



Odes on Guiding Smallpox Out Qiu Xi's Contribution to Vaccination in China

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INTRODUCTION OF VACCINATION INTO CHINA

In March 1960, the last patient of smallpox in China was found in Yunnan Province; in 1979, the World Health Organization officially announced the eradication of smallpox; and on 8 May, 1980, the 33rd Congress of the WHO suggested ending smallpox vaccinations worldwide. To date, smallpox is the only plague completely conquered by mankind. This victory is due to both variolation and vaccination.

Since Dr. John Dudgeon's (1837-1901) *Textual Research on Vaccinia*¹ published in 1873, there have been many studies done on the introduction of vaccine inoculation into China.² These references show clearly the development over time. It has been shown that the variolation process originated in China, first appearing during the reign of Emperor Longqing 隆庆 (1567-1572) in the Ming dynasty.³ This method of inoculation was introduced into Europe at the beginning of the eighteenth century.⁴

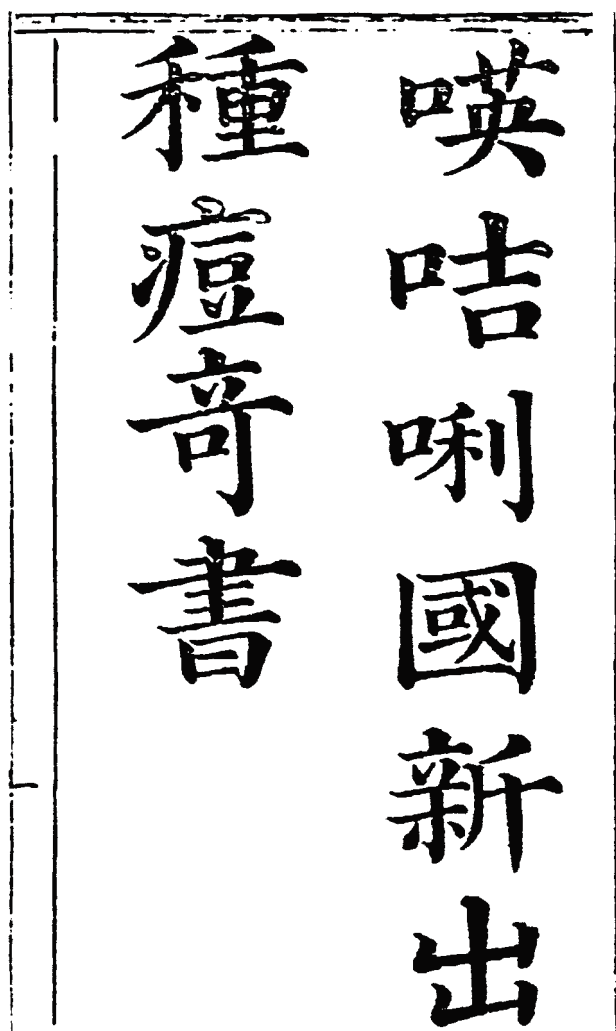
Edward Jenner (1749-1823) had been a variolator before he invented vaccination. Vaccine inoculation was first introduced to China by the British East India Company in October 1803, but unfortunately failed because "the virus having from the length of passage, been deprived of its virtue."⁵ In May 1805, Portuguese merchant Pedro Huet returned to Macao from Manila on his vessel *Esperanza*, with his crew vaccinated.⁶ Normally, it took eight to ten days to arrive at Macao from Manila, so when Huet's ship arrived, it was the time to take the vaccine lymph from the crew to vaccinate others.

In this way, the smallpox vaccine was introduced into China successfully. Miguel de Arriaga, *desembargador-ouvidor* of Macao, commissioned Domingos José Gomes, surgeon of the *Partido*, to conduct vaccinations in the hospital of the Santa Casa da Misericórdia shortly after Huet's arrival.⁷ Alexander Pearson, surgeon of the East India Company (EIC), also received the vaccine lymph from Huet's crew⁸ and began to give vaccinations to foreigners and Chinese in Macao and Canton at the same time. He compiled a treatise on vaccination that was translated into Chinese by George Staunton with the title *Yingjili Guo*

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Front cover of *Yingjili Guo Xinchu Zhongdou Qishu* (1805), Chinese translation of A. Pearson's treatise on vaccination.

Xinchu Zhongdou Qishu 英吉利國新出種痘奇書 (Instructions from England for the New Method of Inoculation) and published in August 1805 with the support of James Drummond, president of the EIC Committee at Canton, and Gnewqua II (Zheng Chongqian 鄭崇謙 (d. 1813), a famous hong merchant.⁹ In September 1805, Francisco Xavier Balmis, surgeon to King Carlos IV of Spain, arrived at Macao after successfully propagating vaccination in New Spain and the Philippines. Although he was well accepted in Macao, his trip to Canton was not so successful. During his forty-day stay in Canton, he was able to vaccinate only twenty-two people. He left Macao for Europe on the Portuguese ship *Bom Jesus de Além* in early February 1806.¹⁰

Qiu Xi 邱熺 (1774-1851) was one of the first Chinese to be vaccinated in Macao after the arrival of Huet. He learned this new art of vaccination, and from 1806 engaged in the practice in Canton. He quickly became the principal vaccinator at that time.

Many earlier studies have focused on the process of the introduction of vaccination to make clear whose contribution was the greatest: the Portuguese Huet, the English Pearson, the Spaniard Balmis, Chinese physicians Qiu Xi and Liang Guochi 梁國熾, or hong merchant Gnewqua II. These were, in fact, contemporary arguments between all of these men, who took credit for the introduction of the vaccine.¹¹ It is clear from the historical record that all of them engaged in this project. Thus, in a sense, we could say it was their joint efforts that made it happen, which historians might find more meaningful.

There are other important aspects about these activities that have yet to be researched. For example, in Qiu Xi's *Yin Dou Ti Yong* 引痘題咏 (Odes on Guiding Smallpox Out), different Chinese attitudes to this foreign method of inoculation are revealed, with unique ways of understanding it. We will discuss below some of these issues that appear in the Chinese and Western language sources and that have been raised in previous studies.

THE LIFE OF QIU XI

Qiu Xi was the most important person in propagating vaccination in China, but until now, there has been no biography of him. We will provide a brief summary of his life here.

