

## To What Extent Did the Panthay Rebellion Influence the Yunnan Plague during the Late Qing Dynasty from 1846 to 1872?

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### Abstract

*After the first Opium War in 1840, a series of rebellions broke out in the Qing dynasty. From 1856 to 1872 the Panthay rebellion caused circa three million deaths in Yunnan. However, much evidence proves that the eruption of the plague epidemics in Yunnan contributed significantly to the enormous death toll during the Panthay rebellion. This study focuses on how much the Panthay Rebellion influenced the Yunnan plague from 1846 to 1872 during the late Qing era, utilising archival analysis of primary sources and secondary supplementary resources. The findings from this research provide evidence of how plague epidemics were transmitted in Yunnan. The main conclusions drawn from this study are that the research contends, based on archival evidence, that the Panthay revolt, to some extent, fuelled the scale and scope of the plague outbreaks in Yunnan during this era. This is mainly because military movements and refugees who escaped to other areas intensified population mobility, and population movement is the disease carrier that spreads plague epidemics in Yunnan. This dissertation recommends that while preparing for the next probable epidemic outbreak, Yunnan's policymakers should understand the propagation law of fatal illnesses in Yunnan.*

Keywords: Yunnan, Plague epidemics, Panthay rebellion, Transmitted mechanism.

### 1. Introduction

“When we crossed the one village in Yunnan, this village was desolate, with residents fleeing their homes to camp on high ground and abandoning their fields on foot to avoid an adversary even more inhumane than the insurgents: the plague epidemics.”<sup>1</sup>

When French diplomat Émile Rocher visited Yunnan in 1870, he occasionally found that residents in Yunnan sought to evacuate from the rebellion and plague epidemics. Unexpectedly, the locals were more scared of plague epidemics than of wars. At the time, Qing troops were combating the local Muslim rebellions. Ergo, from 1846 to 1872, the influence of the Panthay rebellion on the Yunnan plague appears to be a worthwhile issue to be discussed.

The Panthay rebellion contributed to the massive death toll, being perceived as one of the components of the Taiping rebellion. The Panthay rebellion occurred between 1856 and 1872 in Yunnan Province, located on China's southwestern border (Atwill, 2003). In many European archives, the Panthay are referred to as Chinese Muslims living in Burma. This Muslim rebellion is called the Panthay rebellion, while China's officials portrayed this rebellion as the Du Wenxiu uprising or Yunnan Muslims uprising (Yegar, 1966). Chinese scholars estimate that the Taiping Rebellion War brought one hundred million human deaths to China (Ge et al., 1999). Many demographers reckoned that the fatalities in the Panthay rebellion reached approximately three million people. However, it is noteworthy that 70 per cent of the population lost in Yunnan died of plague epidemics during this rebellion (Cao & Li, 2001). Therefore, this research seeks to answer how the Panthay rebellion promoted the plague epidemics in Yunnan.

Research epidemiology seeks to contribute to preventing and controlling significant diseases as significant infectious diseases still threaten human well-being. Cartwright and Biddiss (1973) claim that humankind has three great enemies on an ever-expanding scale: plague, famine, and war. Compared to famine or war, the impact of plague on the rise and fall of nations may be easily ignored (ibid). Burnham (2005) also demonstrates that people should pay attention to political, economic, religious, and other social factors when studying the concept of disease and disease prevention strategy because a pandemic can result in a massive decrease in the human population, cause social chaos, shock the functioning of the global economy, and threaten national political stability (Cartwright & Biddiss, 1973).

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<sup>1</sup> “Au moment de notre passage, le village était entièrement désert, les habitants avaient fui leurs demeures pour aller camper sur les hauteurs, abandonnant leurs récoltes sur pied, afin d'éviter les atteintes d'un ennemi plus impitoyable que les rebelles, la peste.” Rocher, E. B. (1879, 161). La province chinoise du Yün-nan, France: E. Leroux, 1879-80.

For example, since the COVID-19 epidemic in Wuhan in 2020, this illness has affected 221503288 individuals worldwide, with a death toll that surpasses 4 580 952. (Worldometer, 2021). Under the influence of COVID-19, not only has the illness become a concern for public health, but it has also harmed the world economy. We have already seen major worldwide economic effects such as poor productivity, death tolls, firm closures, business upheaval and destruction of the tourism sector (Pak et al., 2020). Investigating the historical contexts of epidemiology may contribute towards protecting against our contemporary diseases.

This study is based on primary source archives, oral documents, a survey of secondary pertinent literature, archival analysis, and historical approaches in chronological sequence. This study critically examines the existing research in the literature review, then introduces the central archives and local chronicles in Yunnan and the history of the Qing dynasty era. The following three chapters examine how the Panthay Rebellion influenced the Yunnan plague from 1846 to 1872 during the late Qing period. This dissertation foremost tries to illuminate the primary diffused characteristics and paths of plague before the outbreak of the Panthay rebellion in 1856. This dissertation then seeks to analyse the influence of the expansion of the Muslim rebellion in 1856 over the spread of plague in Yunnan and the principal differences in the transmission mode and sphere compared to earlier plague outbreaks. Finally, after the suppression of the Panthay rebellion from 1868 to 1872, this dissertation traces the different transmission trajectories and the features of the plague epidemic in Yunnan to illustrate how the plague epidemics in Yunnan spread to Manchu and Guangzhou in China.

## **2. Literature Review**

This study tries to parse the impact of the Panthay Rebellion on the Yunnan plague from 1846 to 1872 during the late Qing era. The literature review thus examines the historical background of the Panthay Rebellion, the driving factors and destructiveness of the Muslim rebellion that erupted in Yunnan, and the fundamental reasons why Yunnan was a historical plague reservoir. Current literature often only focuses on the Panthay rebellion and the Yunnan plague epidemic; both study areas are considered separately, and the influence of the Panthay rebellion on the plague disease of Yunnan is analysed only in terms of the role of military actions by the Government in the period. In summary, this study seeks to understand how the Panthay Rebellion fueled the plague in Yunnan.

Much literature has explored the Panthay Rebellion and the plague outbreak in late Qing dynasty Yunnan. From the perspective of international relations, the collision of the Celestial Kingdom of China and European expansion triggered the First Opium War in 1840. There may have been a strong correlation between the Taiping and Panthay rebellions and the Opium War. Because Yunnan historically was one of the regions with a high incidence of plague, the cause of the frequency of disease outbreaks in Yunnan may be related to its unique geographical conditions. Many scholars thus believe that the third plague pandemic began in Yunnan during the Panthay Rebellion. There is also much evidence that this epidemic is attributable to human causes. Accordingly, the study of epidemics should be historically embedded and involve research into the relationship between the military action in the rebellion and the spread of plague in Yunnan from a socio-political context.

However, current literature frequently focuses solely on the Panthay Rebellion and the plague epidemic in Yunnan, dividing the two areas of study rather than analysing in-depth the relationship between the influence of the Panthay Rebellion on plague epidemics in Yunnan and the role of the Qing government's military action in the process, even though Manson (1878) discovered that the epidemic was constantly prevalent among Imperial troops stationed in this part of the province. Hanson and Sela (2017) conclude that the disease was endemic among Qing troops and propagated via a well-known trade route. However, the mutual relationship between the Panthay rebellion and Yunnan's plague epidemics is rarely discussed in depth. The analytical questions of this study may, therefore, be summarised as follows:

1. Before the outbreak of the Panthay rebellion, what were the main characteristics of plague epidemics in Yunnan?
2. What were the new features of plague outbreaks during the Panthay revolt between 1856 and 1868?
3. From 1868 to 1872, how did the Panthay Rebellion affect the Yunnan plague epidemics?

The following portion of this dissertation will go through the research methodologies used to analyse archival materials to obtain a complete understanding of this topic.

## **3. Methodology**

This dissertation employs archive analysis methodology to assess how the Panthay Rebellion influenced the Yunnan plague from 1846 to 1872 during the late Qing dynasty. Archival research methods cover a wide variety of activities used to help analyse documents and textual materials generated by and about organisations (Mohr & Ventresca, 2002). This method is always adopted for historical research, highlighting those individuals, entities, or activities represented in archives, historical documents, and other sources (Lexisnexis, 2020). This research utilises a series of primary resources. For instance, the draft history of the Qing dynasty and numerous local Gazetteers, such as the Dali County Annals of the Republic of China, Pu'er Prefecture Annals, and Yao'an County Annals.

Although these local chronicles provide solid evidence for the augmentation of this dissertation, this choreography stands on the ground of the Qing state. It describes the Panthay rebellion from a biased point of view. Thus, many witnesses' memoirs were also examined as supplements for this dissertation because these materials stem from the spectators' perspective: French diplomat Rocher's reminiscences, La province chinoise du Yün-nan.

Witnesses' reminiscences can also be considered primary sources, and they provide detailed information about the revolt: for example, the Governor of Yunnan province Ceng's memorials and The Continuations of Cen Xiangxun Gong.

However, this choreography lacks quantitative data on the death toll during the Panthay rebellion. Hence, local sanitary reports relating to local elder's oral accounts about the plague epidemics are also taken as support evidence for the main idea of this dissertation because these sources offer calculations of the death toll in many areas in Yunnan: for instance, the investigation report on plague epidemic history made by 'The Health and Epidemic Prevention Station of Kunming' and 'The Epidemic Factors in Kunming City and Feng Qing County' made by the Plague Investigation Group in West Yunnan. As a result, original archival materials serve as a relatively accurate and authentic foundation for this historical dissertation.

To analyse the extent to which the Panthay Rebellion influenced the Yunnan plague from 1846 to 1872 during the late Qing period, this dissertation is divided into three chronological portions. The first chapter analyses the period before the eruption of the rebellion, from 1846 to 1856. The following chapter analyses the period immediately after the eruption of the rebellion and its zenith from 1856 to 1868. From 1868 to 1872, the third chapter analyses the period following the stepwise failure of the rebellion.

#### **4. Chapter one: The plague in Yunnan before the Panthay pandemic**

"Since the government's military campaign began in Yunnan, various parts of Yunnan have been ravaged by flames of war, plague epidemic, and famine, with more than half of the civilian population killed, according to reports."<sup>2</sup>

So said the Governor-General of the Yunnan and Guizhou provinces, Cen Yuying, to the Qing Tongzhi emperor in 1873, the twelfth year of his reign. Cen ended the Panthay Rebellion, which lasted 16 years in Yunnan. Cen's opinion was well-founded, considering contemporary records. In 1830, in the 10th year of Emperor Daoguang, the population of Yunnan was 6.6 million, whereas in 1884, by the 10th year of Emperor Guangxu, it had reduced to 2.98 million, a decrease of more than half (Li & Cao, 2003). Local county annals also document that "during the Panthay Rebellion, three out of ten people died in wars, but seven out of ten died in a plague epidemic."<sup>3</sup> Even if the periphery area of this rebellion was also damaged heavily by this plague, citing European missionaries and customs medical newspaper records, Dr Wu (1936) points out that the plague epidemic killed so many people in Mengzi that "one-fifth of the plane turned into a burial ground."<sup>4</sup> Therefore, the plague epidemic, alongside the rebellion, caused a high death toll in the late Qing dynasty from 1856 to 1872.

