

[**Translator’s Foreword:** The paper in this document has been published in Chinese by Feng Suiping, Director of the Hanzhong Museum. Some editing and additional information to help an English speaking audience has since been added. This includes western style section numbering and headings; various Figures have been added showing the map annotations in question; names of valley entrances have been provided in a Table; reference is added to web based material and supported by using annotation numbers and links; the main quoted sections from the map are in italics; references have been collected at the end of the paper and reduced to one where they were identical; an Appendix outlining the historical background to the “method of squares” has been added; informative footnotes have been added if they seemed necessary and sentences and information that were not in the original paper are generally enclosed in [square brackets]. Readers are welcome to challenge choices made in the translation and presentation for which activity further information is to be found [HERE](#). The Chinese text of the paper is included so that this can also be done without the need to search for the Chinese document. David Jupp, Canberra, ACT, Australia, July 2014.]

Postscript to the “Map of neighbouring regions of four provinces on the north bank of the Han River” from the collection of the US Library of Congress.

Feng Suiping (Hanzong Museum, 723000)
Translation by David Jupp (Canberra, Australia)

Summary: The “Map of neighbouring regions of four provinces on the north bank of the Han River” is a Qing Period map of the Qinling region in the US Library of Congress collection which is of the utmost importance. This paper introduces and discusses the annotations and legend from a geographic point of view and establishes where the map’s value lies. On the basis of records from a number of historical documents, it can be established that the drawings were the achievements of one Zheng Bingran. A proposal for the time when the map was drafted is offered. Progress is also made in regard to the existence of parallel publications “Map of three provinces on the south bank of the Han River” and “Records of roads in the mountain regions of three provinces”.

Key Words: Han River, Qinling Mountains, Qing period map, Border defence, Map drafting.

1 Introduction

In the early autumn of the Renchen year, as I was returning to Hanzhong from Anhui by way of the Western Capital [Xi’an], my friend, Mr Liu Wei provided me with a long sought after but so far not found copy of the “Map of neighbouring regions of four provinces on the north bank of the Han River” (referred to as the “Four Provinces Map” in the following) by Yan Ruyi (严如煜; 1759-1826) and Zheng Bingran (郑炳然) that had been found in the collection of the US Library of Congress. This map had previously been referred to in Tang Jinzhao’s “Memorial Stele of Yan Ruyi’s works”, where it was called the “Two maps of the north and south Han River” [R.1]; and in the “Outline of Qing History” where it was referred to as “Map of the north and south of the Han River” [R.2]. It was introduced, recorded and studied for the first time among present Chinese scholars by Mr Li Xiacong of Beijing University [R.3].

However, the initial studies of this rare and important map have not yet been sufficient, so I have therefore taken it further by writing this paper.

2 Continuing discussion for the “Four Provinces Map”

The “Map of neighbouring regions of four provinces on the north bank of the Han River” is a printed wood block engraving, of unknown scale¹, measuring 107x182 cm. On the back of the map is a red signature seal, the map title in black ink and the map’s serial number in the US Library of Congress collection of G7820.C5. The four provinces are most likely Shaanxi, Gansu, Henan and Hubei as the neighbouring regions [of the Han River] include areas of southeast Gansu, central and southern areas of Shaanxi, southwest Henan and northwest Hubei. The overall region included in the drawing spans from the Guanzhong Basin (approximately covering the Wei River Valley) to the Han River, that is, the Qinling area, with the focal area being the extent of the administrations of Hanzhong Fu, Xing’an Fu and Shang Zhou. Today it seems that it could have been more accurately called a Qing Period map of the Qinling Mountain region. The region covered by the Qinling mountain range is very broad, running continuously east-west, separating north and south, with very complex geographical features.

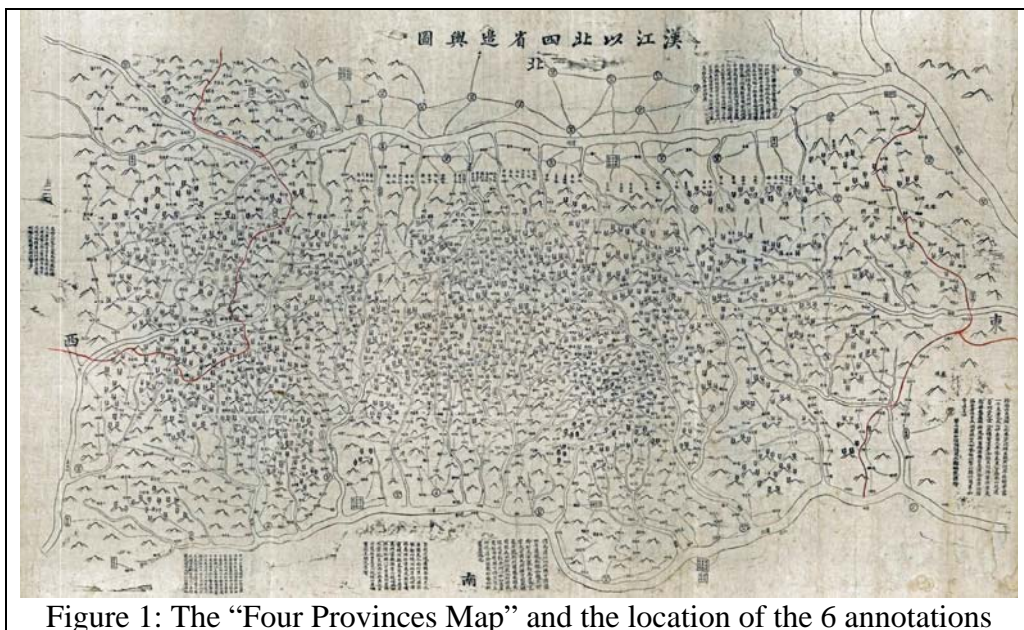


Figure 1: The “Four Provinces Map” and the location of the 6 annotations

[The English Version of this paper includes 7 Figures showing the Map and the annotations included on the map as discussed in Feng Suiping’s paper. Figure 1 shows the overall extent of the map. The 6 annotations discussed in this paper are clear on the map as blocks of text. For the purposes of matching annotations with higher resolution images made available on the web, they have been numbered from 1-6 starting from North and rotating clockwise. Annotation 1 is at the top right (North East), Annotation 2 is on the lower right (South East), Annotations 3, 4 and 5 are along the bottom edge (South) numbered from East to West and Annotation 6 is at the top left of the image (North West). The River along the top of the map is the Wei River and the near parallel river in the south is the Han River. The River on the

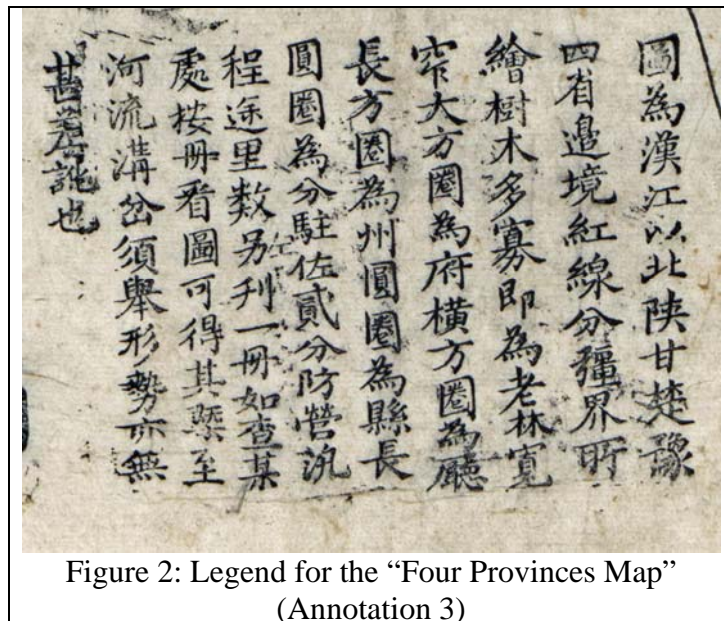
¹ By approximately scaling the map at its given physical dimensions (1.07m deep by 1.82m wide) it seems it is similar in detail to a modern 1:250k map (1:25 万) with which it may be usefully compared.

West of the map is the Jialing River. The annotations have also been carefully placed on the map by Zheng Bingran in relation to the subject they cover.]

2.1 Legend and scale for the Map [Annotation 3]:

This map does not provide information on scale, which is one of the three basic elements of a map². It does, however, show the four (principal) directions East, South, West and North, and provides a Legend that explains the mapping symbols being used. The Legend (Annotation 3) says:

“The boundaries of the four northern provinces of Shaanxi (陝), Gansu (甘), Hubei (楚) and Henan (豫) are shown by a red line. Where there are a number of trees drawn, it indicates the extent of native forests; a large solid square represents a Fu, a horizontal rectangle a Ting, a vertical rectangle a Zhou, a circle a Xian and a vertical oval indicates the presence of a Deputy Magistrate or a garrison.”³



Within the map, the Legend says that a red line indicates a province or provincial boundary, but this red line was (over-)printed later. What is not explained is the use of dotted lines to indicate the routes followed by roads; the use of characters along the routes to indicate villages and townships or mountain barrier passes and postal stations; the use of triangle shaped symbols to represent the terrain, parts of which have additional tree symbols, is probably covered by the description “extent of native forest” in the Legend.

The geographical information in this map is very rich. The drafter also used a format of map annotations to provide detailed information about the geographical features of

² The method of squares for distances was a common principle in use at the time. An Appendix has been added that discusses scale and the method of squares to provide context for this aspect of the map.

³ Additional characters following on from this translation in the Annotation will be discussed later when the map scale is revisited. They outline Yan Ruyi’s suggestion for obtaining route distances.

the places covered. In addition to the Legend above, there are five other such map annotations, separated into topics concerning the Qinling Mountain Range, the Black River, Refugees, the Han River, and the Qinling valley entrances.