Qiu Xi, called Haochuan 浩川, also called A-he-quan¹² or Dr. Longhead¹³ by foreigners, was born in Nanhai County¹⁴ in 1774.¹⁵ According to his classmate, Ye Dalin 叶大林, when Qiu was young he was very intelligent, and his teacher Chen 陈 had much regard for him, saying: "This child will definitely attain achievements in future."¹⁶ His neighbor and friend Zhong Qishao 钟启韶 said that Qiu was good with musical instruments.¹⁷ Nevertheless, it seems that Qiu failed the *keju* examination and later went to Macao to seek his livelihood. He was employed by the EIC as a comprador.¹⁸

Illustration from *Yingjili Guo Xinchu Zhongdou Qishu*.

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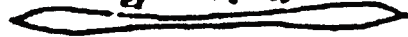
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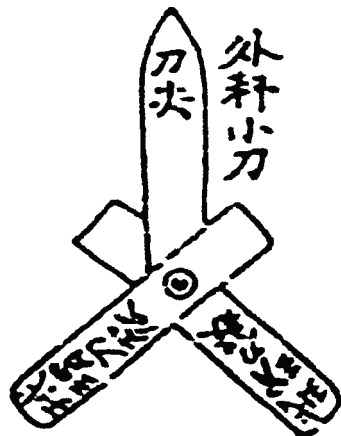


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When Pedro Huet's ship *Esperanza* arrived at Macao in May 1805, Qiu Xi was in Macao. He had not been vaccinated or infected with smallpox before, so he experimented with the vaccine by practising on himself, and fortunately it was successful. Although we don't have documents to prove who vaccinated him, we can suggest that it might have been Alexander Pearson or Domingos José Gomes, but not Francisco Xavier Balmis because at that time he was still in Manila. It is more likely that Qiu was vaccinated by Dr. Gomes in the hospital of the Santa Casa, because Gomes was asked by *desembargador-ouvidor* Miguel de Arriaga to practice vaccinations in a room of the hospital, and Pearson did not mention vaccinating A-he-quá although he knew him very well.

It seems that Qiu learned this new method shortly after he was vaccinated, and in 1805 or 1806 he vaccinated his family and some of his friends.¹⁹ Qiu was one of the first (if not the first) Chinese to learn how to vaccinate, but it is unclear from whom he might have learned it. One possibility is Pearson, who said in a report:

"Very many (I believe I may state thousands) were in the course of twelve months inoculated; in order to fulfill the views I had taken of the most proper means for its dissemination, I had instructed several Chinese in the details of it, after the best manner I could, and they practiced it extensively as well at a distance from as under my inspection."²⁰

Qiu Xi may be among the "several Chinese" mentioned by Pearson. Other students would probably include Liang Guochi, Zhang Yao 张尧 and Tan Guo 谭国. They were supported by hong merchant Gnewqua II. The teaching material was *Yingjili Guo Xinchu Zhongdou Qishu*, compiled by Pearson, and published in the name of Gnewqua II in August 1805. The Daoguang 道光 *Nanhai Gazetteer* 南海县志 reported:

"Hong merchant Zheng Chongqian (Gnewqua II) translated and published *Zhongdou Qishu* in one volume and recruited people to learn this technology. Several students, including Liang Hui 梁辉 (Guochi), Qiu Xi, Zhang Yao, and Tan Guo, were studying it together."²¹

No more sources mentioned Zhang Yao and Tan Guo, but there is a short biography of Liang Hui in the *Panyu Gazetteer* 番禺县志.²²

Liang Guochi (1763-1819), called Hui 辉, resided in upper-Huangpo. After failing the *keju* examination, he became a clerk in the Tianbao Hong. He was a caring person and always had sympathy for those who died from smallpox. He looked for an effective means of preventing smallpox, but did not find it until he heard that Western people had the method of vaccination. The *Panyu Gazetteer* states:

"He bought it for a lot of money and learned how to do it... then he practised it freely... Guochi's practice of vaccination was the beginning of the eradication of smallpox in China."

We cannot believe everything in Liang Guochi's biography because at that time vaccinations were supported by hong merchants, so he probably did not pay for it himself. It is strange that there is no biography of Qiu Xi in the gazetteers, and his famous work *Yin Dou Lue* 引痘略 (Guiding the Smallpox Out) was not mentioned frequently at that time.

There were times when the vaccine died in the Pearl River delta and had to be reintroduced. In a report from Canton dated 18 February 1816 Pearson wrote: "In fact, since its first introduction into China, it has been twice extinct; and in both instances, again brought from the island of Luçonia."²³ He did not mention when the vaccine died. Chinese documents also record the vaccine dying twice: once in 1806 and again before 1810. The former was recorded in the *Panyu Gazetteer*, stating:

"In the eleventh year of Jiaqing 嘉庆 (1806), because few people were inoculated, the vaccine lymph was extinct. Foreign doctors were asked to return to their country to bring vaccine lymph back to Canton again. The foreigners brought several tens of foreign children who were vaccinated during their travel. After arriving in Canton Province, they vaccinated Chinese people with the vaccinia from these children, and also instructed the art of vaccination. Those charitarians donated again to the vaccinators."²⁴

This Gazetteer also said that more and more Chinese doctors learned this new art of inoculation, of whom Qiu Xi from Nanhai County was the best one versed in it.

The Daoguang *Nanhai Gazetteer* records the other extinction of the vaccine, saying:

"Because the people of Canton Province were not convinced of it, the vaccine died. In the fifteenth

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year of Jiaqing (1810), J. W. Roberts²⁵ brought ten children from small Luçonia again to convey the vaccine.²⁶ This time, hong merchants Wu Dunyuan 伍敦元 (Howqua II, 1769-1843), Pan Youdu 潘有度 (Puankequa II) and Lu Guanheng 卢观恒 (Mowqua I) donated together many taels and hired Tan Guo and Qiu Xi as vaccinators to practice vaccination in Consoo House. During summer and winter, they gave money to those who would not like to be vaccinated. In this way, they saved countless children.”²⁷

Wong and Wu wrote:

“In 1815 the principal hong merchants established a fund for the free vaccination of the poor at all times, offering a small premium to those who brought their children for that purpose. A dispensary was opened in the ‘Consoo House’ or Public Hall of the hong merchants in Hong Street, Canton, where from fifteen to forty children were vaccinated every ninth day by a Chinese vaccinator.”²⁸

Wong and Wu did not provide the source of their information. It probably came from Pearson’s report,²⁹ but in this document, he did not mention when this dispensary was opened. Following Wong and Wu’s research, Peng Zeyi 彭泽益 stated that it was opened in 1815.³⁰ However, it is recorded in the *Nanhai Gazetteer* that it was in 1810 when the dispensary was opened in the Public Hall of the hong merchants.