Before the outbreak of Yunnan's Panthay rebellion in 1856, plague epidemics had been occurring sporadically in Yunnan. The plague epidemics were called "Yang-tzi" in Yunnan's local Gazetteers, and this term referred to acute skin irritation or pruritus (Hanson & Sela, 2017). Except for naming the plague because of symptoms, local people also named the plague "rat disease" because rats (Xu & Kang, 2005) transmitted this plague. In 1733, "the Kunming plague broke out, killing two-thirds of a family of 25 in seven days."<sup>5</sup> One of the deadliest plague epidemics in Yunnan was in 1736: a poet who caught the plague before he died documented the plague in his poem "There were dead rats everywhere in the east and west. When one saw a dead rat, it was like seeing a tiger. A few

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<sup>2</sup> "自军兴以来, 各属久遭兵燹饥馑瘟疫, 百姓死亡过半". Cen, Y. Y. (1873, 1). Concerning the cessation of the collection of soldiers' food and grain from the people and the request for the remission of previously arrears of soldiers' wages and food (jie zhi min bing li gu qing mian ji qian qian liang pian), The Continuations of Cen Xiangxun Gong (Yuying), Vol. 8. Wen Hai Publishing House, 1976.

<sup>3</sup> "民死于锋摘者十之三, 死于瘟疫者十之七". Ning Guo County Chronicles Compiling Committee. (1936, 67). The Chronicles of Ning Guo County in the Republic of China (ning guo xian zhi). Vol. 14, Disasters, Taipei: Chengwen Publishing House. 1975 (in Chinese), Journal of Disaster, p. 3.

<sup>4</sup> "平原之五分之一, 竟成坟地". Wu, L. T. (1936). History of Plague in China. Chinese Medical Journal, Vol.22, No.11.

<sup>5</sup> "昆明痒子症大作, 族中某户有二十五丁口, 七日内即死去三之二". Luo. Y. R. (1996, 659). Yunnan Stories (Yun nan ji shi), Kunming: Yunnan Nationalities Publishing House.

days after the death of the rats, people in this place died one after another, and the corpses blocked the roads.”<sup>6</sup>This poem recorded the relationship between dead rats and the incidence of plague for the first time.

Similarly, many plague epidemics have resulted in many fatalities in Yunnan. Even “three years before the Panthay rebellions broke out in 1853, a plague erupted in Kunming, causing about one-tenth of people to die.”<sup>7</sup>So, we can conclude that plague epidemics had been occurring and causing fatalities frequently before the Panthay rebellion.

However, the plague epidemics during this period had distinctive characteristics, transmitted down the communication routes. Indeed, roads were considered the primary routes of transmission. The plague pandemic in Europe in 1347 killed 25 million people, or nearly half of the population at the time (Mengel, 2011). This European plague first broke out in the cities, along the main traffic lines, and then spread from the cities to the surrounding countryside, causing large numbers of deaths in both urban and rural populations (Bullough & Gottfried, 1984). Before the outbreak of plague epidemics in the Panthay rebellion, Yunnan's local economic activity and freight transport mainly relied on teams of horses carrying goods, given its complex geographic conditions (Liao, 2010). According to statistics, as seen in the chart below, before the outbreak of the Panthay Rebellion in Yunnan, the occurrence place and time of plague in Yunnan from 1848 to 1856 mainly centred around large cities and the adjacent areas.

#### Statistics on the occurrence place and time of plague in Yunnan from 1848 to 1856

Place	Time	Place	Time	Place	Time
Weishan (巍山)	1854	Kunming (昆明)	1850,1850-1852	Qujing (曲靖)	1850
Dali (大理)	1855	Chenggong (呈贡)	1851	Tong Hai (通海)	1856
Midu (弥渡)	1851	Jinning (晋宁)	1851-1861	Eshan (峨山)	1848, 1856
Nanhua (南华)	1848 1850	Songming (嵩明)	1852-1856	Lijiang (丽江)	1856
Chuxiong (楚雄)	1851	Zhengjiang (徵江)	1856	Mengzi (蒙自)	1856
Yaoan (姚安)	1852-1854	Yuxi (玉溪)	1851	Jianshui (建水)	1856
Yanfeng (盐丰)	1854	Malong (马龙)	1851	Quxi (曲溪)	1856
Anning (安宁)	1850-1851	Xundian (寻甸)	1855-1856	Malipo (麻栗坡)	1856

Fig. 1: ‘Statistics on the occurrence place and time of plague in Yunnan from 1848 to 1856’ (Institute of Epidemiology Microbiology, Chinese Academy of Medical Sciences, 1981, 753)

Coupled with the map in the Ming area of Yunnan province (1582), the plague broke out in areas of high population concentration in Kunming and the satellite towns of Kunming. The plague was also spread to Ma Li Po and Meng Zi, near China's border, as seen in the chart above. At the time, rural population outflow in Yunnan was uncommon, according to the statistics (Rural Restoration Committee of Executive Yuan, 1935). the number of rural people working outside the village accounted for less than 5% of the total number in the late Qing area. Considering this and the rough geographic terrain, one can conclude that it was mainly via horse-team goods transport (马帮) that the plague spread along the traffic arteries. The Qing dynasty established many roads to govern the local citizens and transport goods, specifically, as seen in the figure below. The Qing primarily built three roads, which were the main roads in western, eastern, and southern Yunnan. <sup>8</sup>As in Fig.8 and 9, the plague outbreak was mainly situated on the roads from the west to the east and south of the province of Yunnan. Therefore, the plague epidemics during this period were characteristically conveyed along the traffic arteries.

<sup>6</sup> “东死鼠，西死鼠，人见死鼠如见虎，鼠死不几日，人死如圻堵”。Zhou, J. G. (2013, 125). Review and review of Bai poet Shi Daonan in the Qing Dynasty and his famous work *The Death of a Rat* (qing dai bai zu shi ren shi dao nan ji qi ming zuo shu si xing ping xi, kao ding). *Studies in National Literature*, (01), pp. 124-129.

<sup>7</sup> “城内城外及乡间丁口竟突然减少十分之一” Luo. Y. R. (1996, 660). *Yunnan Stories* (Yun nan ji shi), Kunming: Yunnan Nationalities Publishing House.

<sup>8</sup> “迤東道，迤西道，迤南道” Zhou, Z. H. et, al., (2013, 805): *The General History of China's Administrative Divisions in qing Dynasty volume* (zhong guo xing zheng qu hua tong shi qing dai juan), Fuqi University Press.

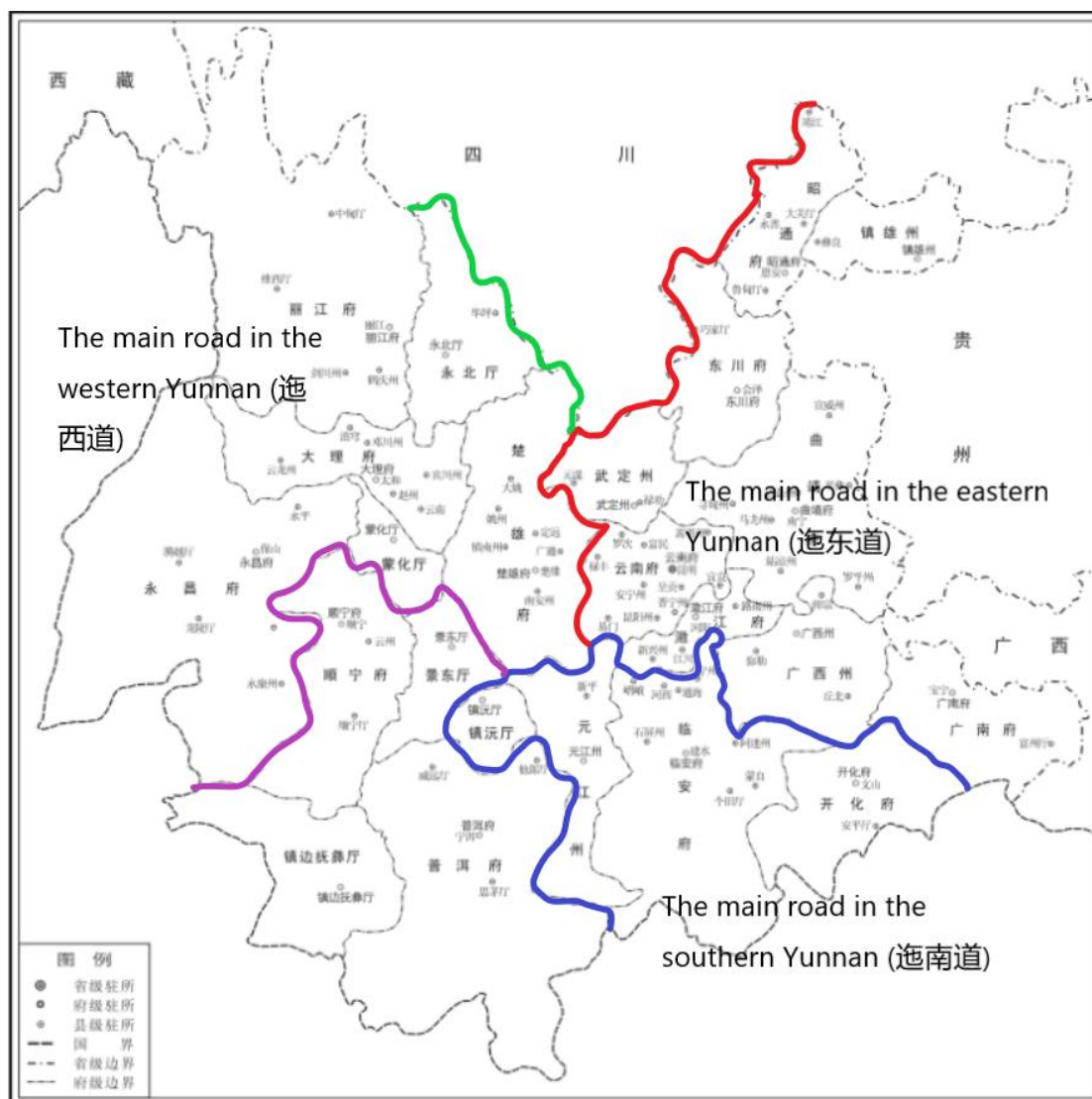


Fig. 2: (Colour online) 'Administrative district map of Yunnan Province in late Qing Dynasty'. Zhou, Z. H. et al., (2013, 804): *The General History of China's Administrative Divisions in Qing Dynasty* volume (zhong guo xing zheng qu hua tong shi Qing dai juan), Fuqi University Press.

At the same time, before the Panthay Rebellion in Yunnan, plague epidemics centred on the economically developed areas in Yunnan and did not manifest mass diffusion. By the end of Dao Guang and the beginning of Xianfeng from 1782 to 1856, the plague had spread through Yunnan along the main traffic artery, and western Yunnan had become the epidemic centre of Yunnan plague (Cao & Li, 2003). This dissertation also marks the plague occurrences in Yunnan from 1848 to 1856 in Fig.9 below. The endemic regions were mainly located in central and eastern Yunnan, which includes more than half of the cities in Yunnan.

