccination. This created sufficient demand to make vaccination a profitable business. These opportunities attracted new recruits who provided vaccination to ever larger segments of the population, segments that had no contact with missionary or *hong* sponsored institutions.

There were unique elements in early nineteenth-century Cantonese society that contributed to such a development: a dynamic commercial tradition, and the familiar and appreciated presence of Western culture, conditions that later made Shanghai "the most civilized" city in China as observed by Lu Xun in the early twentieth century. Shanghai, whose cosmopolitanism was enhanced in the later nineteenth century by the presence of strong and direct foreign administration, overshadowed Canton in many ways. However, these elements continued to shape Cantonese society in the later periods. In the matter of public health, for instance, charitable halls and hospitals managed by native merchant associations proliferated throughout Guangdong Province, combining commercial and medical interests, Western and Chinese medical practices. These institutions, with their typically pragmatic concerns, providing hands-on medical services, continued to be the public arena in which local medical practitioners, of both Chinese and Western training, exerted their influence.¹²⁴ The first charitable vaccination dispensary sponsored by *hong* merchants and the activism of the first native vaccinators clearly prefigured such a development.

¹²⁴ The charitable halls paid local specialists to manufacture and distribute common medicines, provided Western and Chinese birth delivery, "external medicine" including treatments of skin and bone problems, and so on. Names of doctors and their specialties were publicly listed, see Deng Yusheng, ed., *Quan Yue shilu chubian*.

Glossary

Aiyu Charitable Hall	愛育善堂	Qiu Xi	邱熹
Chaling	茶陵	Ruan Yuan	阮元
Chen Jitong	陳季桐	Shenbao	申報
Chen Yuan	陳垣	Shunde	順德
Cheng Maoyuan	程茂遠	taidu	胎毒
Gongsuo (Consoo)	公所	Tan Fusi	譚服思
Daliang	大良	Tan Guo	譚國
Deng Fuheng	鄧復亨	Tung Wah Hospital	東華醫院
Foshan	佛山	Wang Yuechuan	王月川
Fu Dazun	傅達尊	Wang Zhengyuan	汪徵遠
Fu Tang	傅棠	Wu Dunyuan	伍敦元
Haikou	海口	Wuzhou	梧州
Huang Chunfu	黃春甫	Xuehai Academy	學海堂
(the same person as Wang Chunfu 王惇甫)		Yang Xusheng	楊煦生
Huang Kuan	黃寬	(the same person as Yang Xu 楊煦)	
Huang Peiru	黃沛如	Yindou lue	引痘略
huiguan	會館	Zeng Ao	曾煥
Huilong company	會隆行	Zeng Wangyan	曾望顏
Liang Hui	梁輝	Zha Jiren	查吉人
Liu shenyi	劉神醫	Zhang Chongshu	張崇樹
Lu Guanheng	盧觀恆	Zhang Yao	張堯
Lu Xun	魯迅	Zhang Shusheng	張樹聲
Pan Shicheng	潘仕成	Zhaoping	肇慶
Pan Youdu	潘有度	Zheng Chongqian	鄭崇謙
Panyu	番禺	zhongdou guan	種痘館
Qiu Chang	邱昶		

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