In 1817 Qiu Xi published his famous work *Yin Dou Lue*. He said that he had never learned medicine before,³¹ but after learning the art of vaccination, he studied some traditional Chinese medical books, especially books on variolation, such as *Yi Zong Jin Jian* 医宗金鉴³² and Zhang Yan 张琰 *Zhong Dou Xin Shu* 种痘新书. In *Yin Dou Lue*, he tried to explain vaccination according to theories of traditional Chinese medicine. His method was very important because his arguments convinced many Chinese to accept vaccination. *Yin Dou Lue* had more than fifty editions during one hundred years (1817-1916),³³ and had much influence in the late Qing dynasty.

In the *Daoguang Nanhai Gazetteer*, it is recorded that *Zhong Dou Qi Shu* was written by Gnewqua II, and that after his death, “someone pirated his book and published it with some augmentations in it, and then Gnewqua II’s name was omitted. It is a great pity!”³⁴ The Tongzhi 同治 *Nanhai Gazetteer* states: “*Yin Dou*

Lue was compiled by Qiu Xi. Note: Gnewqua II’s *Zhong Dou Qi Shu*, in one volume, recorded in the former gazetteer (*Daoguang Nanhai Gazetteer*), was the precursor of Qiu Xi’s works.”³⁵ Peng Zeyi quoted these materials to prove the importance of the role of the hong merchants in the introduction of vaccination.³⁶ However, *Zhong Dou Qi Shu* was not Gnewqua II’s work. It was only published in his name in order to draw more attention to the book.³⁷ Furthermore, although Qiu Xi quoted the basic contents of *Zhong Dou Qi Shu* (it was his learning source) in his work, *Yin Dou Lue* was really Qiu Xi’s original work, in which new contents and theories were added. Qiu Xi did not pirate Gnewqua II’s book, nor did he pirate any other books. In fact, Qiu Xi’s *Yin Dou Lue* contributed more towards the diffusion of vaccination in China than *Zhong Dou Qi Shu*.

Writing about the Chinese vaccinators, Pearson commented:

“The principal of whom, A-he-quua who has been engaged in the practice since 1806, is a man remarkably qualified for the business by his cast of judgment, method, and perseverance. He has been encouraged in his laudable exertions by the favorable opinion of his countrymen, and by marks of distinction or consideration which have been conferred upon him by the higher functionaries of the local government.”³⁸

Some of these “marks of distinction” are recorded in the *Yin Dou Ti Yong*.

It is said that He-quua (Qiu Xi), “vaccinated over a million Chinese persons in thirty years and handed his skill down to his son; other Chinese establishments for vaccination arising from his efforts.”³⁹ It is really impossible that Qiu Xi vaccinated one million persons in thirty years. Vaccination was conducted only every ninth day, so if it was true, he must have vaccinated more than nine hundred persons every time! It is true, however, that Qiu Xi handed his skill down to his son Qiu Chang 邱昶, who began to work in the dispensary in 1818.⁴⁰ Qiu Xi died in 1851 after a long and honourable career.⁴¹

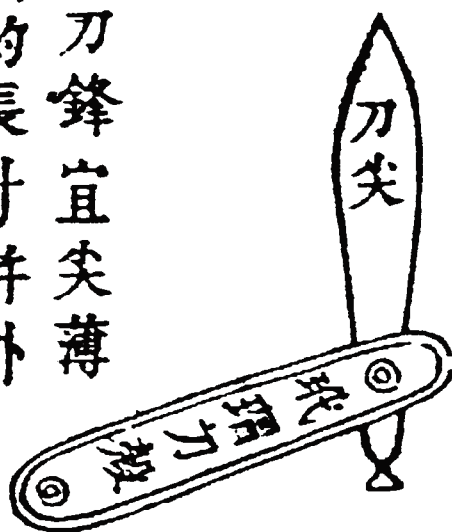
YIN DOU TI YONG

Literati and functionaries whose children were vaccinated by him often presented poems, articles and tablets to Qiu Xi. In the third year of Emperor

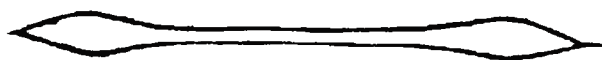
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Daoguang (1823), Qiu Xi published these odes under the title *Yin Dou Ti Yong* in order that people who read it would trust this new method, and it could be propagated extensively.⁴² This book has been mentioned in only a few papers, and has not been researched until now.

Peng Zeyi wrote: "In the first year and third year of Daoguang (1821 and 1823) Qiu Xi edited and published a book named *Zhong Dou Ti Yong* 种痘题咏 in three volumes, collecting plenty of poems and articles by celebrities." He did not provide the source he quoted.⁴³ I have never found the book named *Zhong Dou Ti Yong*. Perhaps Peng mistook *Zhong Dou Ti Yong* for *Yin Dou Ti Yong* because Qiu Xi preferred the term *yin dou* to *zhong dou* and explained his reasons in his *Yin Dou Lue*.⁴⁴ The only existing copy of *Yin Dou Ti Yong* is preserved in the library of the Academy of Chinese Traditional Medicine in Beijing, and it is in three volumes, but the second volume is Qiu Xi's earlier work *Yin Dou Lue*. That means *Yin Dou Ti Yong* only has two volumes. Qiu Xi's preface of *Yin Dou Ti Yong* was written in 1823, so it could not have been published in 1821.

Before *Yin Dou Ti Yong* was published, it seems that Qiu Xi had had a transcription named *Tian Hua Xin Yong* 天花新咏 because his classmate Ye Dalin said:

"In the year of Guiyou 癸酉 (1813), Count Zeng presented Qiu Xi with a tablet of four characters: *wu yao you xi* 勿药有喜 (having happiness without using remedy), to praise him for his outstanding medicine. From then on relatives, friends and literati sent him many poems and articles, which he collected and published under the title *Tian Hua Xin Yong*. I was very pleased when reading it, and presented him this poem to praise his ability of learning."⁴⁵

After receiving a considerable number of poems and articles, Qiu Xi published this transcription, changing its name to *Yin Dou Ti Yong*, which corresponds more appropriately with the contents. The tablet presented by Count Zeng is the first ode in *Yin Dou Ti Yong*, but dated the ninth month of the nineteenth year of Jiaqing (October 1814) instead of 1813. Qiu Xi began preparing this book in 1814 and completed it ten years later.

Count Zeng is Zeng Ao 曾燠 (1760-1831), called Shu Fan 庶蕃, alias Bin Gu 宾谷. He was born in Nancheng County of Jiangxi Province. He became *jinshi* 进士 (Metropolitan Graduate) in 1781, and was selected *hanlin* bachelor (选庶吉士). He was *buzheng shi* 布政使 (Provincial Treasurer) of Guangdong Province at that time. One of his sons was vaccinated by Qiu Xi, which is why he presented the tablet to him.⁴⁶ Because of Zeng's fame and honour, many other literati and functionaries also presented poems or articles to Qiu Xi. Count Zeng and *wu yao you xi* are frequently mentioned in the odes in *Yin Dou Ti Yong*.