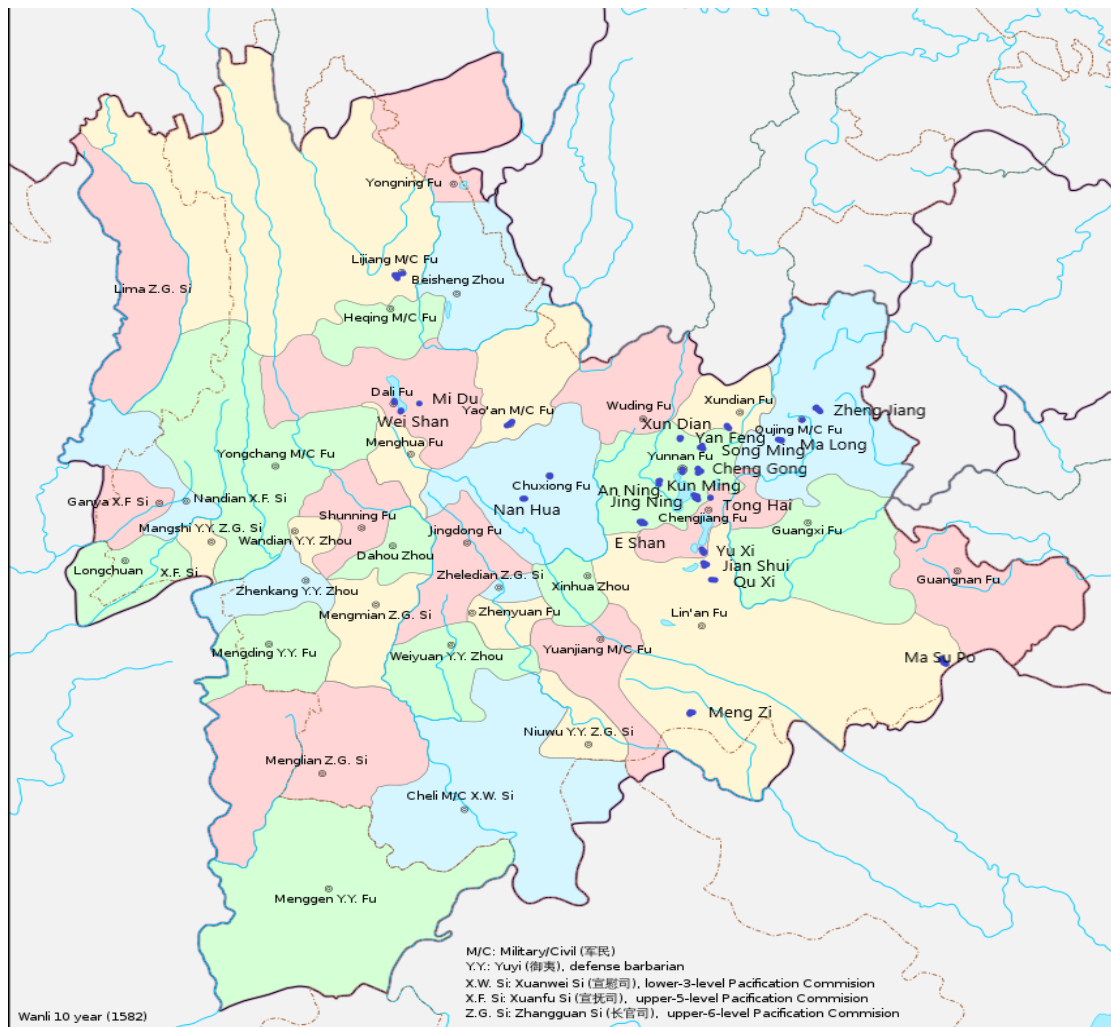


Fig 3: (Colour online). ‘The occurrence place of plague in Yunnan from 1848 to 1856’. Wikimedia.org. (2021). In Ming and Qing dynasties, Map of Yunnan - Color division of prefecture-English version (ming qing yun nan di tu - fen fu she se qu hua). [online] Available at: <https://urlzs.com/SPZ1M> [Accessed 3 Aug. 2021].

During the Qing dynasty, due to the Qing government’s taxation policy, Yunnan’s population size experienced an increase. Moreover, northeast Yunnan gradually became the central area of the copper industry in Yunnan province and even the whole country. This encourages the development of mountainous areas, transforming north-eastern Yunnan from a sparsely populated area to the most densely populated in Yunnan (Yang, 2004). The mining boom also attracted large numbers of inland workers to Yunnan’s areas, and Qing’s population pressure was eased as its surplus workforce could find occupations in remote Yunnan. The Qing government also encouraged its citizens to find work in the Qing’s border areas. As emperor Qian Long said, “Since I acceded to the throne, remote lands have been developed, the area of our country has been growing, and the common people have developed the borderland, and thus have been able to find work to earn a living temporarily.”<sup>9</sup> Thus, Yunnan’s population saw a considerable rise during the Qing dynasty. Statistically, in the 18th year of Shunzhi in 1661, the population of Yunnan was less than 2 million. However, by the 30th year of Dao Guang in 1850, the population of Yunnan had increased to approximately 10 million (Lee, 1982). Therefore, the development of the extractive industries and the relative success of commercial businesses increased population density in Yunnan, and it can be seen that plague epidemics were concentrated in economically developed districts along the traffic arteries. How the outbreak of the Panthay rebellion and its military actions altered the transmission and scale of plague epidemics in Yunnan is discussed in the next chapter.

<sup>9</sup> “朕临御以来，僻土开疆，幅员日廓，小民皆得开垦边外土地，以暂谋口食”。Zhao. E. X. (1793, 120). Annals of The Qing Dynasty. Annals of Gojong (qing shi lu · gao zong shi lu), Tokyo Daizang Co., LTD., Vol. 1441.

### 5. Chapter two: A massive plague outbreak from 1856 to 1868.

“Since the war broke out in 1856 during the reign of Emperor Xianfeng, the war first caused many disasters, and then the plague broke out on a large scale. The number of people suffering from the plague was so large that it was difficult to calculate. According to statistics afterwards, only about two-tenths of the local citizens survived in the whole state, and most of the fields were deserted because no one cultivated them.”<sup>10</sup>

This paragraph is an excerpt from the local chronicle of Anning state, which was Kunming’s affiliated prefecture, and reflects that the Panthay rebellion began before an outbreak of the plague and its subsequent spread. This clue may provide partial evidence to suggest that the Panthay Rebellion influenced the Yunnan plague. In Yunnan province, plague epidemics’ vast scale and transmission can be traced back to Du Wenxiu’s military actions in 1856.

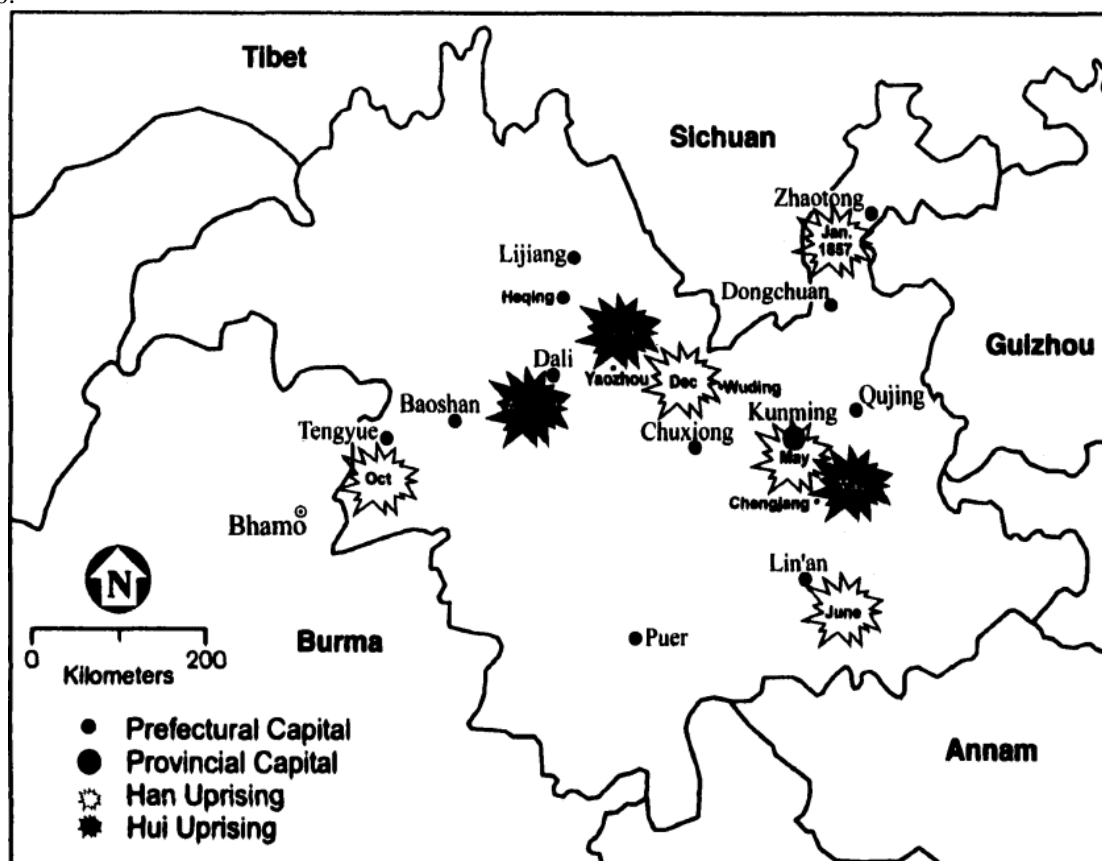


Fig. 4: ‘Major Centers of Qing government’s troops and Muslim Violence, 1856-1857, on a Map’. Atwill, D. & Gladney, D. C. (1999, 189). *Rebellion South of the Clouds: Ethnic insurgency, Muslim Yun locals, and the Panthay Rebellion*. ProQuest Dissertations and Theses.

Du Wenxiu started the armed struggle in 1856 in Menghua and declared it Islamic. Arabic was regarded as the official language in Dali, and he proclaimed himself "Grand Marshal of the Presidential army."<sup>11</sup>

<sup>10</sup> “自咸丰丙辰军兴，兵燹叠至，继以瘟疫流行，死亡枕藉，计通州户口不过十存二三，田地半多荒芜，耕种无人”。Lang, et al. (1873). *Continuous Annals of Anning state five volumes (an ning zhou xu zhi wu juan)*. 1960 copy. Shanghai Library.

<sup>11</sup> “总统兵马大元帅杜”。Luo, E. G. (1958, 687). *History of the Taiping Rebellion (Tai Ping Tian Guo Shi)*, Book 86: Biographies 45: Three of the uprisings of the nations. Beijing: Zhong hua Book Company.



Fig. 5: 'The seal of Du Wenxiu'. Rocher, E. (1879). *La Province Chinoise Du Yün-Nan* (The Chinese province of Yunnan). Vol. 2. Paris: Libraire de la Société Asiarique.