2.2 The Qinling Mountain Range [Annotation 2]:

“The Southern Mountains extend south from the Wei River, north from the Han River and stretch unbroken through many districts. Ruan Ting called them ‘the 1000 Li of mist and cloud’. Taibai mountain stands in the west, Hua Shan towers in the east, they are all linked together through the Southern Mountains. From the coloured soil the 5 grains grow, and precious metals like gold and iron are extracted. The extent includes parts of Ningshaan, Xiaoyi, Huxian, Zhouzhi, Mei Xian, Fengxian, Liuba, Yangxian, Shiquan, Hanyin, Ankang, Xunyang and Zhen’an, and has many areas of unopened native forest. The high mountains include Zibai Shan, Ao Shan, Yaozhu Ling, Jun Shan and various associated ranges.”

This annotation covers the general alignment of the Qinling region, its economic development and its produce etc. [There are some rather poorly printed additional characters to the left of the annotation which are the signatures of Yan Ruyi and Zheng Bingran. These are discussed in detail by Feng Suiping in a later section.]

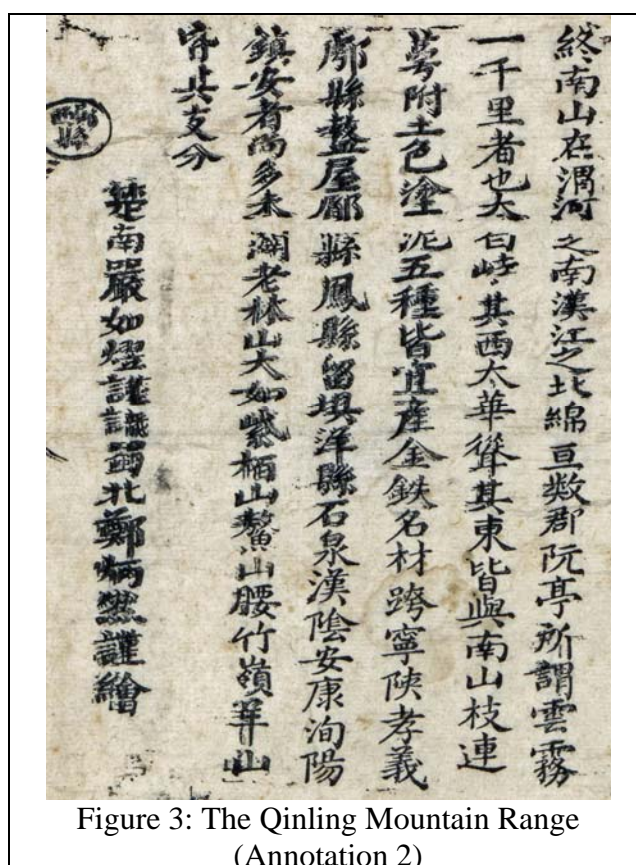


Figure 3: The Qinling Mountain Range (Annotation 2)

2.3 The geography of Liang Zhou [Annotation 4]:

“As to the territory within Liang Zhou, according to the Book of Documents (尚書) it covers ‘Huayang Hei Shui’. Huayang is in the present South Mountains and the source of the Hei Shui is at Zibai Mountain. On both sides of the river there are timber resources and fertile forests. It links to Fengxian, Liuba, Baocheng, Mianxian and Lüeyang in Shaanxi and Liangdang and Huixian in Gansu. It is filled with high mountains and steep cliffs, which are dangerous and difficult to access, and is often said to extend for 800 Li. Along the Hei Shui are fertile forests, just like those of the Southern Mountains. In the recent past, a great number of destitute people have come here from Sichuan and Hubei, carrying all they own on their backs, to till the mountains and become ‘shanty dwellers’”.

This annotation starts by listing the general boundaries of Liang Zhou but then focuses on the Black River (Hei Shui) area. Because of its advantageous geographical location and living conditions, it was at one time seen as a critical area for the frontier defence of the three provinces.

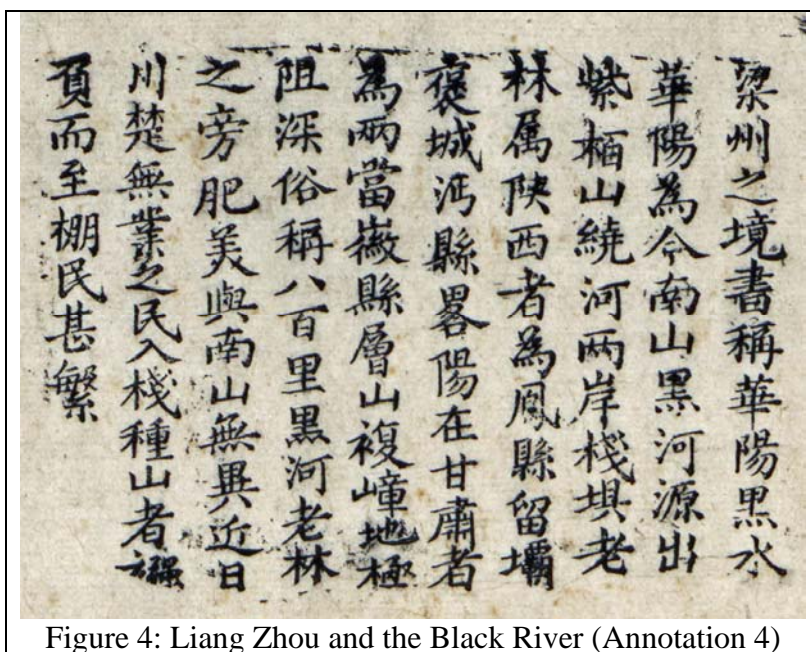


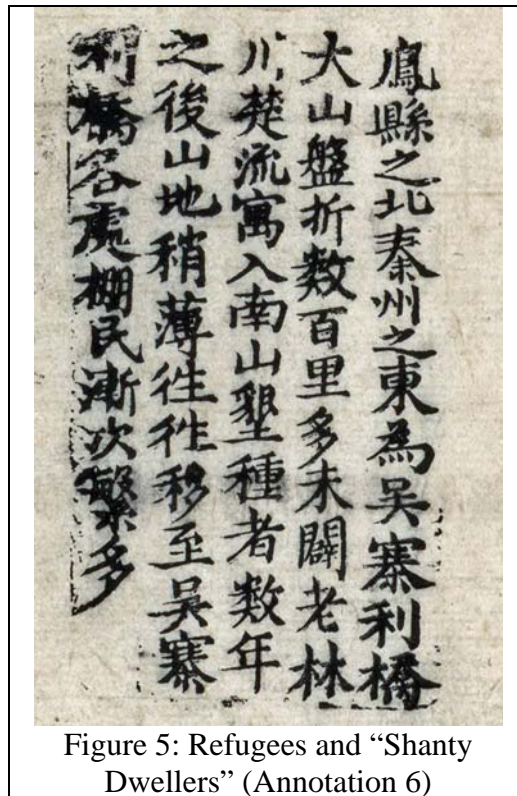
Figure 4: Liang Zhou and the Black River (Annotation 4)

2.4 Refugees on the border area with Gansu [Annotation 6]:

Due to the great increase in “Shanty Dwellers”, an area including Fengxian and neighbouring areas of Lueyang in Gansu had become increasingly unstable. For this reason, the subject of refugees was addressed in another specific annotation:

“To the north of Fengxian and the east of Qin Zhou [present day Tianshui], in Wuzhai and Liqiao, there are high mountain valleys winding for 100 Li, throughout much of which there are unexploited forests. Homeless people from Sichuan and Hubei have entered these Northern Mountains to develop and cultivate the land. After several years, the mountain area has become degraded as more and more people

have moved into the Wuzhai and Liqiao areas, and the Shanty Dwellers have become very numerous.”



2.5 The Han River and its drainage basin [Annotation 5]:

“The origin of the Han River is at Bozhong Mountain from where it flows on through Mianxian, Nanzheng, Chenggu, Yangxian, Xixiang, Shiquan, Ziyang, Ankang, Xunyang, Baihe, Yunxi, Yunxian and Junzhou to reach the plains [flood plain of the Yantze River]. The valley runs through the Yongliang Mountains for more than 3000 Li. Above the Hanzhong prefecture, it is a rather sluggish stream, so that one can hitch his clothes and cross it. Below Hanzhong, it links with the flows of the Xushui, Muma, Dong, Yue, Dadao, South and Xun Rivers, so that by the time the Bai River is reached the stream flow is strong. In summer and autumn, the waters rise to be turbulent and fierce; in winter and spring the waters dry up, creating still waters and light ripples, so that only small craft may pass. As the Han River above the Bai River is too small to be a barrier for military purposes, there is little point in further discussing it here.”