One hundred and thirteen people contributed more than one hundred and thirty odes, which were collected and printed in *Yin Dou Ti Yong*. It is very unusual in Chinese history, before the end of Qing dynasty, for a technology, especially a foreign one, to be given so much respect and attention. The authors of these odes came from diverse backgrounds, including officials, literati, merchants, military officers, doctors, and even one poetess. Most of them were from Guangdong Province, or had occupations there. More than half of them were from Nanhai and Panyu counties, which suggests that vaccination was more accepted in these areas. Some of the authors were from other provinces. For example, Shu He 舒和 was a military officer in Beijing; Liu Guangxi 刘光熙 was *zhifu* 知府 (magistrate) of Yuezhou in Hunan Province; Wang Fu 汪阜 was an official in Nanxiong, Jiangxi Province; Zheng Zhaozheng 郑兆珩 was a *maocai* 茂才 (cultivated talent) of Jiangsu Province; Yi Nianzeng 伊念曾 was a senior licentiate of Fujian Province, etc. They may have learned about vaccination when traveling to Guangdong, and it is possible that they were involved in introducing it to their home towns. Unfortunately, it is still unclear how vaccination was spread to other provinces.

Qiu Xi said that these odes were put in chronological order when published, but, in fact, those of high officials were put in front. Qiu Xi probably arranged it this way to make the book more influential. The highest official to present a poem to Qiu Xi was Ruan Yuan 阮元 (1764-1849), *zongdu* 总督 (Governor General) of Liangguang Province. We can also find other high officials' odes in *Yin Dou Ti Yong*, such as Kang Shaoyong 康绍镛, the *xunfu* 巡抚 (Governor) of Guangdong Province. He gave Qiu Xi a tablet entitled *gong can bao chi* 功参保赤 (merit in

Instruments used in vaccination (Qiu Xi, *Yin Dou Lue*).

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protecting children) in the first year of Emperor Daoguang (1821).⁴⁷ Peng Bangchou 彭邦畴 was a *hanlin* academician 翰林学士 and *xuezheng* 学政 (provincial education commissioner) of Guangdong Province. He wrote a long poem to Qiu Xi, some lines of which we quote here: “At the beginning of its introduction into China, people were very astonished at this foreign technology; but after reading Qiu Xi’s book, we know that it is very effective.”⁴⁸

Zhou Zuoxi 周祚熙 was *jinsbi* and *tongpan* 通判 (assistant sub-prefect) of Xunzhou, Jiangxi Province. He noted in his poem that when he was an official in Shunde and Macao he invited vaccinators to carry out vaccines there.⁴⁹ Cai Menglin 蔡梦麟 was *jinsbi* and magistrate of Qingyuan District of Guangdong. He wrote: “Were it not for Mr. Qiu’s merciful technology, we would not know that there were books of prescriptions in overseas countries.”⁵⁰ Other officials who wrote odes include Li Zonghan 李宗瀚, *ducha yuan zuo fu du yushi* 督察院左副督御使 (Vice-president of the Censorate); Fu Tang 傅棠, *xuezheng* of Guangdong; and Song Baohao 宋葆澍, education commissioner of the Guozijian 国子监 (Imperial Academy of Learning).

Besides paying for vaccinations, merchants also wrote poems to present to Qiu Xi. Wu Bingyong 伍秉镛, elder brother of Howqua II, for example, presented Qiu Xi with *Qi Gu* 七古, of which the first two paragraphs read as follows:

The deed of heaven could not be supplied by
human affairs,
But human beings would like to follow the will
of heaven.
Cowpox was first used in foreign territories,
Now it is introduced into Guangdong, having
here plenty of popularity.

After being vaccinated, and the vaccinia being
led into the holes of the human body,
The danger of smallpox is eliminated, and the
qi 气 of the human body is harmonized.
Parents are very afraid of vaccination because they
do not understand the theory of it,
Whereas it can guarantee that they have
abundant healthy children.⁵¹

Pan Zhengheng 潘正亨 (1779-1837), the eldest son of Puankhequa II, wrote a *Wu Gu* 五古 (see below),

and his brother Pan Zhengchen 潘正琛 wrote an article praising Qiu Xi as the people’s mother.⁵²

There are several authors from the same families, such as Wu Jiashu 吴家树 and Wu Jiamao 吴家懋; Ye Yingtai 叶应泰, Ye Yingjie 叶应阶, and Ye Yingyang 叶应阳; Ye Menglong 叶梦龙, Ye Menglin 叶梦麟, Ye Mengkun 叶梦鲲 and Ye Mengcao 叶梦草, etc. When one family member was successfully vaccinated, others soon followed. This was an important way of diffusing vaccination.

The intention behind these odes was not only to show their appreciation to Qiu Xi for vaccinating their children, but also, and more importantly, to encourage other people to trust in this new technology and method. *Yin Dou Ti Yong* appears to have been very helpful in the propagation of vaccination.

DIFFERENT CHINESE ATTITUDES
AND UNDERSTANDING OF VACCINATION

Joseph Needham said that “the Chinese indeed warmly accepted vaccination.”⁵³ But in fact, it was not true, especially in the early stages of its introduction. There were people who despised the new method, and people who doubted it. The former worried about losing their benefit of variolation if these vaccinations became popular, and the latter were afraid that this foreign art was a fake and would harm them if they were vaccinated. As Xu Shixian 徐士显 wrote in his poem, “People doubt vaccination, which was introduced by ships from overseas countries.”⁵⁴

According to the gazetteers quoted above, the Cantonese did not trust this new method of inoculation. Their fears and apprehensions contributed to the vaccine lymph dying in 1806 and 1810. This was confirmed by Pearson in his 1816 report. Some Chinese strongly objected to vaccination, especially the variolators. Pearson wrote:

“From their medical men, especially those who devote themselves peculiarly to the treatment of small-pox, it at first met with little acceptance. Alarms of failure have been occasionally spread; and although the difficulty of tracing such when stated, is a great incidental drawback; I have had occasion to see variola, measles, pemphigus and cutaneous eruptions, which had been supposed to arise from variolous infection in persons previously vaccinated.”⁵⁵

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His next report in 1821 also mentioned:

“It had then extended to the adjoining province of Keang-se, but again dropped there, having been met by the hostility of the priesthood, who in that province had a double interest in the preservation of small-pox, by being much employed in the inoculation after the Chinese method, and in ministrations with their deities, to avert or mitigate the scourge. The breaking out of the scarlet fever afforded plausible ground of crimination against a practice, which was said to retain the poison in the system, to appear at a future time, in still worse shapes.”⁵⁶

This idea or view is supported by a poem by Gong Zaide 龚在德, which states that variolators criticized vaccination because of its extensive diffusion and the consequential loss of their business.⁵⁷

Most Chinese, even if they took the vaccination, still were prejudiced against it. For example, some people would not submit their children to vaccination when temperatures were high in the summer and autumnal months. They often thought that all diseases attacked or were contracted at this time of the season, and so vaccination was considered dangerous and risky. Thus, in order to preserve the vaccine lymph, vaccinators had to pay children of poor families to take the vaccination.⁵⁸

There was more to the Chinese variolators' prejudices and objections towards vaccination than simply jealousy, competition and loss of profits. There were other reasons. Firstly, it was a foreign method. During the reign of Emperor Jiaqing, Chinese were more anti-foreign than had been the case before. In the tenth year of Jiaqing (1805), (the year vaccination was introduced into China), according to a palace memorial from the Grand Minister of State, the Central Government ordered:

“Closing down the houses attached to the four Catholic churches in Beijing, and houses of the foreigners in the countryside; inspecting letters of foreigners in China; restricting the quantity of the servants and employees of the foreigners; prohibiting the foreigners studying the art of medicine.”⁵⁹

This statement shows that it was illegal for Pearson and Staunton to publish the treatise on vaccination in China in the first place! This may explain why Ruan Yuan's *Guangdong Tongzhi* 广东通志 states: “In recent

years, we have Qiu Xi's remedy of guiding smallpox out in Guangdong, which was very effective,”⁶⁰ without mention of Pearson or his treatise in Chinese. The proud Chinese people also would not believe that there existed high culture and art in foreign countries.

Moreover, Chinese attitudes towards foreigners became worse because of the opium trade. These were obstacles to Chinese people accepting this new method from foreign lands. Ruan Yuan, Governor General of the Liangguang Province between 1817 and 1826, wrote a poem to appreciate Qiu Xi after he vaccinated his children:

“The poison of opium has been brought to China, and although the most stringent means are used to prevent it, they do not succeed. Nevertheless, this foreign art of vaccination may be carried into all the provinces, for it will truly prolong life.”⁶¹

This poem shows the Governor General's complicated frame of mind. How to face the foreigners from the West? They bought opium to China at the same time that vaccination was introduced by them. His intentions are obvious: strictly forbid the opium trade but learn and diffuse the art of vaccination.

Secondly, this foreign art was very different from the traditional Chinese method. It used cowpox lymph inserted into the arms instead of using dry smallpox bacterin inserted into the nose. The efficacy of Chinese smallpox inoculation was enhanced in the Qing dynasty. A complicated system was improved to reduce the toxicity of the smallpox bacterin, so variolation became safer. The rate of success could reach more than 95 percent, and when done by the most skilled practitioners, it could be more than 99 percent.⁶² Usually, however, the Chinese variolators kept their method of inoculation a secret for the sake of profits,⁶³ and it was very expensive to get the smallpox lymph. Therefore, smallpox inoculation was not widespread.

It was hard for many Chinese to accept vaccine lymph because they thought human beings and cows did not have the same *qi*. Also, according to Chinese medical theory, it should be inserted into the nose, because the nose is the door to the lung, and the lung is the *guan* 官 (organ, having the meaning of official in Chinese) of skin and hair. When inserting smallpox bacterin into the nose, the *qi* of the bacterin is conveyed to the lung; and then from the lung it is conveyed to the heart, which is the *guan* of *xuemai* 血脉 (blood vessels); then it reaches the spleen, the *guan* of muscles;

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then the liver, the *guan* of tendons; and finally the kidney, the *guan* of bones. The most poisonous virus of smallpox in bones and marrow is stimulated and started by the bacterin. When it reaches the tendons from the bones and marrow, the kidney is relieved of the virus; when it reaches the muscles from the tendons, the liver is relieved of the virus; the rest may be deduced by analysis. In the end, when the *qi* of the smallpox virus reaches granules on the skin, the lung is relieved of it, and then the whole body is released from smallpox.⁶⁴

According to Western medicine, vaccine lymph can be inserted anywhere in the skin. It is inserted into the arms only because it is more convenient. At that time, Chinese did not understand this. Pearson did not explain the theory of vaccination in his treatise, and as Zeng Zhao 曾钊 said in his postscript of *Yin Dou Lue*, people did not trust this new method because they did not understand the theory behind it.

Gradually, as in Europe,⁶⁵ people's attitudes towards vaccination changed for several principal reasons. First of all was the success of the new form of vaccination. According to Arriaga's report of 10 January 1806, the results of vaccination were so marvelous that there had not been even one smallpox patient in the past season, whereas many children and adults had died of smallpox before.⁶⁶ Qiu Xi also claimed that he had never failed in vaccination since he began this career.⁶⁷ Dr. Pearson and other Western and Chinese vaccinators had the same experience. Qiu Xi's *Yin Dou Lue* also played a very important role in this conversion. In this work he explained vaccination in terms of Chinese medical theories, which was more acceptable to the Chinese people.

Qiu Xi believed that the vaccine was more effective because the cow was an animal of *tu* 土 (earth, one of the five elements); and the spleen was the *guan* of *tu*, so cows and the human spleen had the same *qi*. This was contrary to Chinese ideas that they were of different *qi*. Smallpox virus existed in all the five *zang* 藏 (visceras), but the virus in the spleen was lighter than that in other organs, and the virus in the kidneys was the most poisonous. Therefore, by using vaccine with *qi* of *tu*, it was easier to extract the smallpox virus from the spleen and then relieve the whole human body.⁶⁸

Qiu Xi also wrote in his *Yin Dou Lue* that vaccinia should be inserted between the *xiaoshuo* 消烁 and *qingleng yuan* 清冷渊 acupoints on both arms, because this place was on the route of *shou shaoyang sanjiao*

jing 手少阳三焦经 (one of the twelve *jingmai* 经脉 of human body), and *sanjiao* 三焦 was the most important *fu* 腑 (internal organ), leading the five *zang*, six *fu*, *yingwei* 营卫 and *jingluo* 经络, connecting the *qi* of the inside and outside, topside and underside, left and right. Thus it was best to extract the smallpox virus from this key place of *sanjiao*.⁶⁹

In fact, Qiu's theory on vaccination is not scientific, but it was important for the new technique to be accepted in China. It was typical for Chinese to rationalize in this way before they would accept things from Western cultures. In his preface of *Yin Dou Lue*, Qiu Xi wrote that although vaccination and variolation were different methods, the theory of vaccination was contained in variolation, and both of them were good ways to extract the smallpox virus. This was a continuation of the idea of "Chinese origin of Western learning" 西学中源 from the time of Emperor Kangxi 康熙. Although variolation could be regarded as the origin of vaccination, this was not how Qiu Xi explained it, but an understanding that came with modern immunology.