The Muslims who lived along the route connecting eastern and southern Yunnan also rose up in rebellion, with Ma Dexin and Ma Rulong holding leading positions (Luo, 1958). In June of the seventh year of the Taiping rebellion (1857), Ma Dexin and Ma Rulong led the Muslims in the east and south of Yi to attack Kunming, and the general governor of Yunnan and Guizhou Hengchun had to commit suicide (Academy of Military Sciences, 1987). As Du's subordinates, the eastern and southern Yunnan Muslim rebel armies echoed the Western Yunnan Hui rebel armies led by Du Wenxiu (Luo, 2002). This series of military conflicts can be viewed geographically in the map above (Fig.10). The military conflict between the troops of the Qing government and local Muslims was fought in multiple cities in Yunnan. The scope of the war thus focused on the cities located in the populous and economically developed areas of central and eastern Yunnan, for example, Kunming, Qujing, and Chuxiong. Several populous cities in western Yunnan were also involved in the Muslim rebellion: Lijiang, Dali, Baoshan and Tengyue. As an intellectual, Du paid particular attention to the rapprochement of Han Chinese and local Muslims to fight against Qing government troops. Improving relations between different ethnic groups in Yunnan boosts public support for his regime. He proposed that:

"To succeed in Yunnan, we have to win people's hearts, so we cannot rely on violence alone, and in Yunnan, where the Han Chinese are the majority while the Muslims are the minority, we thus have to put the Han Chinese in important positions as well."<sup>12</sup>

Under this guiding principle, Du's Strategy of ethnic equality worked to unite different nationalities in Yunnan and allowed more significant strides on the battlefield. As the map below demonstrates (Fig. 12), Du's regime took only five years to unify western Yunnan. In the seventh year of Tongzhi (1868), it occupied 53 towns and cities in Yunnan, except for the capital, Kunming, as the main force of the Qing army was fighting against the Taiping rebellion (Ma & Yao, 2017). Ergo, the military victory of the Panthay rebellion, which controlled most areas in Yunnan, reached its zenith in 1868.

<sup>12</sup> "欲做大事必须收拾人心, 不宜专尚威力, 且汉众回寡, 尤须重用汉人". Zhou, Z. L. (1912, 21). (Republic of China) Dali County Annals, Volume 9, Nationalities Publishing House.



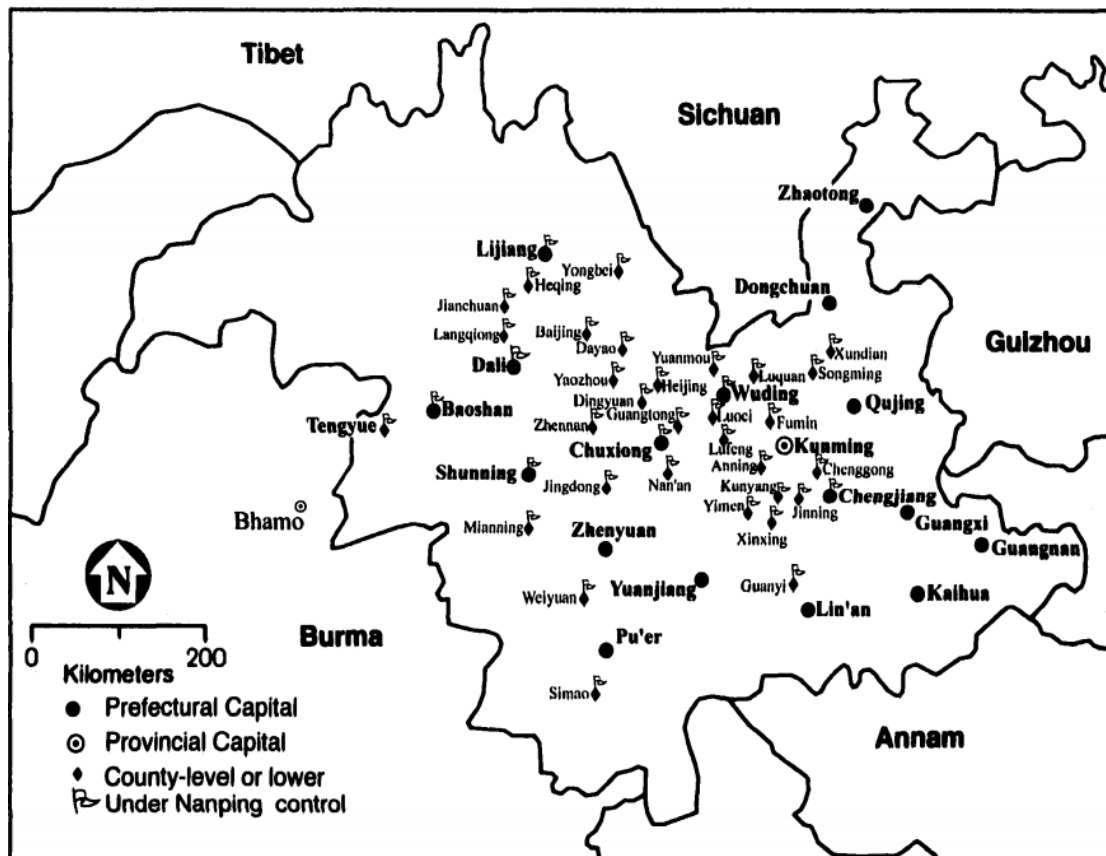


Fig. 6: 'The Sphere of Control of the Panthay Rebellion, 1867-1868'. Atwill, D. & Gladney, D. C. (1999, 318). *Rebellion South of the Clouds: Ethnic insurgency, Muslim Yunnanese, and the Panthay Rebellion*. ProQuest Dissertations and Theses.

Before the outbreak of the Panthay rebellion, the active region of plague epidemics was centred on Yunnan's economically developed areas and along major trunk roads, as analysed in the first chapter. As indicated in Fig 13 below, after the Du occupied Menghua and established its Muslim regime in Dali, the plague progressively spread to many prefectures and cities still under the control of the Qing government in Yunnan. Many cities recorded plague epidemics that occurred after 1856. According to Benedict's plague map of Yunnan, between 1856 and 1858, many cities and prefectures in Yunnan suffered plague epidemics. For example, Jingdong, Pu'er and Simao. "The capital of Ning'er (later renamed Pu'er) and Simao to the south are other points of contention between the two sides. As a result, this region also became the epicentre of the plague epidemic."<sup>13</sup> Local citizens also described the contagion of plague epidemics in central Yunnan:

"In the early years of Tongzhi in 1856, Yunnan suffered a Muslim rebellion, and then there was a significant outbreak of plague epidemics... Only one or two out of a thousand survived... The plague first broke out in the villages and quickly spread to the cities. When one family was infected, all the adjacent neighbours affected by the plague escaped to the other areas, and no one knew how many people died of the plague on the roads. The plague epidemics killed entire families, and numerous villages were left without survivors."<sup>14</sup>

Therefore, since 1856, the emergence of the Panthay revolt spread the disease more extensively throughout Yunnan.

<sup>13</sup> "咸丰十年(1860) '宁洱大疫', 十一年(1861) '他朗大疫'". Chen, Z. H, et al. (1899). (Guangxu Period) Pu'er Prefecture Annals (Pu'er fu zhi gao), Volume 3, Astrology III. Printed in 1900 during the reign of Emperor Guangxu of the Qing Dynasty.

<sup>14</sup> "同治之初, 滇中大乱, 贼所到之处, 杀人如麻, 白骨盈野……时则又有大疫, 其得活者, 千百中一二而已……. 起乡者, 延及城市, 一家有病, 则其左右十数家即迁移之, 踏于道路者无算, 然卒不能免也. 甚至阖门同尽, 比户皆空, 小村集中绝无人迹". He, X. Q. (1895, 201). *The great epidemic after the chaos. The Gleaning of yunnan affairs (dian hou shi yi)*: eight volumes. Beijing: Academy Press, 2010. 1st edition.

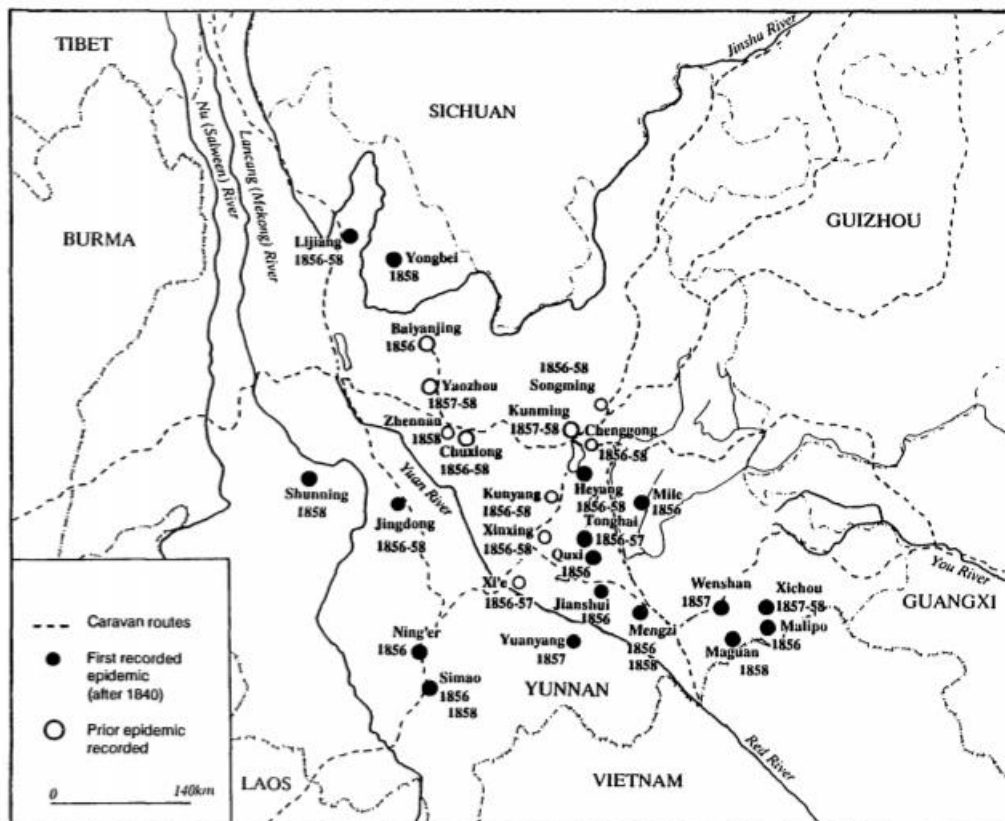


Fig. 7: 'The plague epidemics in Yunnan from 1856 to 1858'. Benedict, C. (1992). Bubonic plague in nineteenth-century China. ProQuest Dissertations and Theses.

On the one hand, the plague spreading in unison with the war seems to be ascribed to the military operations of both sides of the Panthay rebellion, military movements fuelling the spread of disease. The war effort's political, social, and economic damage and disruption may have had long-term impacts on social order (Speier, 1941). During the war, military troops were a particularly mobile population in this disordered society, playing a vital role in spreading the plague. Kaniewski (2020) demonstrates that one of the most severe environmental effects of war is the disruption of peacetime human-microbe interactions, which leads to epidemics of infectious diseases; in war, increased population mobility has unintended implications, such as the spread of infectious illnesses, the migration of vectors to new regions, and the consequent transmission of vector-borne diseases (Thompson, 2018); for military troops, military personnel are in danger of becoming carriers or reservoirs of infectious illnesses entering or departing the deployment area due to a lack of immunity and increased exposure (Zemke et al., 2019). According to experts, infected flea bites, direct contact with contaminated tissues, and inhalation of infected respiratory droplets are all methods for spreading the plague between animals and people (WHO, 2017). In the history of epidemiology, the mass movement of migrants or military conflicts has fostered the spread of infectious diseases. For instance, Cholera was carried in the 1830s by troops, ships and immigrants to the Baltic Sea, Mexico, and the United States (Tatem et al., 2006). During the Panthay rebellion, the army of both sides also sparked a massive population migration in the area, increasing the contact and exposure between humans and rats in specific locations, thus raising the risk of humans catching the plague. For example, Fig.7 demonstrates that Songyang's plague erupted from 1856 to 1858, and according to local elders' memory:

"The Yang-tzi disease (bubonic plague) pandemic was here in the year of the dog in August (1858). In the past 60 years, the Qing government's troops from the north of our village were stationed. First, the soldiers contracted Yang-tzi (plague), then died, and those quartered with the soldiers died, then many mice died, and my sister also contracted Chen Yang (bubonic plague) that year and died."<sup>15</sup>

An analogous situation occurred during the siege of Kunming in 1867 when Du Wenxiu encountered a very unfavourable situation. French explorers recorded (1867) that:

<sup>15</sup> "此病大流行瘧子乃在属狗年八月间(1898年),至今六十年。初为满清兵自我村北到我村里驻扎,数日矣。先是诸兵得(病)死了些,兵出民亦乘之而其病,时有死鼠.....我陈姊亦岁得瘧子病死者". Plague investigation team. (1957). Investigation report on plague epidemic history and epidemic factors in Songming County (song ming xian shu yi liu xing shi ji liu xing yin su diao cha bao gao). Internal edition.