Because this map has used the Han River as a dividing line, it includes brief and to the point explanations of its source, the administrative areas through which it flows, its tributaries and hydrology, as well as communication routes. In regard to the statement “As the Han river above the Bai River is too small to be a barrier for military purposes, there is little point in discussing it here”, it is sufficient to note that this map is primarily discussing military value. As for a possible companion map to this one called “Map of three provinces on the south bank of the Han River” and whether it

could also have such explanations of the Han River, at the present time no one has been able to find it.⁴

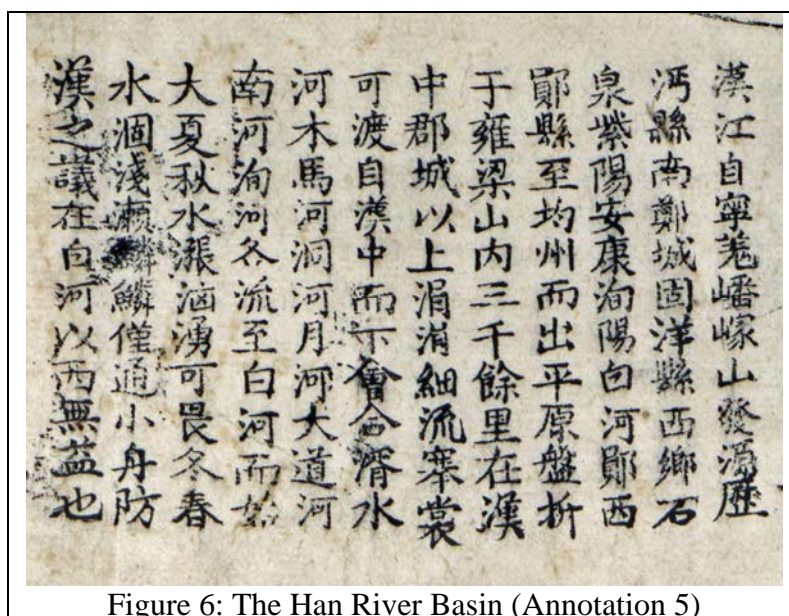


Figure 6: The Han River Basin (Annotation 5)

2.6 Valley entrances from the North [Annotation 1]:

The various valley entrances at the northern foot of the mountain area were important pathways for traffic and of great military significance. Yan Ruyi in “Collected information about the local conditions in the mountain areas of three Provinces” [R.4] writes: “from Huazhou through Lantian and on to Baoji, there are 72 Valley entrances. Bandits lie in wait to emerge from these valley mouths into the Wei Valley. Therefore when it is time to manage the bandits, guards must be able to move quickly into the valley entrances and construct barrier passes, to better protect the province”. To this end, the map seeks to develop specific links between the roads and valley entrances, and provides a detailed description:

“Between the Hua Mountains in the east and Baoji in the west, there are altogether 72 valleys providing entrances into the mountains to the south. On the outside of the valleys is the Guanzhong region, also called “the endless fertile plain”. Entering the valleys, there are many deep and narrow passages. Through the Dayu valley mouth you can go through Xiaoyi, Zhen’an and Xunyang and down to Xing’an by the east road, which is more than 800 Li. Through the pass at Baoji you can go to Fengxian, Liuba, Baocheng down to Hanzhong by the west road which is 640 Li. This road is called the Northern Plank Road. It is as rugged as the east road but provides a better developed route. From Chang’an there is also the [northern] Ziwu valley through which you can reach the [southern] Ziwu valley near Xixiang. Wei Yan wanted to use this route to march on Chang’an. It is also 640 Li in length. There is also possible access in and out via the deep forests through Wulang, where the presence of destitute people increases the danger.”

⁴ Recently it has been found that a copy may be included as part of the National Palace Museum Qing map collection in Taiwan

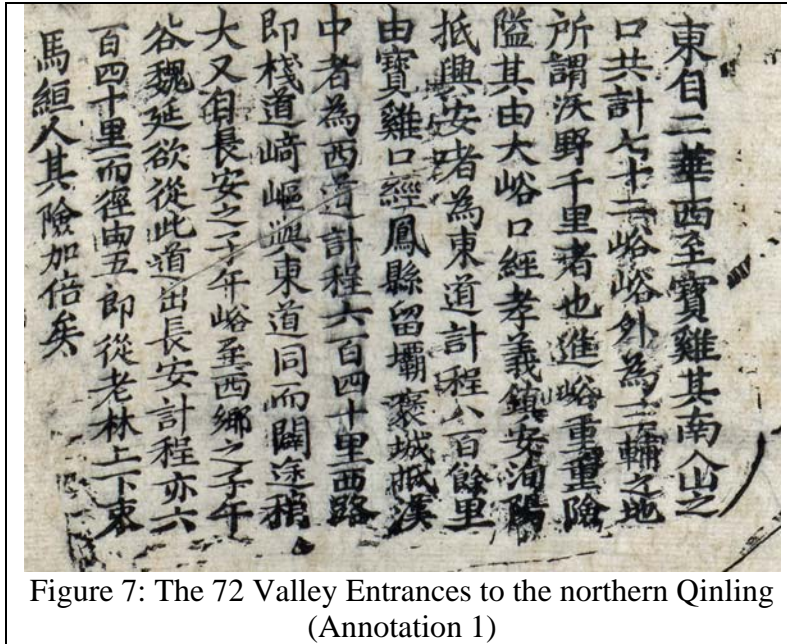


Figure 7: The 72 Valley Entrances to the northern Qinling (Annotation 1)

In regard to the special position of valley mouths in military activity and strategic defence, Yan Ruyi put special emphasis on the valley entrances of the Qinling. This work provided important material for Mao Fengzhi’s later book “An examination of the valley entrances of the southern mountains of Shaanxi”⁵ [R.5].

[Feng Suiping lists 54 Valley Entrances from the Wei River Valley that he found on the “Four Provinces Map”. The number “72” was clearly not an accurate estimate but was probably a commonly used expression. Feng Suiping listed the places he found as text but instead we will present the list of 54 places as a Table. This Table has a matching Google Earth file that can be found on the Qinshu Roads website. The annotation “NF” means “not found” in current maps. However, it is possible that a much larger number could be identified by on the spot inspection. “GE” means “Google Earth”.]

(1) 华州 (7)

童峪	Tóng Yù	(Near Tongguan but does not use the character 潼)
扇车峪	Shànchē Yù	NF
黄神峪	Huángshén Yù	NF
仙峪口	Xián Yù Kǒu	Access to mountains in modern map.
瓮峪	Wèng Yù	Character identified as 瓮 but hard to read on map. Road south through here from Hua Zhou in “Four Provinces Map”. Modern road S202 seems to go south from “Liu Yu” (柳峪) which is not mentioned here, is just to the west.
葱峪	Cōng Yù	Access to mountains and present in GE
枸峪	Gòu Yù	Also access to mountains in GE

⁵ In Mao Fengzhi’s book, various authors are quoted for place names and routes. Routes that follow the valley entrances into the mountains and beyond are also listed [R.5]. Endnote 1 provides a translation of Mao Fengzhi’s preface on how he developed his book.

(2) 渭南縣 (4)

小敕谷	Xiao Chì Yù	NF
石拂峪	Shí fú Yù	NF. (堤 Instead of 拂??)
箭峪	Jiàn Yù	Jian Yu is close to a road from Weinan to here and on over Qinling. Today not a major road.
酒峪	Qiú Yù	NF. Difficult character to interpret (滑, Hua?? But no Hua Yu on modern map).

(3) 臨潼縣 and 藍田縣 (4)

陽峪	Yáng Yù	NF
黃峪	Huáng Yù	NF
翠花峪	Cuì huā Yù	NF (“Four Provinces Map” has road to and from here joining Lintong to Lantian.)
小峪	Xiǎo Yù	Just west of Dayu in modern maps – wrongly placed? Or wrong name for this place?

(4) 西安府 (4)

祥峪	Xiáng Yù	NF
大峪	Dà Yù	Former way to Kugu Road. Goes there in “Four Provinces Map”. Marked on GE presentation.
豹頭峪	Bàotóu Yù	NF
石邊峪	Shí biān Yù	Present day valley called 石砭峪 (Shibian Yu) Main road to present “Kugu” Road and Qianyou (乾佑) River
子午峪	Zǐ wǔ Yù	Next town into mountains is 渭子坪. Today goes nowhere. Formerly link to Ziwu Road. Goes through Stone Sheep Pass.

(5) 戶縣(鄜縣 on Yan Ruyi “Four Provinces Map”) (11)

泮峪	Fēng Yù	Present day main road G210 to former Ziwu road goes via this valley.
象峪	Xiàng Yù	(祥峪 assumed) Present day place uses 祥
高關峪	Gāoguān Yù	Present map 高冠峪 Gāoguān Yù. Has a road over the mountains here.
太平峪	Tàipíng	On present map to west of Gaoguan Yu. Road goes into mountains linking with Gaoguan and Lao roads along the Qinling spine.
澗峪	Lào Yù	Today’s Xihan Tollway starts via this valley from Xi’an. “Four Provinces Map” had road that joined Ziwu Road. Also in modern maps. Edge of major catchment draining into Xun River (Kugu Road) and reaching the Han at Xunyang.
石景峪	Shí jǐng Yù	NF
干峪	Gān Yù	Present day valley called the 甘峪 (Gan Yu)
小金峪	Xiǎo Jīn Yù	NF
金峪	Jīn Yù	NF. Have a 大耿峪 (Da Geng Yu) in what seems to

		be its reasonable place.
赤峪	Chì Yù	Chi Yu is present on today's map west of Dageng Yu. Road into mountains in "Four Provinces Map". Not in many modern maps.
田峪	Tián Yù	Tian Yu is present on today's map west of Chi Yu. Road south goes over Qinling in "Four Provinces Map" and today.

(6) 盩厔縣=周至县 (13)

塔儿峪	Tǎ'ér Yù	In GE but small. Possibly just the 塔峪 (Ta Yu)
岫峪	Xiù Yù	Strictly NF (But 嶽峪 may be the present name – need to investigate.)
马岔峪	Mǎchà Yù	In GE but small. "Four Provinces Map" had a path into mountains.
团彪峪	Tuánbiāo	NF (but possibly now 团标峪)
黄巢峪	Huángcháo	NF
黑水峪	Hēi Shuǐ Yù	Heishui present on modern map. Major river and road into mountains to east of river. But not to Houzhenzi.
虎峪口	Hǔyù Kǒu	Huyu Cun (village) is close by here on GE.
熨斗峪	Yùndǒu Yù	Yundou Cun (village) is close by on GE
辛口峪	Xīnkǒu Yù	Alternative valley into mountains on Tangluo Road. But hard to find in maps. There is a village called Xinkou here on GE gazetteer which is visible in the imagery.
西骆峪	Xīluò Yù	Xiluo Yu present west of Hei Shui. Main entrance to old Tangluo Road across the Qinling.
稻峪	Dào Yù	NF
车峪	Chēyù Kǒu	Cheyu village and valley marked on GE
强峪	Qiáng Yù	Seems to be present in GE but to EAST of Cheyu. So in question.