Qiu Xi assimilated the main points of Pearson's treatise in his works, but then explained it in a Chinese way. He thought that the vaccine could be inserted any time during the year,⁷⁰ which was also stated in Pearson's treatise.⁷¹ Qiu Xi thought also that boys should be vaccinated in the left arm first, and girls should be vaccinated in the right arm,⁷² but this condition is not in Pearson's treatise.

Qiu Xi also added other reasonable ideas in his *Yin Dou Lue*. He reminded vaccinators to be sure to distinguish normal children from leprous children, who were common in Guangdong Province. He gave many Chinese remedies for peculiar circumstances, such as purulence, ulcer, bleeding, tinea and tumefaction caused by variola.⁷³ Although Qiu Xi's theory was opposed by the English doctor John Dudgeon,⁷⁴ it had considerable influence in China. We know from those odes presented to Qiu Xi that most of them understood vaccination according to Qiu's way of explaining it.

People accepted the idea that humans and cows could have the same nature. Pan Zhengheng wrote in his poem:

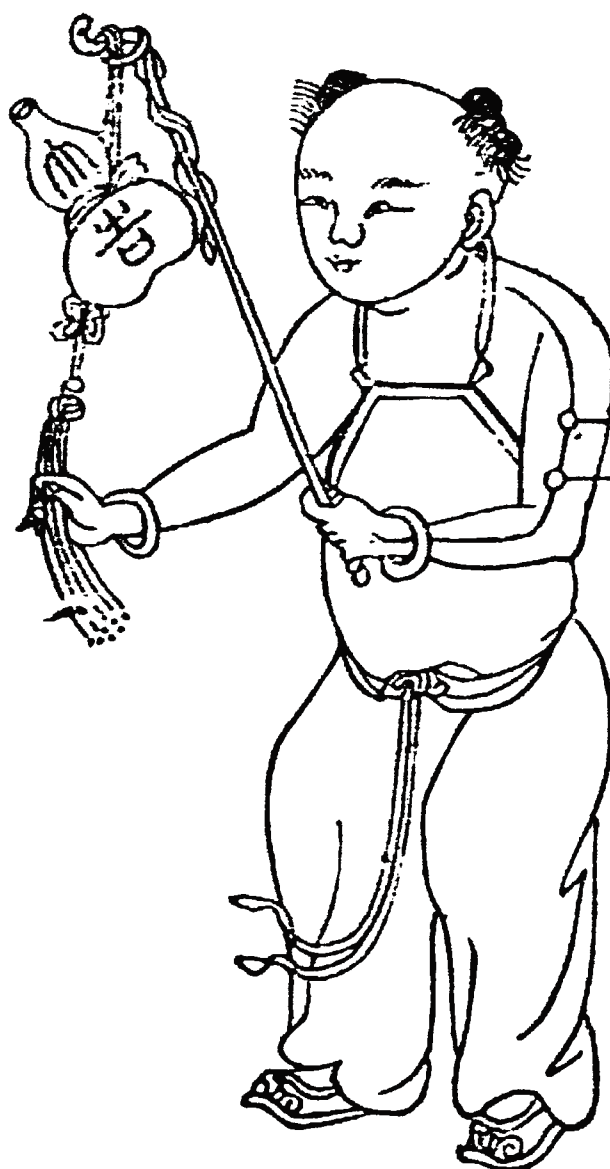
"When people heard of vaccination, the excellent technology which was conveyed from Western countries, they were so scared that their necks were

Location of the *xiaoshuo* and *qingleng yuan* acupoints (Qiu Xi, *Yin Dou Lue*).

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手少陽三焦經圖

此圖按銅人圖尺寸孩兒大小不等宜因此類推



消燄穴去肩頭四寸
清冷淵穴在肘上二寸

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crinkled. After Mr. Qiu experienced it with his own body, good fortune was diffused from one family to another. Although humans and animals are different species, they can have the same *qi*.⁷⁵

Cai Menglin wrote: “The nature of the cow is also the nature of man, which I know from Zi Yu 子與.”⁷⁶ Peng Bangchou stated in his poem: “Essentially, it is using humans to cure humans, so it is unnecessary to worry about the blight caused by different *qi*.⁷⁷

Xie Lansheng’s 谢兰生 poem said: “Although humans and cows are different species, physiologically, they have the same pulse.”⁷⁸ Wu Bingyong accepted Qiu Xi’s theory completely. In the poem mentioned above, he continued:

“Mr. Qiu has the most skilled art of vaccination; inserting vaccinia to the acupoints on both arms, where there appears light red. For *qi* affecting *qi*, and blood affecting blood, we need not flaunt and worship the uncanny workmanship.”⁷⁹

Qiu Xi’s *Yin Dou Lue* helped people believe that the theory of vaccination originated in China. Thus

essentially, although it was introduced from the West, it had existed in China all along. Liu Binhua 刘彬华 even considered this Western technology to have come from *Xiang Niu Jing* 相牛经,⁸⁰ the first book on raising livestock in China, written by Ning Qi 甯戚, who lived in the Spring and Autumn (Chun Qiu 春秋) Period. This idea swept away the barriers of the psychologically proud Chinese, who would have otherwise not accepted vaccination. By 1850 it had spread to many other provinces of China, including Jiangxi, Hunan, Jiangnan, Hubei, Beijing, Zhejiang, etc.⁸¹

Since the late Ming dynasty, Western medicine had been introduced into China principally by Jesuit missionaries, especially during the reign of Emperor Kangxi, but had little influence on Chinese medicine. Vaccination, on the other hand, was introduced by Western and Chinese merchants and doctors and saw much success in nineteenth-century China. Qiu Xi contributed a lot to this, and *Yin Dou Ti Yong* is a monument presented to him by his contemporaries and beneficiaries. **RC**