"Some of his besiegers died in the battle, and some died of the plague. The bodies were everywhere, and the stench was overflowing, so both armies suffered from the plague, and one of Du's generals died of the plague"<sup>16</sup>.

The deployment and warfare of the armies on both sides may have replaced the movement of merchants as direct carriers of the plague. Therefore, the frequent mobility of armies as direct carriers of the disease may have facilitated the plague epidemics in Yunnan.

With the spread of the bacteria as carried by the military, the epicentre of the plague epidemics in Yunnan initially centred on the core area of the war because there was no time to dispose of the bodies on the battlefield and poor sanitary conditions allowed for the propagation of mosquitoes, rats, and fleas (Ozdemir & Kardas, 2008). As Fig.8 shows, in the battle of Chuxiong, Du's partisan, Ma Rulong, launched a series of battles to occupy Chuxiong, and these areas were hotly contested between the Panthay rebellion army and the Qing army (Benedict, 1992). These pivotal places witnessed see-sawing battles, and local Gazetteers documented miserable situations under war and plague conditions. For instance, in Yaozhou, the "plague frequently spread after military conflicts. In the second year after the Nine Years' War in Xianfeng emperor (1859), the plague spread wildly, committing innumerable murders"<sup>17</sup>.

In the same year, Dali also had an outbreak of plague, according to local annals: "The bodies of those who died in the battle, those who died of starvation, and those who died of pestilence were heaped up as high as a mountain in 1859. Thinking that the plague would soon return, those who were still alive buried the bodies of more than 4,000 people."<sup>18</sup> Ergo, the region at the heart of the Panthay rebellion became the epicentre of the plague epidemic in the first instance.

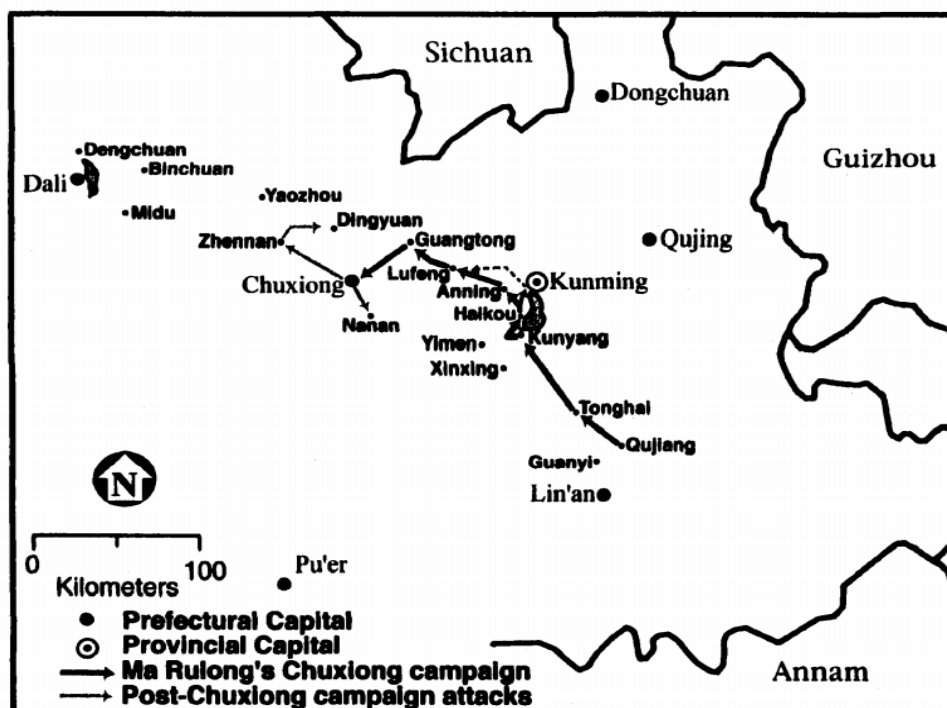


Fig. 8: 'Chuxiong Campaign Map, 1859-1860'. Benedict, C. (1992). Bubonic plague in nineteenth-century China. ProQuest Dissertations and Theses.

However, compared to the previous outbreak of plague epidemics in Yunnan, the Panthay rebellion enabled the expansion of transmission areas, even affecting the peripheral areas of the war and the non-war areas. Initially, the Panthay rebellion in Yunnan generated displaced persons trying to escape the war, famine and plague. Regarding the relationship between war and migrants, refugees and other displaced persons are generated within the political

<sup>16</sup> "Il s'ensuit que les gens qui voyagent ou circulent dans les environs des villages empestés sont à peu près asphyxiés par les odeurs nauséabondes que répandent les cadavres en décomposition." Rocher, E. B. (1879, 436). 1880. La province chinoise du Yün-nan, France: E. Leroux, 1879-80.

<sup>17</sup> "军兴之后多有疔疫, 咸丰九年大乱之后次年鼠疫大作, 人死如麻". You, Y. L. (1927, 201). Yao 'an County Annals, volume 66, gold and stone annals with miscellaneous. Yunnan People's Publishing House, 1996.

<sup>18</sup> "时饿殍、死尸山积, 榛意久疫方息, 虑将复染, 躬率乡民收埋四千有余". Zhou, Z. L. (1912, 63). (Republic of China) Dali County Annals, Volume thirteen, Character Section 2, Nationalities Publishing House.

economy of wars and other forms of violent conflict (state formation, genocide, etc.) involving state or non-state actors (Paasche et al., 2013). At the same time, varied types of wars (invasions, civil wars, third-party interventions) result in different migratory trajectories (Malkki, 1995). Thus, as in the previous analysis, both the army's activities during the war caused the plague and resulted in a great deal of population movement. According to British explorer Copper's investigations in Yunnan, Yunnan's commercial caravan routes were still unimpeded,

“The poor creatures, after a scanty meal, would huddle together, the sick with the sound, and thus day by day, the caravan would proceed, leaving behind it a long trail of dead and dying, who, by way of burial, became a prey to the packs of hungry wolves which always followed in the rear of the caravans.”<sup>19</sup>

Many refugees who had contracted the plague tried to escape the Panthay rebellion along the main caravan routes and rivers, bringing the plague to the many peripheral areas of the war. This feature is illustrated in Benedict's map below (Fig.15). Many areas first recorded the epidemic after 1840 along the Yuan River and Lancang River, Nu River, Xinping, Yuanjiang, Gejiu, and Honghe. At the same time, there were also many places along the trade routes where plague broke out, for example, Longling, Yongchang, Nandian, and Dengchuan along the main commercial road in western Yunnan (Benedict, 1992).

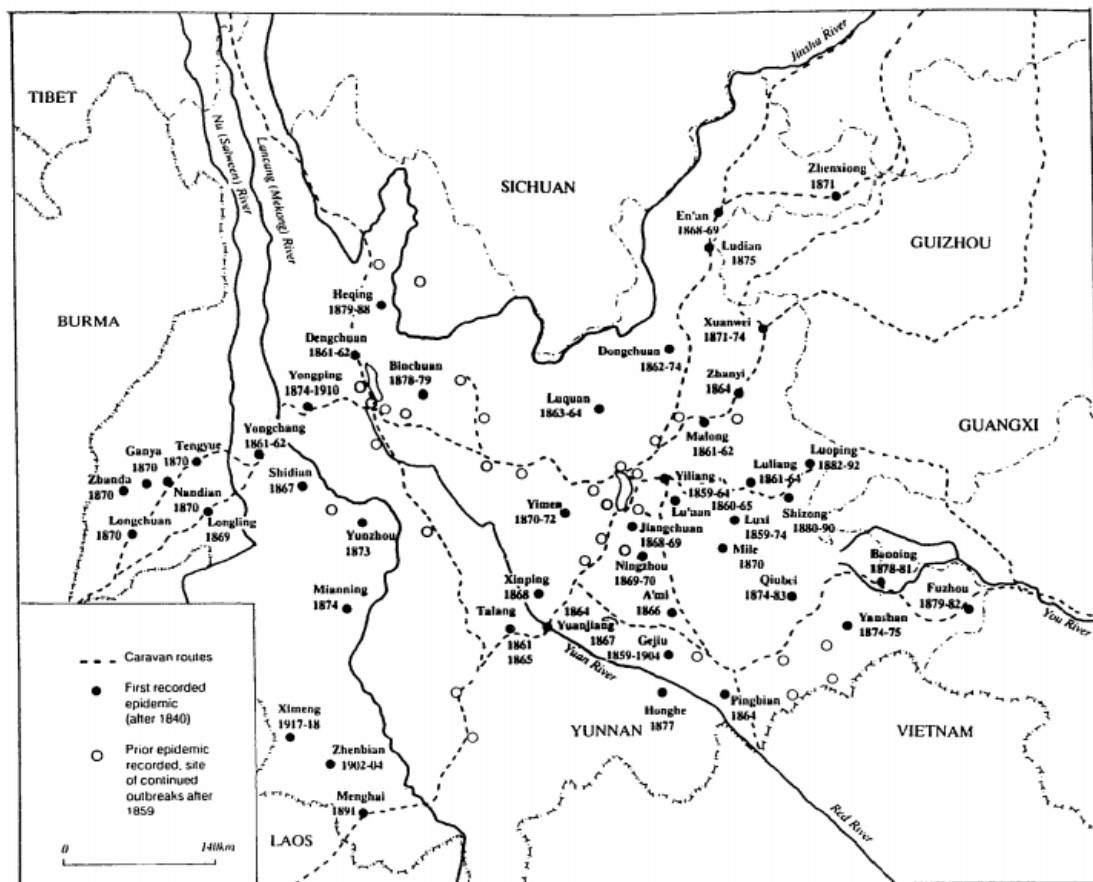


Fig. 9: ‘The epidemics in Yunnan after 1859. Benedict, C. (1992). Bubonic plague in nineteenth-century China. ProQuest Dissertations and Theses.

Hong He, which was not at the centre of the war, the population in the territory grew rapidly over a very short time due to the spread of refugees. Refugees from all over Yunnan fled to the Red River, and temples and ancestral halls were filled with refugees and migrants (Li & Gu, 2012). Under the increasingly populous situation, epidemics soon broke out there, “As a result, except in the most isolated mountainous areas, the disease spread to nearly every part of this county”<sup>20</sup>. Therefore, military conflicts set refugees and migrants to avoid the core zones of war, escaping to semi-peripheral areas and non-war zones through the caravan roads, which further spread the plague.