(7) 郿县 (9)

泥峪	Ní Yù	Ni Yu present today to west of Xiluo, alternative way to Laojun Ling and Taibai
汤峪	Tāng	Exists today to west of Ni Yu. Now a major access to Taibai mountain area. Tangyu Zhen is local township.
红河峪	Hónghé Yù	Exists on present maps to west of Tang Yu. On "Four Provinces Map" road going south here across Taibai to Xu River. Today part of round route to Taibai with the Tang Yu.
同峪	Jiōng Yù	NF (character 铜?)
斜峪	Xié Yù	Major entrance near Meixian to ancient Baoye Road. Major dam here now. But the Baoye road does not seem to be fully open in Yan Ruyi's 1822 maps.
藺峪	Lìn Yù	NF
麦峪	Mài Yù	There seems to be a present day Mai Yu is to the

		west of Meixian. But not clear.
代峪	Dài Yù	NF (character 伐??) Road here in “Four Provinces Map” that seems to go south.
马峪	Mǎ Yù	NF. Then should come road from 虢镇 (Guozhen) to present Taibai but no “Yù” to be found.

(8) 宝鸡县 (2)

散峪	San Yu	Main road south through Dasan Pass is not marked as a “Yù” on the map. Only listed as a “yukou” in annotation to “Four Provinces Map”.
晁峪	Cháo Yù	This is a long way west and has a road that goes to Sancha and Donghe Qiao. Road can be seen in a Russian map.

[A document describing the background to this Table, as well as the Google Earth presentation for the above, is available on the [Qinshu Roads web site](#).]

Before the “Four Provinces Map” was drafted, Yan Ruyi had completed his book “Collected information about local conditions in the mountain areas of three Provinces” [R.4]. Since he felt it was his duty to provide such information, he diligently worked to make himself an expert in Qing Period military matters, providing many strategies for the frontier defence of the three provinces. In a traditional territorial atlas, administrative areas are the most common points of reference. However, Yan Ruyi broke with this tradition, using geographical features to divide the map into regions, thus expanding the ideas in geographical science. Looked at it from the perspective of cartography, although this map lacks specific scale, the other essential factors are still in place, and the geographical information is extremely rich. Therefore, the “Four Provinces Map” is an extremely valuable Qing Period map of the Qinling.

3 The background to the map drafter Zheng Bingran

From the additional annotation on the map⁶: “Respectfully written by Yan Ruyi of Southern Chu and drafted by Zheng Bingran of Northern Shu”, it can be seen that this map was the result of collaboration between the two people Yan Ruyi and Zheng Bingran. Yan Ruyi and his accomplishments are well known, but what sort of person was Zheng Bingran? Some scholars believe that Yan Ruyi did not give Zheng Bingran sufficient credit and allege that appropriate credit cannot be found in the various historical records.[R.6] However, in the winter of the 18’t Jiaqing year (1813), Yan Ruyi recorded in the “South Han Gazetteer of ongoing repairs” [R.7] (called the “Hanzhong 1813 Gazetteer” in the following text):

“My friend and scholar from Guang’an, Mr Zheng Bingran having joined the army and given great service for 10 years, knew the terrain well and was able to accurately describe the road conditions. Each time I entered the ancient forests to bring justice and supervise repairs to irrigation works, Mr Zheng accompanied me. He worked

⁶ Next to Annotation 2, see Figure 3 on the left hand side.

very hard, drafting and calculating. He is good at mapping terrain to great distances, mapping 1000 Li to a foot of paper. A literary graduate Yang of Nanzheng, given name Yunfu, was a person known for his proper behaviour, who admired the wisdom of Li Situ and his son and followed their manners. So I asked them [Zheng and Yang] to draw maps of the mountains and valleys, regional boundaries, plank roads and irrigation systems, and go out gathering information, investigating, and reviewing.”
“The help of these two gentlemen, Zheng and Yang and their great efforts, should not be forgotten.”

In regard to this map collection, Yan Ruyi has particularly pointed out: “the old prefecture maps were only just general views on paper, and very sketchy. Mr Zheng Bingran of Western Shu, after several years in the army, always accompanied me on visits to the border towns. As the situations in the mountains and valleys, the conditions of roads and highways, became well known, I asked him to draw the ‘Districts’, ‘Plank Roads’, ‘Huayang’, and ‘Black River’ Maps as he knew them like his own hands.” [R.7] The above words are very clear, Zheng Bingran accompanied Yan Ruyi as he engaged in government authorised inspection visits, and was appointed to draft the “Districts”, “Plank Road” and other maps, so in this case there can be no claim of not giving due credit. If you look into it further, the 11th map in Yan Ruyi’s “Three Provinces Defence” is the “Black River Map”, also called “Map of border regions of Shaanxi and Gansu on the Black River”. On the map can be found:

“Each square is of side 30 Li. [The map] includes province boundaries and the number of trees drawn indicates the extent and density of the native forests. To the east and southeast is Mianxian District, to the west and southwest is Lueyang District, to the northeast are Liuba and Fengxian Districts, to the north is Liandang District and to the northwest is Huixian District. Drafted by Zheng Bingran of Guang’an District.”⁷ [R.8]

It seems to be exactly as Yan Ruyi said, that the “Black River” map was also drafted by Zheng Bingran, and he was not only good at drawing maps, but also placed great emphasis on personal field inspection. The “Hanzhong 1813 Gazetteer” [R.7] also includes poems by Zheng Bingran. One is called “Investigating the old forests in the company of two scholar-officials”, which says:

*“Several red banners rest on the green hill,
Men bearing equipment march through the wastes.
Through the Luo Valley leading the horses,
Along Plank Roads wearing a soldier’s jerkin.
The writer was enlisted so long in the army,
With the commander fighting thieves for 10 years.
In the Southern Mountains bandits were swept out of caves,
A peaceful life is born in the forests of Zibai.”*

A second is “In the style of Commander Le Yuan [Yan Ruyi], who entering the ancient forests at Niangniang Ba, wrote a poem on his happiness at seeing it rain”:

⁷ The annotation occurs almost identically on the “Black River” map in the “Hanzhong 1813 Gazetteer”. The 1813 and 1822 maps are very close with the 1822 map being a copy of the first with some updates and some changes to improve artistic appearance. But the attribution is only on the 1822 map.

*“For a month at the gallop without change of jacket,
Through places where refugees collect in mountain hides.
The Commander does not cease to build stores of grain,
And the people are grateful for his efforts.
The cold flowers of the valleys are opening to spring,
Fields and healthy crops grow in heavy rain.
A chilly bell sounds in the Jinchi Temple,
Echoing the 5 character lament of Chongling.” [R.9]*

The implication of this is that he was also a poet, but unfortunately, no record of him in the “Guang’an⁸ Gazetteer” of the Xianfeng and Guangxu periods has yet been found.

4 Lu Nanshi and the time during which the map was drafted

In regard to the time when this map was drafted, Mr Li Xiaocong [R.3] gave the opinion: “Ningshaan Ting, which is present on the map, was established in the 5th Jiaqing year (1800) but Foping Ting is not present, and the name of Ningshaan does not indicate that the prohibition on writing ‘Ning’ was yet in force. It is therefore likely that the map was compiled in the years between 1800 and 1820.”

It is known that in the second month of the 6th Jiaqing year (1801), Yan Ruyi was appointed the county magistrate for Xunyang, and in the 10th month of the 8th Jiaqing year (1803) he was appointed Marquis of Dingyuan Ting. In the 9th year he mourned the death of his mother. Over this period, he was a strong advocate of the policy of “strengthen defences and clear the land”. Everywhere he went he investigated the hardships faced by people, but the area he visited was not as large as that in the [“Four Provinces”] map, so it is unlikely that Yan Ruyi draw the map at that time. In the 9th month of the 13th Jiaqing year (1808), he was given the position of Zhufu [Prefect] of Hanzhong. His regional duties included understanding the ancient forests and promoting industry among the people, so that Yan Ruyi most likely engaged in preparations for mapping at this time. Further, according to Yan Ruyi’s “Hanzhong 1813 Gazetteer” we find: “I and Mr Zheng first compiled the ‘Map of Mountains and roads of three provinces’⁹, about which Vice-Minister (Shao Situ) Lu Nanshi provided comments on his return from Shu”. Lu Nanshi approved of this work and commented: “Great consideration and deliberation was taken to produce these maps, but if the method of squares had been used, what is near and what is far would have been easier to understand.”

Yan Ruyi and Zheng Bingran accepted this suggestion, and used the method of squares and its map calculations to undertake a revision for the “Hanzhong 1813 Gazetteer” in which Yan Ruyi recorded: “In this map scroll, each map uses the method of squares, for the 11 Districts [of Hanzhong Fu] on four sides and in 8 directions, so that the presentation in each map section is clearer than in other books.” From existing copies of this work it can be seen that these maps cover:

⁸ Guang’an (广安) was Zheng Bingran’s hometown in Sichuan.

⁹ There do not seem to be any copies of this earlier publication in existence.

1. “General map of the Districts of Hanzhong Fu”;
2. Maps of the territories of Liuba Ting, Dingyuan Ting, Nanzheng Xian, Baocheng Xian, Yangxian, Xixiang Xian, Fengxian, Ningqiang Zhou, Mianxian and Liuba Xian;
3. “Map of the north-south Plank Road”;
4. “Black River Map” and
5. “Huayang Map”. [R.10]

The use of the method of squares to draft [the maps] was a feature of Yan Ruyi’s “Hanzhong 1813 Gazetteer”. The method of squares, or the provision of a scale for maps using sides of squares, has been used since [at least] the production of the Song Period “Map of the Journeys of Yu” (sometimes translated as “Map of the Water Systems”), and provided the early development of a mapping grid for China. [R.11] (An Appendix to the English translation of this document has been added to explain in more detail for western readers what the method of squares entailed).