NOTES

- 1 John Dudgeon, ‘On Vaccination’, in *Zhongxi Jianwen Lu* 中西见闻录, vol. II, No. 13 (August 1873), pp. 221-232 and vol. II, No. 14 (September 1873), pp. 293-306.
- 2 Some papers and works should be mentioned here: Chen Yuan 陈垣, ‘The Introduction of Vaccination into China’, in *Journal of Medicine and Hygiene*, No. 6-7 (December 1908 and February 1909); K. Jimin Wang 王吉民 and Wu Liande 伍连德, *History of Chinese Medicine: Being a Chronicle of Medical Happenings in China from Ancient Times to the Present Period*, vol. I (Tientsin: Tientsin Press, 1932), pp. 139-164; Fan Xingzhun 范行准, ‘A History of the Thought of Chinese Preventive Medicine’, in *Journal of Medicine History*, No. 1 (1953), pp. 44-55; Peng Zeyi 彭泽益, ‘The Introduction and Spread of Western Vaccination and Dutch Pea Sponsored by Hong Merchants of Guangzhou’, in *Jiuzhou Academic Journal*, vol. 4, No. 1 (April 1991), pp. 73-84; Tianqi Zhelang 田崎哲郎, ‘Research on Yingjiligu Xinchu Zhongdou Qishu’, in *Collection of Japanese Western Studies* (Qingwen Tang Press, November 1994), pp. 203-220; Ma Boying 马伯英, *History of Chinese Medical Culture* (Shanghai: The People’s Press, 1994), pp. 803-827; Tom Colvin, ‘The Balmis Expedition: In Quest of the Antidote to Smallpox’ (paper delivered at the Fil-Hispano National Day Conference, in Malolos, Bulacan, 30 June 2003); José Caetano Soares, *Macau e a Assistência, Panorama Médico-Social* (Lisboa: Agência Geral das Colónias, Divisão de Publicações e Biblioteca, 1950), pp. 93-101; Manuel Teixeira, *A Medicina em Macau*, vol. II (Macao: Imprensa Nacional, 1975), pp. 163-182. Joseph Needham, *Science and Civilisation in China*, vol. 6 (Cambridge: Cambridge University Press, 2000), pp. 149-153.
- 3 Ma Boying, ‘Chinese Variolation is the Pioneer of Modern Immunology’, in *Journal of History of Chinese Medicine*, vol. 25, No. 3 (July 1995), pp. 139-143.
- 4 Xie Shusheng 谢蜀生 and Zhang Daqing 张大庆, ‘The Spread of Variolation in Europe and its Impact’, in *Journal of History of Chinese Medicine*, vol. 30, No. 3 (July 2000), pp. 133-137.
- 5 H. B. Morse, *The Chronicles of the East India Company Trading to China, 1635-1834*, vols. I-V (Oxford: Oxford University Press, 1926-1929), vol. II, p. 410.
- 6 Colvin, ‘The Balmis Expedition’, p. 12.
- 7 Soares, *Macau e a Assistência*, p. 94; and Teixeira, *A Medicina em Macau*, vol. II, p. 166.
- 8 Morse, *Chronicles*, vol. III, p. 16.
- 9 There are two originals of Alexander Pearson, *Yingjili Guo Xinchu Zhongdou Qishu* (1805), preserved in the British Library, Oriental and India Office Collection, 15252.a. 14, CHIN. E. 58. One of the originals is contained in Tianqi Zhelang, ‘Research on Yingjiligu Xinchu Zhongdou Qishu’, pp. 214-220. Pedro Huet appears in this text, with his name transliterated as Pidao Luhua 啤道路滑. See also Morse, *Chronicles*, vol. III, p. 16-17; and Needham, *Science and Civilisation in China*, vol. 6, p. 153.
- 10 Jose P. Bantug, *Bosquejo Histórico de la Medicina Hispano-filipina* (Madrid: Ediciones Cultura Hispánica, 1952), p. 315; and Colvin, ‘The Balmis Expedition’, pp. 15-18.
- 11 In the report submitted to the National Vaccine Board on 18 February 1816, Pearson stated that “I observe that one of them (F. X. Balmis) states himself to have introduced the practice in this country; but

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before his arrival in China, it had been quite extensively conducted by the Portuguese practitioners at Macao, as well as by myself among the inhabitants there and the Chinese, and the accompanying tract drawn up by me had been translated by Sir George Staunton into Chinese, and published several months previous to his arrival." *Chinese Repository*, vol. II (May 1833): pp. 36-37. In the preface of *Yin Dou Lue* 引痘略, Qiu Xi 邱禧 declared that he was the first person to obtain this new method of vaccination. Qiu Xi, *Yin Dou Lue* (1817), p. 4. In Tongzhi 同治 *Panyu Gazetteer* 番禺县志, it is written that Liang Guochi's practice of vaccination was the beginning of the eradication of smallpox in China. (gravure in the collection of Chinese Chorographies, p. 582). Daoguang 道光 *Nanhai Gazetteer* 南海县志 suggests that Qiu Xi had pirated Gnewqua's (Pearson's) work *Yingjili Guo Zhong Dou Qishu* 英吉利国新出种痘奇书. And Peng Zeyi emphasized the role of Hong Merchants, especially Gnewqua II. Peng, 'The Introduction and Spread of Western Vaccination', pp. 79-81.