<sup>19</sup> Cooper, T. T. (1871, 162). "On the Chinese Province of Yunnan and its Borders." Proceedings of the Royal Geographical Society. 15 (March 27): 163-174.

<sup>20</sup>“非最僻之二三山外，鼠疫播几至于境之一隅”。Plague investigation group of Yunnan Province. (1957, 26). Investigation report of plague epidemic factors in Mongolian autonomous region of Yunnan province, internal data.

Thus, the characteristics of plague outbreaks in the centre of the war differed from those in remote areas. During the Panthay rebellion from 1856 to 1868, the central areas of war led to the formation of the initial plague epidemic centres. As coloured in the picture below (Fig. 16), the core areas of the Panthay rebellion were centred on Kunming, Chengjiang, Wuding, Chuxiong, Menghua, Dali, Jingdong, Zhenyuan and Pu'er prefectures (Cao & Li, 2001). The central areas of the war were most severely affected by plague epidemics. According to a survey by the local sanitary departments, an estimated 50,000 people died in Kunming because of the plague during the Panthay rebellion (Institute of Epidemiology Microbiology in the Chinese Academy of Medical Sciences, 1981). The relationship between war and plague led to local slang stating that "if a thousand people died in the city, 800 die outside the city at least if insufficient people died, the god of the plague would go to the Banqiao district in Kunming to devour people."<sup>21</sup> According to Cao and Li's statistics, in just those seven core areas of the Panthay rebellion, circa 1.5 million people died from the plague epidemic (Cao & Li, 2001).

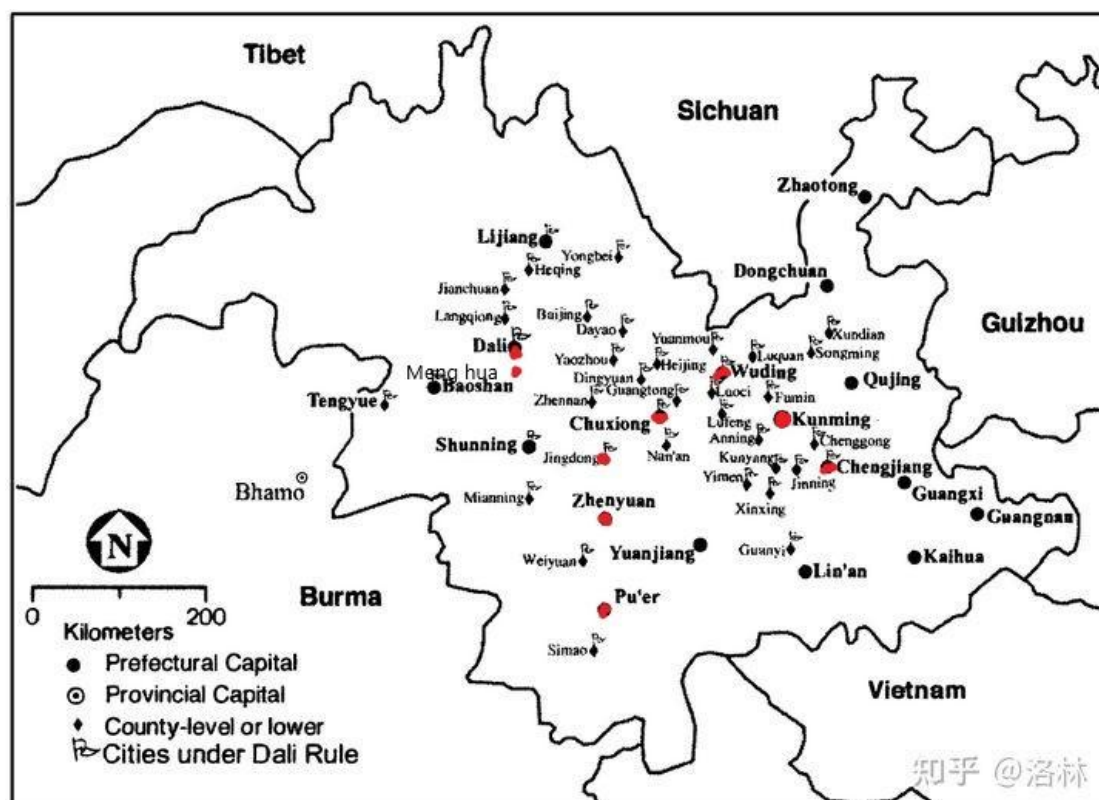


Fig. 10: (Colour Online) 'War zone during the Panthay rebellion from 1856 to 1868'. Atwill, D. & Gladney, D. C. (1999, 318). *Rebellion South of the Clouds: Ethnic insurgency, Muslim Yun locals, and the Panthay Rebellion*. ProQuest Dissertations and Theses.

That is the core area of the war, and the plague outbreak brought with it a massive death toll. In the peripheral areas of the war and non-war areas, although the plague epidemics also caused significant fatalities, the outbreaks were more sporadic. For instance, Fengqing prefecture, a town between Dali and Baoshan, also suffered from plague epidemics during the Panthay rebellion. However, "the plague was confined to urban areas and did not seem to have affected the mountainous areas and entire counties"<sup>22</sup>. Ergo, the plague's most tremendous destruction was concentrated around the battlefields of the Panthay rebellion, while in the peripheral areas of the war, areas of contamination were scattered and less affected by the plague. This chapter discussed the spread of plague epidemics during the Panthay rebellion between 1856 and 1868, further illustrating how the expansion of the rebellion influenced the broader spread of plague. Since the Panthay rebellion in 1856, Du established its regime in Dali and took a series of measures to cement its governance, for instance, recruiting local Han Chinese and uniting different ethnic minorities in Yunnan to ameliorate the differences among the different ethnic groups.

<sup>21</sup> "城中死一千，城外死八百，不够就到大小板桥拿". Health and epidemic prevention station of Kunming. (1957). Investigation report on plague epidemic history and epidemic factors in Kunming city (kun ming shi shu yi liu xing shi ji liu xing yin su diao cha bao gao), internal edition, 1957.

<sup>22</sup> "都发生在新旧二城和近城的四乡，并未遍及全县". Plague investigation group in West Yunnan. (1958). Investigation report on plague epidemic history and epidemic factors in Fengqing County, internal printed edition.

Under Du's policy, by 1868, the Panthay rebellion fiercely combated the Qing government troops in many populous and economically developed cities and controlled many areas of Yunnan, except Kunming. However, as the Panthay rebellion spread, the plague epidemics spread wherever military action occurred. Compared to the previous modes of transmission before 1856, this plague spanned a much broader area of Yunnan. On the one hand, the military actions of both sides of the Panthay uprising appear to have aided in the spread of the illness. Thus, the epicentre of the Yunnan plague epidemic was initially in the core areas of the war. However, compared with previous plague outbreaks in Yunnan, the Panthay rebellion also allowed the plague to spread more widely, even to areas around the war zone and non-war zones. The outbreak mode of the plague in the peripheral areas was sporadic vis-à-vis the problematic situations of plague nearer to the main battlefields.

### 6. Chapter three: The characteristics and modes of plague transmission from 1868 to 1872.

“In the tenth year of the reign of Emperor Tongzhi (1872), after the Qing army recaptured Dali city, the plague immediately rose again. Just after the war ended, the plague spread explosively again. Many people died of the plague, more than those who died in the war.”<sup>23</sup>

These contemporaneous records show the plague epidemics occurring again. Yunnan suffered a second outbreak of plague epidemics after 1868. Thus, the failure of the Panthay rebellion also appeared to further foster the spread of the plague. After 1868, the Panthay rebellions gradually encountered failure.



Fig. 11: 'Map of The Last Century of Imperial China at 1860AD'. TimeMaps. (2020). China: The Last Emperors-1860 CE-Time Maps. [online] Available at: <https://www.timemaps.com/history/late-imperial-china-1860ad/>.

Because the Qing government ended the Second Opium War in 1860 and eventually defeated the Taiping and Nien rebellions in 1864 and 1868, they were able to deploy and concentrate its troops, which were armed with modern European weapons, to tackle the Panthay Rebellion in Yunnan and Dungan Revolt in north-western China (Fairbank, 1978).

"In the seventh year of Tong Zhi emperor (1868), Cen Yuying sent a letter to the emperor reporting military problems in Yunnan. The emperor ordered him to Yunnan and promoted him to the governor of Yunnan and Guizhou. The government's army was stationed at Qujing"<sup>24</sup>.

<sup>23</sup> “同治十年 (1872) 郡城克服后，大疫迭兴，兵革甫息，疫病频仍，死亡狼藉，惨于血刃”。Zhou, Z. L. (1917). Dali County annals of the Republic of China (da li xian zhi gao), vol. 3, "ministry of Construction, household registration", Taipei: Chengwen Press, 1974.

<sup>24</sup> “七年，疏陈云南军事，命赴本任。寻擢云贵总督，驻军曲靖”。Zhao, et al. (1920, 167). "Draft history of qing dynasty and collected biographies (Qing shi gao, lie zhuan)" (Beijing: Zhonghua Book Company, 1977), Volumes 419, biographies 226.

The new Governor-General of Yunnan and Guizhou, Ceng Yuyin, thus embarked on a counterattack of the Panthay rebellion and decisively defeated Du's troops on the main battlefield (Luo, 2010).

"In 1870, the ninth year of Emperor Tongzhi, Governor Ceng conquered Lijiang, recovered Weiyuan and Yaozhou, Yongbei, Heqing, Zhennan, Dengchuan and Langqiong, destroyed the nest of thieves in Fengyu Bai Mi Zhuang, and put down the Muslim bandits in Zhuyuan, Mi'le County. In 1871, the tenth year of Emperor Tongzhi, the government forces put down the bandits in Yongshan, destroyed the nest of thieves in Bingzhou, and pinged the bandits in Xianglu Mountain. In 1872, the eleventh year of Emperor Tongzhi, Xingyi City of Guizhou province was recovered, and governmental troops successively conquered Yongping, Kunming, Zhaozhou and Menghua Hall cities."<sup>25</sup>

Du's subordinates, including Ma Rulong, surrendered to government troops in quick succession when encountering the Qing: "He surrendered to Qing troops and was rewarded as general of Heli Town in Yunnan province by the Qing government in 1868, following governor Ceng to attack the Panthay rebellion established by Du Wenxiu and recovered a dozen cities in eastern Yunnan."<sup>26</sup> By 1872, Du occupied only the city of Dali and was surrounded by Qing troops (Ma, 2006). In September of 1872, Governor Ceng "went to Dali to oversee the battle, and the Qing army dug tunnels under the city wall of Dali, causing the wall to fall by dozens of meters. The Qing army captured two gates in the southeast direction and stormed into the city". The Panthay rebellion was finally subdued after the fall of Dali". Du Wenxiu, unwilling to surrender, committed suicide by taking poison while his subordinates went out of town to surrender"<sup>27</sup>. Therefore, the Panthay government suppressed the Qing rebellion at the end of 1872.

During this period between 1868 to 1872, population movements led to renewed plague outbreaks. This was predominantly because refugees returned home. The end of the war thus became another vital element in the occurrence and spread of the plague. Dali suffered again as a new plague outbreak occurred following the Qing victory. As the disease map below shows (Fig.18), along the central caravan roads, the plague epidemics spread again in concert with the military actions of the Qing government troops from 1871 to 1873. Even the Governor-General of Yunnan and Guizhou Ceng may have helped the spread when attacking Kunming in 1872:

"Many people in the Qing army were infected with the plague. Cen Yuying himself was also infected with the plague, so he returned to Tonghai to recuperate, then handed over his deputy's military power"<sup>28</sup>.