Fixing the time when “Vice-Minister Lu Nanshi returned from Sichuan” would provide a basis for determining the period during which the “Four Provinces Map” was drafted. Lu Nanshi, also known as Lu Yinpu (1760-1839), Given name (Zhi) Linsheng and Literary name (Hao) Nanshi, was a famous official of the Qing Period who came from Dezhou in Shandong. Lu Nanshi’s distinguished biography, taken from the Dexian Gazetteer of 1935 [R.12] is also provided as Endnote 2 in this English translation. Lu Nanshi wrote a poem called “At Nanxing Postal Station”:

*“After so much time on official travel, with great ideals in a small post station.
A familiar sound from my hometown, teaches new lessons about travel.
Among endless mountain cliff walls, the traveller is as lonely as the Morning Star.
At night you dream of home comforts, when you wake it is all the more real.”*

This shows that Lu Nanshi must certainly have at some time travelled by the (Northern) Plank Road to go to Sichuan, however there is presently no record of the actual time this occurred. The Daoguang “Yongding District Gazetteer” records that he wrote the Preface for the “Collected poems of Zitaxuan” in the second Daoguang year (1822). [R.13]

As we have seen, Yan Ruyi’s document states that Lu Nanshi was a Shao Situ, which was an ancient title often used in the Qing Period. A Minister of Finance would have been referred to as a Da Situ or Da Sinong and a Vice-Minister as a Shao Situ or Shao Sinong at that time. In the 9th month of the 18th Jiaqing year (1813) Lu Nanshi “changed to the Ministry of Finance as a Vice-Minister”[R.14]. This could well have been the beginning of the period in which Yan Ruyi’s use of the name “Shao Situ” was most suitable, but its relationship with the time Lu “returned from Sichuan” has not been established. Yan Ruyi accepted Lu Nanshi’s suggestion writing: *“In this map collection, each map uses the method of squares, for the 11 Districts [of Hanzhong Fu] on four sides and in 8 directions¹⁰, so that the presentation in each map section is clearer than in other [previous] books.”* The “Preface” of the “Hanzhong 1813 Gazetteer” indicates that the Gazetteer was published: “In the 18th Jiaqing or Guiyou

¹⁰ In 1813, the 11 districts under Hanzhong Fu comprised 2 Ting (留坝, 定远), 1 Zhou (宁羌) and 8 Xian (南郑、褒城、城固、洋县、西乡、凤县、沔县、略阳).

year (1813), in the first month of winter (Mengdong Yue)". As Mengdong Yue is the 10th Month, so the earliest the map could have been finished would have been following the 9th month in the 18th Jiaqing year (1813).

In the first Daoguang year (1821), Yan Ruyi was appointed Inspector of War Preparations in the Shaan'an Dao¹¹: "In spring of the Xinsi year (1821), he was ordered by Governor Gong Litang to join a committee to examine the situation in the frontier regions of the three provinces of Sichuan, Shaanxi, and Hubei. In the period from the beginning of spring to the middle of summer, there were investigations of previous experiences and surveys of current information. Because of his past experience he [Yan Ruyi] was able to contribute experience of all three [provinces]. He worked together with a group of people, including Li Shuxuan and Lu Gushan from Sichuan, Ni Langxuan and Fan Yangu from Hubei and Fang Liuqin and Chen Mengchan from Shaanxi. Being officials from garrisons or officials from the borders, they all thoroughly understood the current situation and were experienced in border management. When they needed information, each person's experience could be shared and included in the investigation". [As a result of this work] he published a book called the "Three provinces defence". This book was completed in the second Daoguang year (1822), with the maps of the first Volume being drawn according to the method of squares, but Zheng Bingran was not asked to make on the spot surveys this time¹². It seems, therefore, that his maps had all been completed before the first Daoguang year (1821). In summary, it appears that the "Four Provinces North" and related material were completed between the 18th Jiaqing year (1813) and the first Daoguang year (1821).

5 An inquiry into the "Map of three provinces on the south bank of the Han River" and the "Records of roads in the mountain regions of three provinces"

Yan Ruyi added the following suggestion to the map annotations [Annotation 3]: "The distances in Li along the roads [between places] are published in another book. If you are checking the distance in some place, refer to the book, look at the map, and you can approximate it".¹³ In his notes, Mr Li Xiaocong wrote: "From the annotation, it seems that this collection of materials should be combined with a matching book of distances and a corresponding "Map of bordering regions of three provinces on the south bank of the Han River". But this second map was not found in the Library [of Congress] collection." [R.3] The complementary map was the "Map of three provinces on the south bank of the Han River". It was called "three provinces" as it was made up of the areas south of the Han River comprising Hanzhong Fu and Xing'an Fu in Shaanxi, Baoning Fu, Suiding Fu and Kuizhou Fu in Sichuan and Yunyang Fu and Yichang Fu in Hubei. For these places:

¹¹ Dao, sometimes called "Circuit" in English, was a higher level of organisation than Fu and the Dao officials have been referred to as "Inspectors" in English, the Shaan'an Dao included Hanzhong Fu and Xing'an Fu, which is present day Ankang City.

¹² Yan Ruyi's map drafter for this work was Zhang Pengfen (张鹏汾) from Ankang.

¹³ A final sentence, not included by Feng Suiping adds: "In regard to the river valleys and gully branches, if you can identify associated terrain features, there will not be a large error."

“In general, these places have complicated border areas, with extensive forests and deep valleys, often crossing more than two or three provincial boundaries which are difficult to locate. Therefore when problems arise in one place, all bordering areas become alarmed.” [R.15]

This map would have been drafted in the same way as the previous one, so can be regarded as a Middle Qing Period map of the Daba mountain region [mountains south of the Qinling and Hanzhong Basin]. The previously referenced book of “Journey Distances” would most likely have been called “An examination of the roads of the mountain areas in three provinces”. In 2009, in the China Bookstore’s 51st Auction of popular collectable books and materials held by the Haiwangcun Company in Beijing, a copy of this book was offered, half framed, size 23x13.3 cm, in only one book and not divided into chapters, on which had been written “South Chu Yan Ruyi, North Shu Zheng Bingran, Editors”. The Title Page includes Hanzhong Fu, Nanzheng County, Shaanxi and the note “In the 13th Jiaqing year (1808) the Commander of Ningshaan was relocated to Hanzhong, where he took up the post of Bingbei Dao.” The publicly available image of the first page of the book shows the following material:

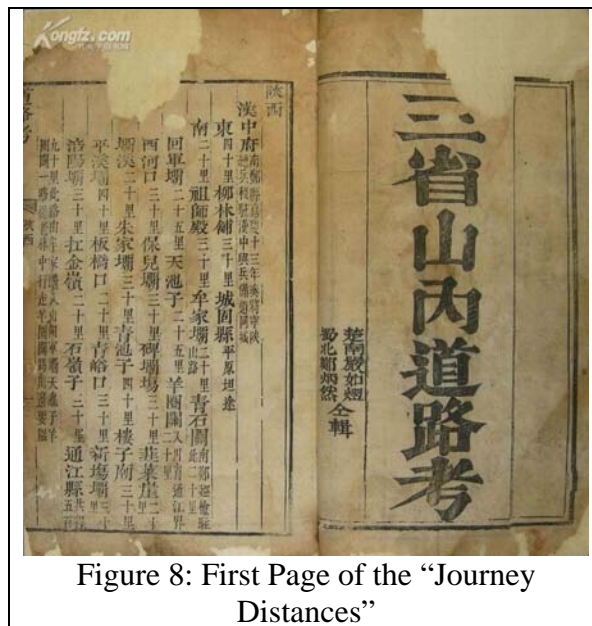


Figure 8: First Page of the “Journey Distances”

After Yan Ruyi arrived [in Hanzhong] he obviously began describing the positions and bearings of the communication lines and distances in every direction. For example, in the accessible image of the first page of the above book (Figure 8) he recorded:

To the east (from Hanzhong), at 40 Li is Liulin Pu. Continue 30 Li to Chengu Xian. Road is through flat country on a level road. [So Chenggu is 70 Li from Hanzhong along a level road].

To the south (from Hanzhong), continue 20 Li to Zushi Dian. Continue 30 Li to Moujia Ba. Continue 20 Li along a mountain road to Qingshi Pass, where a Nanzheng Xunjian is stationed. After 20 Li arrive at Huiche Ba. Continue 25 Li to Tianchizi. Continue 25 Li to Yangjuan Pass. Entering Sichuan province you cross the

Tongjiang District boundary. After 20 Li you reach West Hekou. Continue 30 Li to Bao'er Ba. Continue 30 Li to Beiba Chang. Continue 30 Li to Jiucui Ya. Continue 20 Li to Ba Xi. Continue 20 Li to Zhujia Ba. Continue 30 Li to Qing Chizi. Continue 40 Li to Louzi Temple. Continue 30 Li to Pingxi Ba. Continue 40 Li to Banqiao Kou. Continue 20 Li to Qing Yukou. Continue 30 Li to Xinchang Ba. Continue 30 Li to Fuyang Ba. Continue 30 Li to Kangjin Ling. Continue 20 Li to Shi Lingzi. Continue 30 Li to Tongjiang Xian, altogether the route is 590 Li. From Moujiba this route enters the mountains to pass through Huiche Ba and Tianchizi to Yangjuan Pass. The road is through dense forests and at Yangjuan Pass on the Sichuan side there is a strategic pass.

After this publication was printed, as we have seen, Yan Ruyi put together and published the “Three Provinces Defence” [R.16] in 1822. However, if the two publications are compared, there are some differences. For example, the former distinguishes four provinces, and separates these into Fu, Xian etc while the latter separates provinces by Xian and lists distances at this single level.

For Nanzheng Xian we find:

To the east, at 40 Li is Liulin Pu. Continue 30 Li to Chengu Xian. Through flat country on a level road. [So this route is unchanged].

To the south, continue 20 Li to Zushi Dian. Continue 30 Li to Moujia Ba. Continue 20 Li along a mountain road to Qingshi Pass, where a Nanzheng Xunjian is stationed. After 30 Li get to Huiche Ba. Continue 20 Li to Tianchizi. Continue 20 Li to Yangjuan Pass. Entering Sichuan province you cross the boundary with Tongjiang Xian, where the mountain road is very steep¹⁴. [R.16]

Although there are no notes for the Nanzheng routes, the route from Qingshi Pass to Huiche Ba was listed in the former as 20 Li and in the latter as 30 Li; Huiche Ba to Tianchizi and on to Yangjuan Pass was listed as 25 Li in the former and as 20 Li in the latter. This indicates that Yan Ruyi continued to revise the road information for the three provinces, so that (by 1822) they were ever more accurate and complete. It should also be noted that the time of the publication of the “Map of three provinces on the south bank of the Han River” and the “Records of roads in the mountain regions of three provinces” would have been the same as for the “Four Provinces Map” and so the period in which they were completed was between September of the 18th Jiaqing year (1813) and the beginning of the Daoguang period (1821).