- 12 Pearson said in his report that "A-he-qua, who has been engaged in the practice since 1806". *Chinese Repository*, vol. II (May 1833), pp. 40-41. Peng Zeyi pointed out that A-he-qua is Qiu Xi. Peng, 'The Introduction and Spread of Western Vaccination', pp. 77-78.
- 13 He was called so because of his extraordinary long head. Wang & Wu, *History of Chinese Medicine*, p. 144.
- 14 In Qiu Xi's *Yin Dou Lue* he signed his name as Nanhai Qiu Haochuan 南海邱浩川.
- 15 Qiu Xi said in his *Yin Dou Lue* (p. 3) "when I was 32, I was vaccinated by a foreign doctor, and since then I had vaccinated more than ten thousand children in thirteen years". *Yin Dou Lue* was published in 1817, so Qiu Xi was vaccinated in 1805 and was born in 1774.
- 16 See Ye's preface of his poem in Qiu Xi, *Yin Dou Ti Yong*, vol. I (1823), p. 12.
- 17 See Zhong's poem in Qiu, *Yin Dou Ti Yong* vol. I, pp. 7-8.
- 18 Wang & Wu, *History of Chinese Medicine*, p. 146.
- 19 Qiu Xi's preface of his *Yin Dou Lue* p.4.
- 20 *Chinese Repository*, vol. II (May 1833), p. 37.
- 21 Daoguang *Nanhai Gazetteer*, vol. 44, 'Miscellanea', No. 2.
- 22 *Panyu Gazetteer*, Vol. 47, 'Biographies'.
- 23 *Chinese Repository*, vol. II (May 1833), p. 37.
- 24 *Panyu Gazetteer*, vol. 54, 'Miscellanea', No.2.
- 25 This name is transliterated in Chinese documents as La Fo 喇佛.
- 26 Portuguese sources record that the vaccine had died out in Macao in 1808 and was again brought from Manila by six boys. Soares, *Macao e a Assistência*, pp. 98-99. I am not sure if this was the same event as mentioned in the *Nanhai Gazetteer*.
- 27 Daoguang *Nanhai Gazetteer*, vol. 44, 'Miscellanea', No. 2.
- 28 Wang and Wu, *History of Chinese Medicine*, p. 145.
- 29 *Chinese Repository*, vol. II (May 1833), p. 38.
- 30 Peng, 'The Introduction and Spread of Western Vaccination', p. 83.
- 31 Qiu, *Yin Dou Lue*, 'Preface'.
- 32 *Yi Zong Jin Jian* 医宗金鉴 is a huge imperial compilation of medical works published in 1742. *Youke Zhongdou Xinfu Yaozhi* 幼科种痘心法要旨 is included, and became the standard textbook for variolation at that time.
- 33 Tianqi Zhelang, 'Research on Yingjiligu Xinchu Zhongdou Qishu', p. 203. Cf. *Joint Bibliography of Chinese Traditional Medical Works* (Press of Chinese Classical Medical Works, 1991).
- 34 Daoguang *Nanhai Gazetteer*, vol. 25; *Yiwen Lue* 艺文略, No. 1.
- 35 Tongzhi *Nanhai Gazetteer*, vol. 10, 'Yiwen Lue'.
- 36 Peng, 'The Introduction and Spread of Western Vaccination', p. 81.
- 37 Morse wrote that "Mr. Pearson drew up a pamphlet, which was put into Chinese by Sir G. Staunton, 'with the assistance of Chinese who follows the medical profession'; and this book of instructions was godfathered by Gnewqua, 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." Morse, *Chronicles*, vol. III, pp. 16-17. Unfortunately, we don't know who was this assistant following the medical profession.

- 38 *Chinese Repository*, vol. II, May, 1833, pp. 40-41.
- 39 Samuel Couling, *The Encyclopaedia Sinica*, p. 345. Quoted by Peng, 'The Introduction and Spread of Western Vaccination', p. 75.
- 40 Wang and Wu, *History of Chinese Medicine*, pp. 145, 147.
- 41 Wang and Wu considered that Qiu Xi died in 1850, but according to his son's record, Qiu Xi died in the first year of Xianfeng 咸丰 (1851). Hongdao Tang, 'Preface', in Qiu Chang 邱昶, *A Complete Book on the New Method of Vaccination* (1895). The preface was written in 1862.
- 42 Qiu, *Yin Dou Ti Yong*, 'Preface'.
- 43 Peng, 'The Introduction and Spread of Western Vaccination', p.81.
- 44 Qiu, *Yin Dou Lue*, pp. 1-3.
- 45 Qiu, *Yin Dou Ti Yong*, p.12.
- 46 See Zhang Yanji's 张衍基 poem in Qiu, *Yin Dou Ti Yong*, vol. I, p. 6.
- 47 Qiu, *Yin Dou Ti Yong*, vol. I, p. 2.
- 48 Qiu, *Yin Dou Ti Yong*, vol. I, p. 1.
- 49 Qiu, *Yin Dou Ti Yong*, vol. I, p. 1.
- 50 Qiu, *Yin Dou Ti Yong* vol. I, p. 2.
- 51 Qiu, *Yin Dou Ti Yong*, vol. I, p. 10.
- 52 Qiu, *Yin Dou Ti Yong* vol. I, p. 8.
- 53 Needham, *Science and Civilisation in China*, vol. 6, p. 153.
- 54 Qiu, *Yin Dou Ti Yong*, vol. I, pp. 13-14.
- 55 *Chinese Repository*, vol. II (May 1833), p. 38.
- 56 *Chinese Repository*, vol. II (May 1833), p. 40.
- 57 Qiu, *Yin Dou Ti Yong*, vol. I, p. 10.
- 58 *Chinese Repository*, vol. II (May 1833), p. 38. Tongzhi *Nanhai Gazetteer*, vol. 26, Miscellanea, No. 5.
- 59 Wei Qingxin 卫青心, *French Policies on the Mission in China*, translated by Huang Qinghua 黄庆华 (Beijing: Social Science Press, 1991), p. 35.
- 60 Ruan Yuan 阮元, *Guangdong Tongzhi* 广东通志, vol. 331, Miscellanea, no. 1.
- 61 Qiu, *Yin Dou Ti Yong*, vol. I, p. 2.
- 62 Ma Boying, 'Chinese Variolation is the Pioneer of Modern Immunology', in *Journal of History of Chinese Medicine*, vol. 25, No. 3 (July 1995), p. 141.
- 63 Zhang Yan 张琰, *New Book on Variolation* (1741), 'preface'.
- 64 Qiu, *Yin Dou Lue*, pp. 1-2.
- 65 Vaccination was rejected in Europe at its early stage, and one of the main reasons of the opposition was the circumstance that a domestic animal was used as the source, which was similar with what happened in China. Needham, *Science and Civilisation in China*, vol. 6, p. 150, n. 139.
- 66 Teixeira, *ibid*, p. 167.
- 67 Qiu, *Yin Dou Lue*, 'Preface', p. 4.
- 68 Qiu, *Yin Dou Lue* p.1.
- 69 Qiu, *Yin Dou Lue*, pp. 2-3.
- 70 Qiu, *Yin Dou Lue*, p. 5.
- 71 Pearson, *Yingjili Guo Zhongdou Qishu*, p. 5.
- 72 Qiu, *Yin Dou Lue*, p. 6.
- 73 Qiu, *Yin Dou Lue*, pp. 14-17.
- 74 John Dudgeon, 'On Vaccination', pp. 232, 293, 303-304.
- 75 Qiu, *Yin Dou Ti Yong*, vol. I, p. 11.
- 76 Qiu, *Yin Dou Ti Yong* vol. I, p. 2. Zi Yu 子舆, name of Zeng Can 曾参, was a famous student of Confucius.
- 77 Qiu, *Yin Dou Ti Yong*, vol. I, p. 1.
- 78 Qiu, *Yin Dou Ti Yong*, vol. I, p. 2.
- 79 Qiu, *Yin Dou Ti Yong*, vol. I, p. 10.
- 80 Qiu, *Yin Dou Ti Yong*, vol. I, p. 2.
- 81 Liao Yuqun 廖育群, 'The Spread of Vaccination in Modern China', in *Journal of the Historical Materials on Chinese Science and Technology*, no. 2 (1988), p. 36.