After the Qing troops occupied Kunming, the soldiers spread this disease to the residents of Kunming. As a senior Li recalled:

"Our grandmother said that there were more than 100 households in my village before the Muslim armies occupied Kunming; there were only so few dead. However, after the Muslim war subsided, they died of Yang-tzi. One family ran away before the war, came back, and died of this disease"<sup>29</sup>.

Yang also recorded that:

"After the Muslim rebellion in Yunnan was quelled, there were many plague outbreaks in southern and western Yunnan. The main symptoms were Yang-tzi. and the vomiting of blood. Those infected with the plague and that vomited blood died more slowly, and those with Yang-tzi died in one night."<sup>30</sup>

<sup>25</sup>“九年，克丽江，复威远、姚州，复永北、鹤庆、镇南、邓川、浪穹，拔凤羽白米庄贼巢，平弥勒县竹园踞匪。十年，平永善蛮匪，拔宾州贼巢，平香炉山楨匪，连克河西之大东沟、小东沟及临安之五山夷寨。十一年，复贵州兴义新城，先后克永平、云南及赵州、蒙化厅各城”。*ibid*.

<sup>26</sup>“明年，授鹤丽镇.....与毓英共击之.....克之，连复十余城。迤东平，诏加提督衔，赐号效勇巴图鲁”。Zhao, et al. (1920, 201). "Draft history of Qing dynasty and collected biographies (Qing shi gao, lie zhuan)" (Beijing: Zhonghua Book Company, 1977), Volume 456 Biographies of Qing Figures: Next Ed. Vol. 4.

<sup>27</sup>“杜文秀穷蹙服毒，其党昇之出城诈降，斩首传示”。Zhao, et al. (1920, 169). "Draft history of Qing dynasty and collected biographies (Qing shi gao, lie zhuan)" (Beijing: Zhonghua Book Company, 1977), Volumes 419, biographies 260.

<sup>28</sup>“Le fu-t'ai lui-même en fut atteint et dut, sur les conseils de son médecin, quitter le théâtre de la guerre et rentrer à Tung-hai pour se soigner.” Rocher, E. B. (1879, 337). 1880. La province chinoise du Yün-nan, France: E. Leroux, 1879-80.

<sup>29</sup>“我老姥曰吾村有百余户，毛下坝时未死数，即平息后，得痒子病死者多有一家出兵燹.....，太平还乃得此病”。Health and epidemic prevention station of Kunming city. (1957, 157). Investigation report on epidemic history and epidemic factors of plague in Kunming city, internal printed edition.

<sup>30</sup>“滇中自大乱平后，迤南迤西多病瘟，有红痰痒子二症。中红痰者死差缓中，痒子者更宿即死”。Yang Qiong, (1912, 69). The records of Yunnan in the first year of the Republic of China. One undivided, straight printed volume.



Under this wave of plague, many districts where plague epidemics had not erupted previously during the Panthay rebellions also suffered. For example, Xuanwei's plague erupted in 1871 (Li & Cao, 2001). According to the disease map from 1871 to 1873 (Fig.18), it can be inferred that the return of millions of war refugees exacerbated the spread of the plague epidemics in Yunnan.

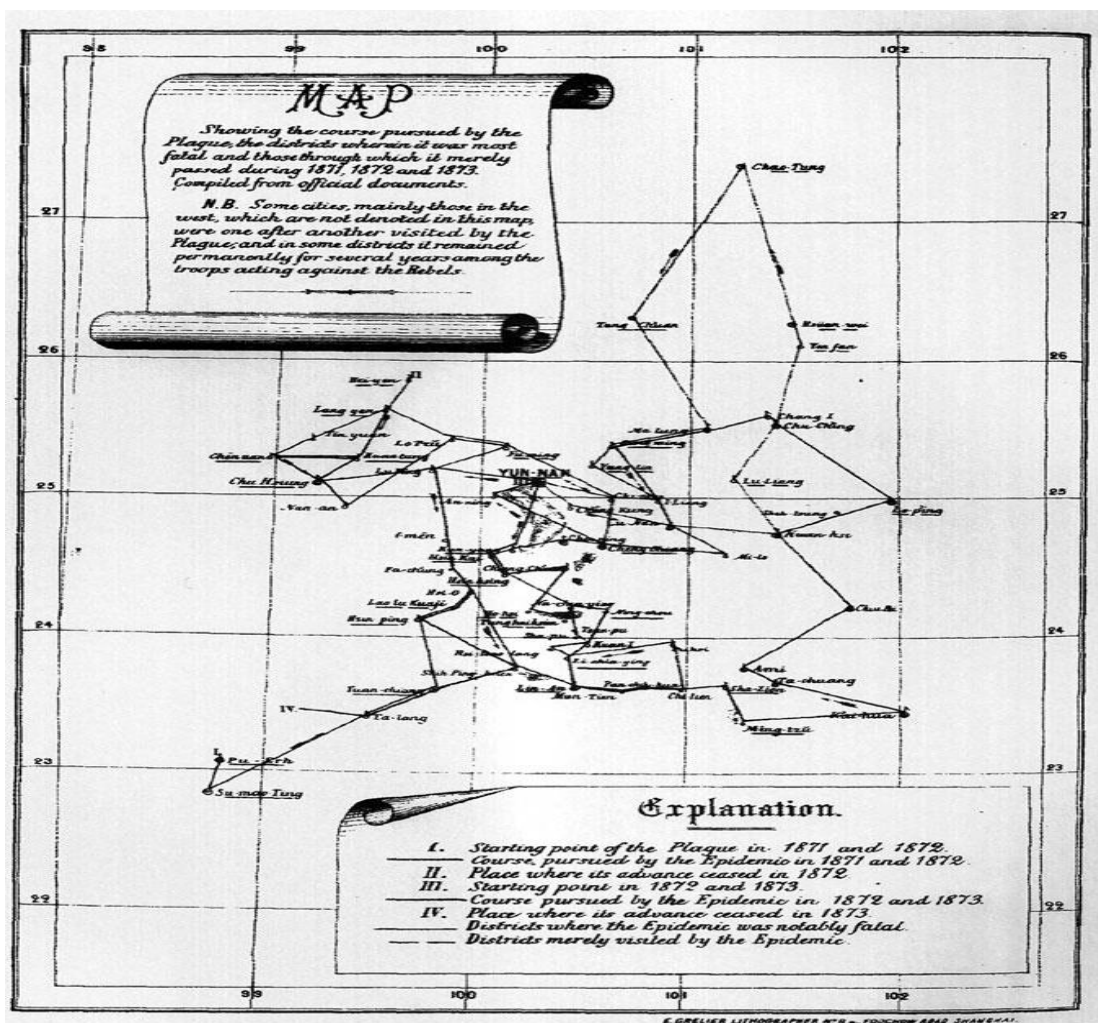


Fig. 12: 'Patrick Manson, Map of Plague in Yunnan 1871-3, 1878.' Hanson, M. & Sela, O. (2017, 229). Visualising the Geography of the Diseases of China: Western Disease Maps from Analytical Tools to Tools of Empire, Sovereignty, and Public Health Propaganda, 1878–1929, 30 (3), pp.219–280.

The plague epidemics did not seem to be mitigated by the end of the Panthay rebellion; transmission to other areas in China finally gave rise to the third wave of plague epidemics worldwide. Specifically, the Panthay rebellion directly led to the Dungan Revolt eruption in north-western China from 1862 to 1873, simultaneously disseminating the plague epidemics to northern China. Two imams who joined the Panthay rebellion went to Shaanxi and Gansu, provoking the Dungan Revolt and bringing the plague to Gansu Province (Fairbank & Liu, 1980).



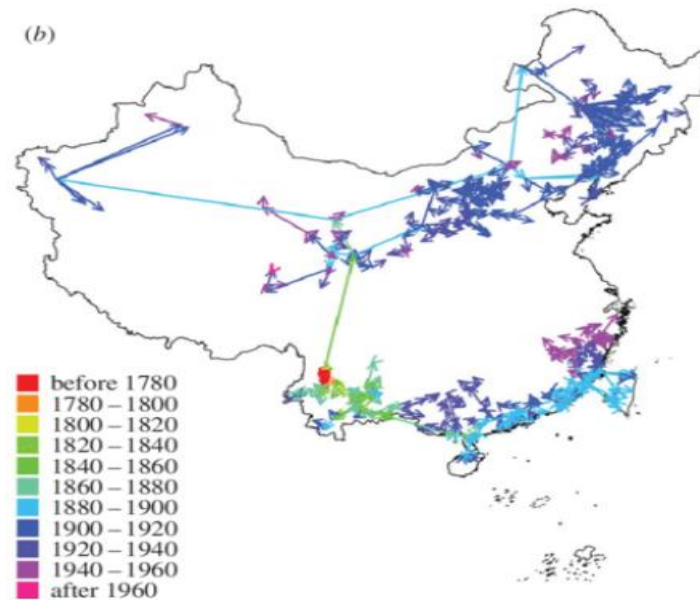


Fig. 13: “The timeline of the plague’s spread in China.” Hanson, M. (2017, 239). Xu, L.C. et al., (2014). Wet climate and transportation routes accelerated the spread of human plague. *Proceedings. Biological sciences / The Royal Society*, 281 (1780), p.20133159.

This plague finally spread from Shandong to Northeast China along the railway line (Summers, 2010). According to Dr Wu Lien-Teh’s statistics, “this tremendous Manchurian plague of 1910-1911 has resulted in 69 affected counties and killed more than 60,000 people in Manchuria”<sup>31</sup>.

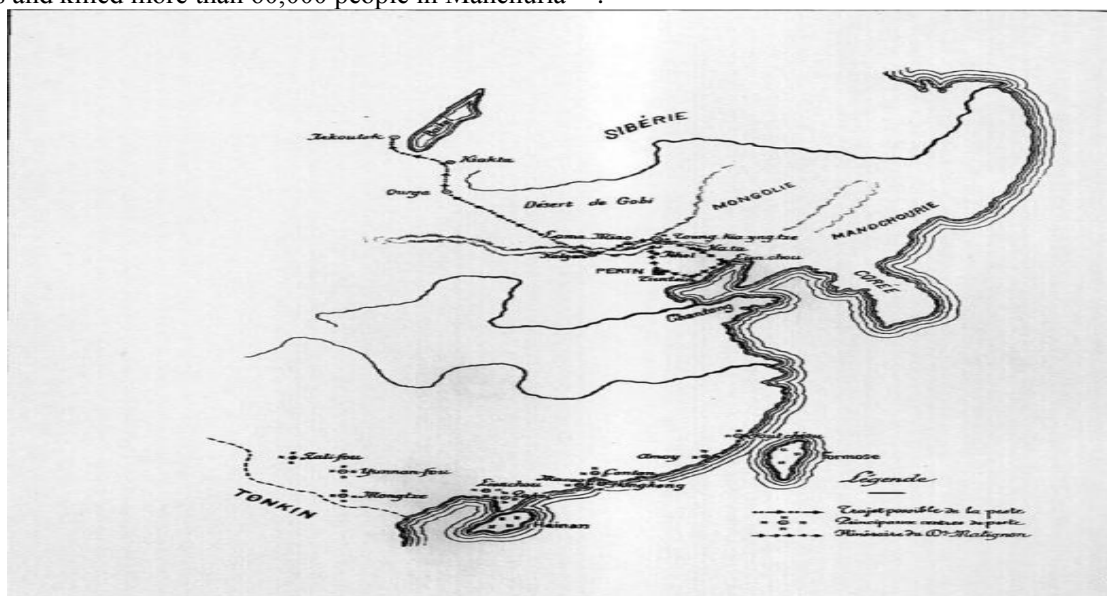


Fig. 14: “Map of Possible Plague Route in Manchu.” Hanson, M. (2017, 239). *Visualising the Geography of the Diseases of China: Western Disease Maps from Analytical Tools to Tools of Empire, Sovereignty, and Public Health Propaganda, 1878-1929. Science in Context*, 30(3), pp.219–280.