6 Acknowledgements

Feng Suiping kindly provided an electronic version of his paper to help with the translation; an electronic version of the “Map of neighbouring regions of four provinces on the north bank of the Han River” was obtained from the [US Library of Congress](#); information and scanned material in regard to the “Hanzhong 1813

¹⁴ The rest of the previous route between Yangjuan Pass and Tongjiang Xian can also be found in [R.16] but under Tongjiang Xian in Sichuan. The direction is reversed in [R.16] starting from Tongjiang and ending at the Pass. This is an example of the change to classification of routes by Districts between documents.

Gazetteer” and Mao Fengzhi’s book were obtained from the National Library of Australia; an electronic copy of the “Three Provinces Defence” was accessed through the HathiTrust Digital Library web site; finally, comments, support and unconditional help were provided by Mr Li Lingtao for the draft translation and following revisions by Feng Suiping, but any errors or interpolations added in the editing are fully the responsibility of the translator, as are all translation errors.

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Appendix: Map scale, the method of squares and Yan Ruyi's Maps

1. Chinese Mapping and Survey in Antiquity

Chinese mapping and survey technology has a long history and was still advanced relative to Europe at the end of the Yuan Period in 1368. The earliest examples of drafted Chinese survey maps are some well preserved maps of hills, rivers, streams and forests painted on boards and dating from the Warring States Period before 299 BCE [A1]. These maps came from Tombs at Tianshui in Gansu. Early examples also include maps painted on silk from Mawangdui near Changsha in Hunan dating from the Han Period 206 BCE – 25 CE [A1]. However, only very few such practical working maps have survived over the intervening period and much of the ancient mapping history is known only through the formal literature and from stone Stele.

It is clear that a tradition of operational map survey existed in China since early times. During the Jin Dynasty (晋朝, 265-420 CE) the official Pei Xiu (裴秀) wrote a treatise on survey and mapping. It set out 6 principles (制图六法) for the method of squares. These principles will be discussed in more detail later. It is not clear how widely these principles were later applied but it is likely that they were practised to a greater or lesser extent by working surveyors, if not scholar officials. Due to the lack of surviving paper, silk or similarly printed maps, evidence for the continuing use of Pei Xiu's principles and development of mapping rests mainly in stone Stele. A rubbing of a Stele map called "The nine-region administrative map" (九域守令图) was found at Rongxian County in Sichuan during the 1960's. It is an excellent map of China showing the nine ancient provinces of ancient times. It has early examples of standardised symbols for different levels of town and city and may have had a legend. It is believed the original may have been cut in the Song dynasty in 1121 CE [A1]. However, the most famous of the Stele maps of this period is one called "Map of the Water Systems" (禹迹图) which is said to have been originally carved in Chang'an in 1100 CE [A1].

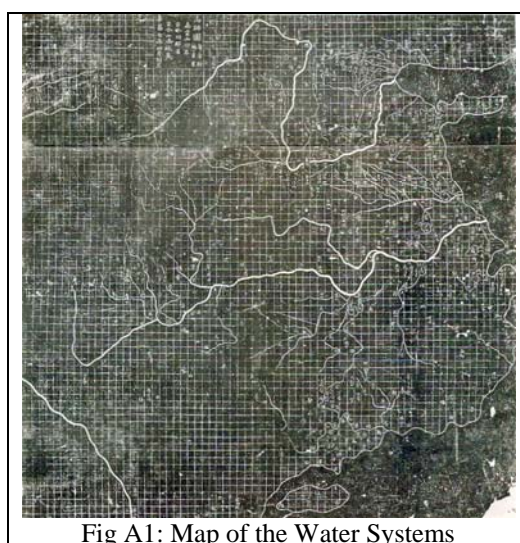


Fig A1: Map of the Water Systems

This map is clearly constructed using the grid based principles of Pei Xiu. It has the four principle directions (West, East, South, North) clearly marked, has symbols for

specific identifiable features and also has a legend. The “Map of the Water Systems” has its scale listed as “each square 100 Li” (每方折地一百里) so that each square is 100 Li on the side or 10,000 square Li in area. Based on the dimensions of the Stele, in modern terms, it is said to be approximately 1:5m scale.

At the time that Yan Ruyi was mapping, the method of squares was well established so it is not surprising that it was suggested to him as a means to improve the metric accuracy and clarity of the maps and no surprise that many maps in the “Hanzhong 1813 Gazetteer” and the “Three Provinces Defence” used the method of squares. Despite this, maps based on the method of squares are by no means the only ones in common use in former times. Among mapping styles used by Chinese were maps (especially of coastlines and mountain roads) that used the “strip map” format. In this format, the coastline or road is drawn approximately horizontally near the centre of the map with some variations up and down to indicate local features such as steep hills or river crossings in the road maps or bays and headlands in the coastline maps. When they are done well, the maps are topologically correct (towns occur in the correct order) but with foreground and background usually having only stylised representations of surrounding terrain or water. In theory, a grid can be profitably used to adjust for perspective of foreground and background and ensure horizontal accuracy but it rarely seems to have been used in this way. Instead, route descriptions and distances in Li like those developed by Yan Ruyi and discussed by Feng Suiping were generally used to establish distances and travel times.

Another common format for terrain and rivers was used for maps that were designed to accurately record and accurately present the topology of streams and rivers as well as the complementary topology of the mountains, ridges and the water catchments. The topology implies that catchments are hierarchical, streams do not cross and mountains are parts of a watershed etc. Maps of this form were especially relevant to mountain areas where finding ones way from place to place depended more on being able to traverse the valleys and passes in their correct connected topological order than on knowing “airline” distances and compass bearings. It is possible the “Four Provinces Map” was of this kind – in which distance scale was not the primary concern. It may have been more important to have places such as passes and townships closely identified with specific terrain, watershed and streamline features than for them to be first arranged according to a grid of squares in terms of (poorly known) inter-point distances, and then having the streams and hills fitted into the remaining areas.

The published inter-place distances in Feng Suiping’s two publications are recorded in Chinese Li. This measure of distance has changed a lot with time and place over China’s history. The Kangxi Emperor tried to standardise it as 200 Li to one degree of Longitude [A2], but without specifying standard latitude. If it had been the latitude of Beijing the Li would by this definition have been about 420 metres. This is near to the medial position of a definition of distance that, throughout its history, has had short and long forms, regional variations and involved an imprecise quantity that often reflected more the difficulty and time taken to travel between places than it represented a strict metric distance [A3]. The variable nature of the Li has been discussed in more detail as part of the evaluation of the travel account by Sir Eric Teichman, who crossed the Qinling by the ancient Tangluo Road in 1917 [A4]. More important for mapping was the fact that route distances in Li would, in areas of high

terrain relief, been very different from “airline” distances between places. The issue of reducing such route distances to “airline” distance also concerned Pei Xiu.

2. The method of squares

The method of squares is well represented in the image of the “Map of the Water Systems” above. A general and informal description of the method may be as follows:

The proposed extent of the map is estimated and covered by a grid of lines forming squares and oriented to the four principal directions. The scale bar or “ruler” is defined by the number of Li’s on the sides of a square and recorded on the map with a statement such as (eg) “each square has side of length 20 Li”. This is the basic scale bar for measuring airline distance. The grid extends the ruler and provides a convenient set of coordinated “bins” in which to put places and features. Most likely some key places or features were first arranged at strategic locations in the map and other places were then put into the squares according to examples of corrected road distances (originally Li but then converted to numbers of grid squares) between that place and other selected places. When the places and features are all relatively correctly spaced, the map could be finally drafted and unknown or less important features such as details of rivers and terrain were probably added at this time to fill the spaces. This method has the advantage of being a systematic way to maintain consistent distance relationships over a region but it is place oriented rather than terrain and river oriented. The various towns and passes etc are usually then mapped using a standard set of symbols that can be clearly explained in a legend on the map. This is the type of map that satisfies what Feng Suiping called “the three basic elements of a map”. The main difficulty to be had with maps covering large regions is that there is no account of the curvature of the earth. To be a “modern” map, a suitable projection is also needed. But for local maps this is not a great issue. What is more of a problem is the frequent lack of accurate inter-place information and the fact that it was rarely representative of airline distance. Yan Ruyi addressed this issue with his tables of distances.

Pei Xiu’s description of the 6 basic principles of the method of squares was much more formal than the informal discussion above. To discuss Pei Xiu we have made some use of the translation provided by the writer of Chapter 22 (“Geography and Cartography”) of Volume III of Sir Joseph Needham’s series of “Science & Civilization in China” [A5]. The original material translated is referenced to the “Jin Shu” (晋书). It is quite extensive and should be read by interested people in the subject of the Chapter. The Chapter 22 is also generally valuable for anyone interested in these aspects of Chinese Maps. Pei Xiu wrote:

“Map making has six basic principles:
制图之体有六焉。

- (1) The graduated scale (Fenlü, 分率), by which the of the map is measured;
一曰分率, 所以辨广轮之度也
- (2) The standard grid (Zhunwang, 准望, of equally spaced parallel lines in two dimensions), which ensures correct relationships between the various parts of

the map;

二曰准望，所以正彼此之体也

(3) Measuring distances from others (Daoli, 道里); which ensures an accurate value (triangulation);

三曰道里，所以定所由之数也

(4) Accounting for terrain relief (Gaoxia, 四曰高下);

(5) Accounting for slope and aspect (Fangxie, 五曰方邪);

(6) Accounting for winding and straight (Yuzhi, 六曰迂直);

The last 3 of the principles account for terrain variations so that distortions are removed.

此三者各因地而制宜，所以校夷险之异也。”

Of these, the Daoli is especially important and Pei Xiu says that without a combination of this and the final 3 corrections, accurate distances cannot be determined. But it is not clear whether or not Yan Ruyi and others applied the method of Pei Xiu to its complete extent. They certainly provided the scale and the grids of squares but whether they also corrected the distances and triangulated to estimate others is not known. The use of scale and grids certainly makes the maps much easier to use as well as to copy and re-scale the maps. However, they are generally not found to be accurate for determining distances along new routes from the maps and, even if they were accurate, the distances would be airline distance, something which is not a great help to a traveller in mountainous terrain.



The final Figure shows the map of the Black River area extracted from the “Three Provinces Defence” of 1822. This map had been originally compiled before the “Hanzhong Gazetteer” was published in 1813 but most likely had revisions later. Its given scale is “Each square has side of 30 Li” (每方三十里). According to the grid, the distance from Mianxian on the Han River to Zibai Mountain near Liuba would be 9 squares or 270 Li. Using one Li to be 400 metres (this is discussed in the Teichman document referenced earlier [A4]) this comes to 108 km. The airline distance on a modern map is about 60 km so perhaps there is some work yet to be done or perhaps

the corrections suggested by Pei Xiu were not fully applied. A discussion comparing this map with the equivalent earlier one in the “Hanzhong 1813 Gazetteer” and the equivalent area of the “Four Provinces Map” as well as with modern maps is (will be) available on the Qinshu Roads web site. The issues of projection are also to be discussed in that document.

3. Additional References

[A1] Yan, Ping et al. (1998). *Treasures of Maps – A Collection of Maps in Ancient China*. Chinese Academy of Surveying and Mapping, Harbin Cartographic Publishing House.

[A2] Si ku quan shu, 653: 632-633, 654: 83-84, 480
《四库全书》, 653: 632-633, 654: 83-84, 480

[A3] Qiu Guangming (2002) A history of metrology, Hunan Education Press.
丘光明, 《计量史》, 长沙市: 湖南教育出版社, 2002

[A4] Teichman, Eric (1921). *Travels of a Consular Officer in North-west China*, Cambridge University Press, 1921.

[A5] Needham, J. & Wang, L. (1971). *Science and Civilisation in China*. Volume 3. Mathematics and the sciences of the heavens and the earth, Chapter 22, “Geography and Cartography”. Cambridge University Press.

8 ENDNOTES

8.1 Endnote 1 – Translation of note from Mao Fengzhi’s book [R.5]

“When you read the “Three provinces defence” by Yan Leyuan [Yan Ruyi’s “hao” (号) was Leyuan] and the “Shaanxi local gazetteer” by Shen Qingya, the information they contain about the valleys of the Southern Mountains (Qinling) is very detailed. But because it is scattered throughout various pages it is difficult to assimilate all the information, which makes it difficult to read. So I extracted the contents from these two books, identified the mountains and rivers, defined their relationships, located their positions, established the scales, detailing the critical strategic points, local names and origins of the rivers, so that they were all in the same place. After many revisions the book was in good order.”

“已乃觀严氏乐园《三省边防备书》及沈青崖《陕西通志》，其言南山诸谷特详。又复杂见诸篇，散而弗萃，读者苦之。余乃刺取二书之文，本其山川，联其脉络，准其地望，详其远近，揭其要害，以及土俗之称名，水道之源流，罔不具书。盖三易藁而后成也。”

8.2 Endnote 2 – Translation of biography of Lu Nanshi from the Dexian Gazetteer of 1935

“Lu Yinpu, Zi Linsheng, Hao Nanshi, was the descendant of a distinguished family. Achieved Jinshi grade in the Qianlong Xinchou year (1781), appointed compiler in the Hanlin Academy, participated in the compilation of three strategic works on road and river traffic, and served as an official in the Hanlin Academy, with much official editing being entered by him. From junior official in the Honglu Si he progressed to serving as Senior Vice-Minister in the Ministry of War. At the time many bandits were creating trouble in eastern Henan and the Qinling, Yinpu helped to develop a suitable response. The matter resolved, he was promoted to Minister of Ceremonies, then served successively as Head of the Ministries of Civil Appointments, War, Justice, Administration etc. He was promoted to Vice Minister of State, and finally to Minister of State. As a controller in the Ministry of Justice, he investigated many cases, until he retired due to ill health. He again attended Lumingyan and later died at his home in Beijing. He was awarded a memorial ceremony by the Emperor, was named a Teacher to the Prince, given the posthumous name Wensu, a place in the Temple of Virtuous Officials and an official biography in the national history. His son Ben with Zi Zizhong and Hao Quanzhi, was awarded the title of Juren in the Guiyou year of the Jiaqing Emperor (1813), and became an official in the Guangdong Section of the Ministry of Revenue. He was well versed in the classics, held in high regard and greatly respected.”

卢荫溥，字霖生，号南石，雅雨先生之孙也。乾隆辛丑进士，翰林院编修，与修三通及河源纪略，充翰林院办事官，拟进文字多出于手，由鸿胪寺少卿擢至兵部左侍郎。是时，豫东及南山匪徒相继蠢动，荫溥赞画得宜。事平，擢礼部尚书，历任吏、记、兵、刑、工等部尚书，晋协办大学士，授体仁阁大学士。总理刑部有年，平反多案，以疾致仕。重赴鹿鸣宴，卒京邸。谕祭再三，赠太子太师，谥文肃，入祀贤良祠，国史有传。子本，字子中，号泉之，嘉庆癸酉，恩赐举人，户部广东司员外郎，淹通经史，谨守遗规，器重璠璣矣。

中文:

美国国会图书馆藏《汉江以北四省边舆图》书后

冯岁平

(汉中市博物馆, 723000)

内容提要：美国国会图书馆藏《汉江以北四省边舆图》是一幅极为重要的清代秦岭地区图。本文从地图学角度介绍了该图的图例与图示，指出其价值所在。根据诸多文献的记载，钩沉了绘制者之一的郑炳然之事迹，提出了此图的绘制时间。对与之相对应的《汉江以南三省边舆图》和《三省山内道路考》作了进一步的探讨。

关键词：汉江 四省 边舆图 绘制

壬辰初秋，自安徽返归汉中途经西京时，吾友刘炜先生提供了我久觅不得的美国国会图书馆(The US Library of Congress)度藏的严如煜、郑炳然《汉江以北四省边舆图》。此图见诸汤金钊撰写的《严如煜神道碑》，所称《汉江南北二地图》¹⁵；《清史稿》亦名《汉江南北图》¹⁶。国内学者、北京大学李孝聪先生首次介绍、著录，并作了相应的研究¹⁷。慨念此图之稀见且重要，前此论述之不足，所以撰写此文以续之。

一 《汉江以上四省边舆图》续说

《汉江以上四省边舆图》，木刻，印本，未注比例，107×182厘米，图背贴红签，墨书图题，美国国会图书馆藏，编号G7820.C5。汉江以北四省，概指陕西、甘肃、河南和湖北。所谓边舆，分别涉及甘肃东南部、陕西中南部、河南西南部和湖北西北部。绘制区域是从关中盆地至汉水之间，即秦岭地区，重

¹⁵ 汤金钊：《布政使衔陕西按察使乐园严公神道碑》，严如煜：《乐园文钞》卷首；又见黄守红标点、朱树人校订：《严如煜集》，第11页，岳麓书社，2013年5月。

¹⁶ 《清史稿》列传卷一四八《严如煜传》。

¹⁷ 李孝聪编著：《美国国会图书馆藏中文古地图》卷二《区域地图：省、府、州、厅、县》，第50页，文物出版社，2004年1月。

点应在陕西汉中府、兴安府和商州。今天看来，此图是一幅名负其实的清代秦岭山区图。

秦岭山脉地域宽阔，东西绵延，南北阻隔，地理信息极为丰富。此图绘制时，除对地图的三大要素之一——比例尺（当时常用开方法）未作任何说明外，本图分别标出东、南、西、北四个方位，还说明了采用的图例：

图为汉江以北陕、甘、楚、豫四省边境，红线分疆界。所绘树木多寡，即为老林宽窄；大方圈为府，横方圆为厅，长方圈为州，圆圈为县，长圆圈为分驻佐贰、分防营汛。

图中的红线标明是省与省的分界线，但这个红线是印制之后添补的。未具说明的有，用点联缀成线，表示道路路线；用文字标注道路沿线的村镇、关隘、驿铺；用三角山形符号表示地貌，部分还加注树木符号，这应是上述所说的“老林宽窄”。

此图反映的地理内容极为丰富。绘制者用图注的形式，对所标的地理现象作了详细说明。这样的图注共有 5 处，分别涉及秦岭、汉江、黑河、秦岭峪口等。

1. 陕西境内秦岭：

终南山在渭河之南，汉江之北，绵亘数郡，阮亭所谓“云雾一千里者”也。太白峙其西，太华耸其东，皆与南山枝连萼附。土色途泥，五种皆宜，产金、铁、名材。跨宁陕、孝义、户县、周至、郿县、凤县、留坝、洋县、石泉、汉阴、安康、洵阳、镇安者，尚多未辟老林。山大如紫柏山、鳌山、腰竹岭、军山皆其分支。

这里涉及到秦岭走向与分布区域、经济开发及其物产等。

2. 梁州地理现象：

梁州之境，《书》称“华阳黑水”。华阳为今南山，黑河源出紫柏山，绕河两岸，栈坝老林。属陕西者为凤县、留坝、褒城、沔县、略阳，在甘肃者为两当、徽县。层山复嶂，地极阻深，俗称八百里，黑河老林之