As shown in Fig. 21, at the same time as the Panthay rebellion broke out, the plague spread along the trade routes to the Guangdong-Guangxi areas (Ortholan, 1908). Hong Kong also did not seem exempt, and the plague spread to Hong Kong in 1894 (Ayres, 1894), from where it then spread to Japan, Singapore, Taiwan, and the Indian subcontinent. Over the next several years, these bacteria spread to several cities throughout the world, including Bombay, Singapore, Alexandria, Buenos Aires, Rio de Janeiro, Honolulu, San Francisco, and Sydney, resulting in the world’s third plague pandemic (Bramanti et al., 2019). Therefore, the third plague pandemic seems to have been attributable to the plague epidemics in Yunnan.

<sup>31</sup> Wu, L. T. (1959, 201). *Plague Fighter: The Autobiography of a Modern Chinese Physician*, Cambridge: W. Heffer and Sons.

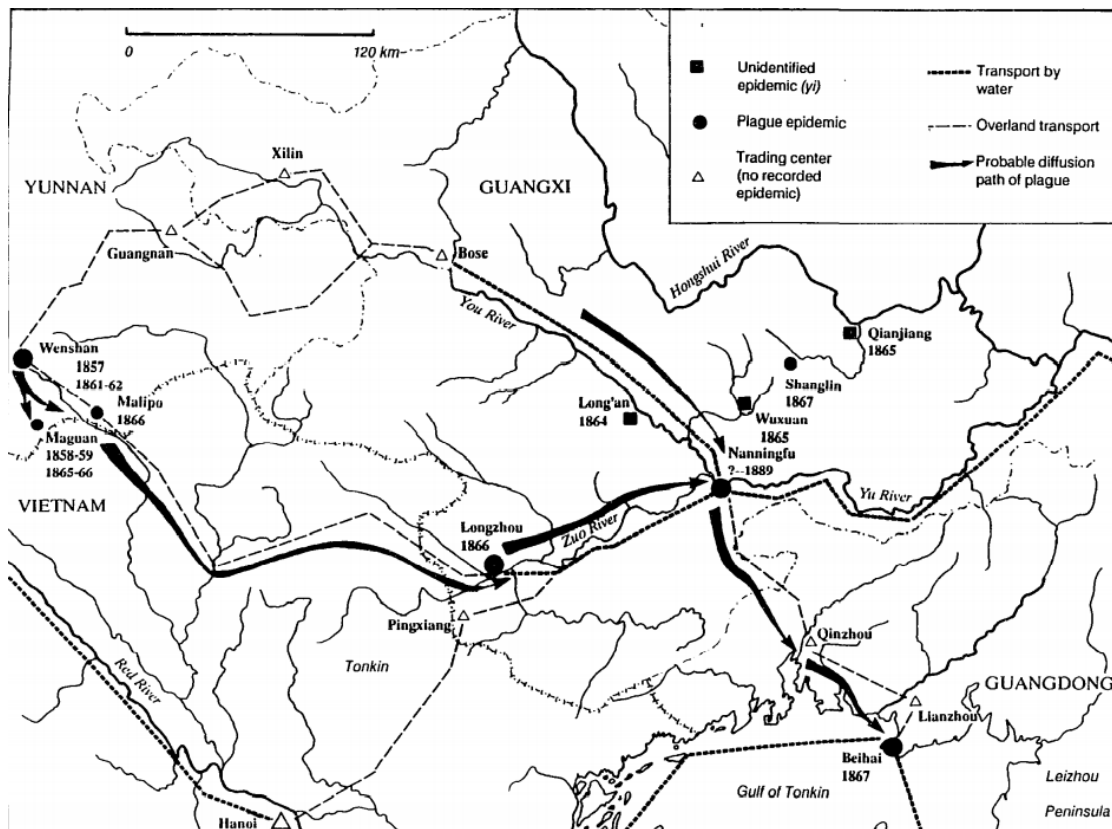


Fig. 15: 'The spread of the plague along the Yunnan-Lingnan trade routes.' Benedict, C. (1992, 140). Bubonic plague in nineteenth-century China. ProQuest Dissertations and Theses.

This chapter examines the characteristics and modes of plague transmission from 1868 to 1872, including the transmitted path to China's other areas after 1872, finally giving rise to the third plague pandemic worldwide. After 1868, the Panthay rebellion gradually lost its initial battlefield control when confronting Qing troops armed with modern weapons. The new Governor-General of Yunnan and Guizhou, Ceng Yuyin, occupied Dali and successfully suppressed the Panthay rebellion after Du Wenxiu committed suicide in 1872. During this period, population movements again led to more plague outbreaks in Yunnan. On the one hand, this research found that Qing troops were disease carriers, spreading the plague epidemics along the central caravan roads. On the other hand, as refugees continued to return home after the Panthay rebellion was suppressed, this became another critical factor in the occurrence and spread of the epidemic. Even many places with no breakouts during the Panthay uprising suffered from the plague's spread during this wave. It seems that the plague spread to other areas of China after the Panthay rebellion ended, such as Hong Kong and Manchu, eventually causing a third wave of plague to spread worldwide.

### 7. Conclusion

Regarding how the Panthay Rebellion influenced the Yunnan plague during the late Qing era from 1846 to 1872, previous literature solely spotlighted the Panthay Rebellion per se or the plague epidemics in Yunnan. Through archival analysis, this research argues that the Panthay rebellion fueled and increased the size and extent of the plague epidemic outbreaks in Yunnan during this period. Before the start of the Panthay rebellion in 1856, Yunnan was experiencing a string of sporadic plague epidemics. The infected area focuses predominantly on the central and eastern Yunnan, transmitting to the southern, western, and eastern areas alongside the main commercial roads. The plague pandemic was confined to Yunnan Province's economically developed districts, which absorbed lots of labour forces and did not spread far. However, the plague spread widely during the Panthay rebellion from 1856 to 1868. After the outbreak of the Panthay rebellion in 1856, Du established power in Dali and took a series of measures to consolidate its regime, holding onto most areas in Yunnan as of 1868.

In the wake of the Panthay rebellion, the plague epidemics became more rampant as the scale of the rebellion increased and was more significant than had previously been experienced in peacetime. This was first attributed to military movements, the centre of the plague epidemic in Yunnan starting at the heart of the war zone. At the same time, refugees who tried to escape from the rebellion along the central caravan roads brought the plague epidemics to the peripheral and non-war areas. However, the outbreak pattern of plague in peripheral areas was relatively sporadic compared to the disease severity at the centre of the war.

Following the period from 1868 to 1872, the territory of Du's regime was cumulatively encroached on by Qing troops who were armed with modern weapons, and in 1872, the new governor-general of Yunnan and Guizhou ultimately defeated the Panthay rebellion and occupied Dali and Du Wenxiu committed suicide. At this stage, the plague epidemic experienced another series of outbreaks in Yunnan. On the one hand, when Qing troops recaptured the different areas in Yunnan, the plague epidemics were transmitted along the Qing troops' line of march. On the other hand, after the Panthay rebellion, displaced persons returned to their hometowns, becoming another vital factor in the onset and spread of the epidemic. Consequently, many areas that had not suffered the plague during the revolt suffered outbreaks afterwards. This wave of plague epidemics did not cease, gradually spreading to Manchu and Hong Kong along the main roads, finally causing a third wave of the plague to spread around the globe.

The finding of truth is the significance of historical research. Plague research will aid in the prevention and control of the spread of the disease in Yunnan. Until today, the plague still sporadically appears in Yunnan province. The most recent case occurred on 28 September 2020. A 3-year-old child was treated for bubonic plague after being diagnosed in a remote village in Menghai County (Chen, 2020). Additionally, research into the spread of plague has also been instrumental in studying other deadly diseases in China because Yunnan has a unique natural environment that has easily engendered pandemics. For instance, eight years after the severe acute respiratory syndrome (SARS), in 2011, Chinese researchers detected the SARS-like coronavirus in a bat cave in Yunnan province (Jin, 2020). Thus, Yunnan still might be the headstream of the next pandemic. This research also aims to help policymakers master the propagation law of deadly diseases in Yunnan when confronting the next possible epidemic outbreak.

#### 8. Glossary

Anhui 安徽

Baoshan Massacre 保山惨案

Baoshan 保山

Bingzhou 宾州

Canton 广东

Celestial Empire 天朝上国

Ceng Xiang Xun Gong 岑襄勋公

Ceng Yuyin 岑毓英

Chengjiang 澄江

Chuxiong 楚雄

Dali 大理

Daoguang 道光

Dengchuan 邓川

Du Wenxiu 杜文秀

Fengqing 凤庆

Fengyu Bai Mi Zhuang 凤羽白米

Five Ridges 五岭

Fujian 福建

Gejiu 个旧

Guangxu 光绪

Guangzhou 广州

Guizhou 贵州

He'li 鹤丽

Hengchun 恒春

Heqing 鹤庆  
Hong Kong 香港  
Hong Xiuquan 洪秀全  
Honghe 红河  
Hubei 湖北  
Hunan 湖南  
Jiangsu 江苏  
Jiangxi 江西  
Jingdong 景东  
Kunming 昆明  
Lancang river 澜沧江  
Langqiong 浪穹  
Lijiang 丽江  
Longling 龙陵  
Ma Dexin 马德新  
Ma Rulong 马如龙  
Manchu 满洲  
Menghua 蒙化  
Mengzi 蒙自  
Mi'le 弥勒  
Ming Dynasty 明代  
Nandian 南甸  
Nanjing 南京  
Nien Rebellion 捻乱  
Nu River 怒江  
Panthay rebellion 潘泰起义/平南起义  
Pu'er 普洱  
Qi 气  
Qing Dynasty 清代  
Qinghai-Tibet Plateau 青藏高原  
Qujing 曲靖  
Shunzhi 顺治  
Taiping Rebellion 太平天国  
Tengyue 腾越  
Tonghai 通海  
Tongzhi 同治  
Weiyuan 威远  
Wuding 武定  
Xianfeng 咸丰

Xianglu Mountain 香炉山

Xin Yi New City 兴义新城

Xinping 新平

Xuanwei 宣威

Yangtze River 长江

Yang-tzi 痒子

Yao 'an 姚安

Yaozhou 姚州

Yi 彝

Yongbei 永北

Yongchang 永昌

Yongping 永平

Yongshan 永善

Yuanjiang 沅江

Yunnan 云南

Zhaozhou 赵州

Zhejiang 浙江

Zhennan 镇南

Zhenyuan 镇沅

Mouse disease 耗子病

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### 9.1 Lists of illustrations

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