旁肥美，与南山无异。近日，川楚无业之民入栈种山者，襁负而至，棚民甚繁。

此外明言梁州之境，实则重点涉及黑河地区。由于优越的地理位置和条件，所以一度成为三省边防之中的马蜂窝，防治的重点。

3. 毗邻的甘肃地区：

随着棚民的增多，与凤县、略阳毗邻的甘肃地区也成为不稳定的地区。因此图中对之作了注明：

凤县之北、秦州之东为吴寨、利桥，大山盘折数百里，多未辟老林。

川楚流寓入南山垦种者，数年之后，山地稍薄，往往移至吴寨、利桥各处，棚民渐次繁多。

4. 汉江及其流域：

汉江自宁羌蟠冢山发源，历沔县、南郑、城固、洋县、西乡、石泉、紫阳、安康、洵阳、白河、郧西、郧县，至均州而出平原，盘折于雍梁山内三千里。在汉中郡城以上，涓涓细流，褰裳可渡；自汉中而下，会合渭水河、木马河、洞河、月河、大道河、南河、洵河各流，至白河而始大。夏秋水涨，汹涌可畏；冬春小涸，浅漱鳞鳞，仅通小舟。防汉之议在白河以西无益也。

本图是以汉江为分界线绘制的，图中对汉江的源头、流经县域、支流及水文、交通等作了简要说明。从“防汉之议在白河以西无益也”，足以看出此图还具有军事地理的价值。至于与此图相关的《汉江以南三省边舆图》是否尚有汉江的说明，今天还不得而知。

5. 秦岭北麓峪口：

秦岭北麓诸峪口，还是重要的交通道路，军事意义重大。严如煜《三省山内风土杂识》记载：“由华州经蓝田至宝鸡，共七十二峪口。山贼窥伺内地，必由峪口而出。故当办理贼匪之时，防其窜突于各峪口，亦遍设卡伦，以重省城门户。”为此，图中将峪口与道路联系在一起，并作了详细说明：

东自二华，西至宝鸡，其南入山之口，共计七十二峪。峪外为三辅之地，所谓“沃野千里”者。进峪，重重险隘。其由大峪口经孝义、镇安、洵阳抵兴安者，为东道，计程八百余里。由宝鸡口经凤县、留坝、褒城抵汉中者为西道，计程六百四十里，路即栈道，崎岖与东道同，而辟途稍大。又有长安之子午峪至西乡之子午谷，魏延欲以此道出长安，计程亦六百四十里。而经由五郎从老林上下，豆马絙人，其险加倍矣。

图中还明确标出相关峪名有：童、扇车、黄神、仙峪口、瓮峪、葱峪、构峪、构山峪、小敕谷、石拂峪、箭峪、酒峪、阳峪、黄峪、翠花、小峪、祥峪、大峪、豹头、石边、子午、泮峪、象峪、高关峪、太平、涝峪、石景、干、小金、金、赤、田、塔儿、岫、马岔、团彪、黄巢、黑水、虎峪口、熨斗、平口、西骆、稻、车峪口、强、泥、汤、红河峪、回峪、斜峪、藁峪、麦、代、马、晁峪。由于峪口的特殊军事与战略价值，严如煜对秦岭诸峪口的重视，很大程度上促成了毛凤枝《陕西南山谷口考》的成书¹⁸。

在绘制此图之前，严如煜已完成了《三省山内风土杂识》一书，或许是职责所系，他努力将自己塑造为清代的防务大家，对三省边防提供了不少策略。¹⁹传统的舆地图书，多以政区为经。严如煜却打破了这个传统，以自然地理区划为之，从而扩大了舆地学的视野。从地图学角度看，此图除比例尺外，其余要素均有反映，地理信息也极为丰富。所以《汉江以北四省边舆图》可称为弥足珍贵的清代秦岭图。

二 绘制者郑炳然简述

图中标注“楚南严如煜谨识 蜀北郑炳然谨绘”，可见这张地图是严如煜、郑炳然二人合作完成的。严如煜其人其事，众人熟知，但郑炳然何许人

¹⁸ 毛凤枝叙：“已乃覩严氏乐园《三省边防备书》及沈青崖《陕西通志》，其言南山诸谷特详。又复杂见诸篇，散而弗萃，读者苦之。余乃刺取二书之文，本其山川，联其脉络，准其地望，详其远近，揭其要害，以及土俗之称名，水道之源流，罔不具书。盖三易藁而后成也。”见毛凤枝撰、李之勤校注：《南山谷口考校注》第154页，长安史迹丛刊之一，三秦出版社，2006年1月。

¹⁹ 冯岁平：《给三省山内地区开的一剂“良药”——读〈三省山内风土杂识〉》，收入《发现汉中》，华夏出版社，2007年。

也？有学者以为该志及相关史书阙载，严氏所作不妥，并以此为郑氏打抱不平²⁰。

嘉庆十八年(1813)冬，严如煜序《汉南续修郡志》：“余友广安郑君炳然秀才从军，驰驱边徼十数年，山川向背，道路险夷，不啻尽沙聚米。余入老林抚绥暨督修堰渠，郑君心策马，又数绘事，工远势，能具千里于尺幅。南郑孝廉杨生筠富文学，志洁行芳，其风徽盖慕乡先贤李司徒父子者，乃以绘山川、疆域、栈道、水利各图，采访、考订、校阅之事，属之二君。”“郑、杨二君子之相助，其用心良苦，未可湮没也。”对于该志的地图，严如煜还特别指出：“旧郡志只总图一纸，过于简略。西蜀郑君炳然从军数年，煜行部至各边城，罔不偕焉。山川向背，道路险夷，知之最悉，因相属绘《分图》、《栈道》、《华阳》、《黑河》各图，而系之以说指掌云。”²¹

上述所言极为清楚，郑炳然随同严如煜赴府境考察，受委派绘制了《分图》、《栈道》诸图，这并不存在所谓版权上的纠纷和异议。如果再深入看，严如煜《三省边防备览》首附诸图，其中第十一图《黑河图》，即《陕甘毗连黑河舆图》，图注：“每方三十里，以线分疆界。所绘树木之多寡，即为老林之宽窄。正东、东南为沔县地，正西、西南为略阳地，东北为留坝、凤县地，正北两当地，西北徽县地。广安郑炳然绘。”²²看来正如严氏所说，《黑河》诸图为郑炳然绘制，且他不仅擅长地图的绘制，而且极为注重实地考察。

《汉南续修郡志》还辑录有郑氏的诗作：

其一《偕伍二尹老林搜捕》云：“几片朱幡倚碧岑，荷戈人踏乱云深。残氛骆谷愁征辔，斜照蚕丛上短襟。书记从军千载事，元戎杀贼十年心。山南净扫豺狼穴，樵笛声生紫柏林。”

其二《乐园太守入老林抚绥至黑河娘娘坝喜雨有作依韵和之》：“匝月驰驱未解襟，灾黎尤念此山岑。君恩不惜千仓粟，民命都归一寸心。寒谷花开春有脚，芳田麦秀汝为霖。泠泠钟磬金池院，遥和春陵五字吟。”²³说明此人还工诗，可惜他家乡的咸丰、光绪《广安州志》并未对他记述。

²⁰ 郭鹏：《前言》，《嘉庆汉中府志校勘》，第6页，三秦出版社，2012年9月。

²¹ 严如煜纂修：《汉南续修郡志》卷一。

²² 严如煜：《三省边防备览》卷一《舆图》，黄守红标点、朱树人校订：《严如煜集》，第870页，岳麓书社，2013年5月。

²³ 严如煜纂修：《汉南续修郡志》卷二十九《七言律诗》。

三 卢南石与绘图时间补正

关于此图绘制时间，李孝聪先生认为：“嘉庆五年（1800）设置和宁陕厅已标，佛坪厅未见，”宁”字不因避讳而改写。故，该图应编绘于嘉庆年间（1800~1820）。”²⁴按，严如煜嘉庆六年（1801）二月任洵阳县令，嘉庆八年（1803）十月任定远厅侯，九年丁母忧。在这期间，尽管他力主”坚壁清野”，亦曾遍问民间疾苦，但所涉及地域尚不及地图反映的那么大，因此严如煜不大可能绘制此图。嘉庆十三年（1808）九月，他被委为汉中知府，职责所系，要洞悉老林，待兴百业，所以严如煜才有可能开始准备绘制地图。

另据严如煜《续修汉南郡志》叙：“余于郑君先尝作《三省边境山川道路图》，适少司徒卢南石先生使蜀归，因就正。”这位卢氏审定后，则说”此图甚费苦心，若将里数用开方法，则远近更了如指掌。”严氏与郑氏采纳了这个建议，于是采用开方计里的绘图办法修订，”卷中各图，胥准以开方，十一城四至八到，视他书较清晰焉。”今天所见，该志卷之一诸图有：

1. 《汉中府属疆域总图》；
2. 留坝厅、定远厅、南郑县、褒城县、城固县、洋县、西乡县、凤县、宁羌州、沔县、略阳县疆域图；
3. 《南北栈道图》；
4. 《黑河图》、《华阳图》；²⁵

均用开方计里的办法绘制，此亦为严氏修志的一大特色。开方计里，即计里画方，肇自宋《禹迹图》，开创了我国方格网法制图的先河。²⁶那么确定”适少司徒卢南石先生使蜀归”的时间，当为明确此图的绘制时间的重要依据。

卢南石名为卢荫溥（1760~1839），字霖生，南石是其号，山东德州人，是清朝一代名宦：

卢荫溥，字霖生，号南石，雅雨先生之孙也。乾隆辛丑进士，翰林院

编修，与修三通及河源纪略，充翰林院办事官，拟进文字多出于手，由鸿

²⁴ 李孝聪编著：《美国国会图书馆藏中文古地图》卷二《区域地图：省、府、州、厅、县》，第50页，文物出版社，2004年1月。

²⁵ 清严如煜原本、清杨名颺续纂：《民国汉南续修郡志》，《中国地方志集成·陕西府县志辑》第50册，凤凰出版社，2007年。又见郭鹏：《嘉庆汉中府志校勘》，三秦出版社，2012年9月。

²⁶ 卢良志：《中国地图学史》序，第1页，测绘出版社，1984年2月。

庐寺少卿擢至兵部左侍郎。是时，豫东及南山匪徒相继蠢动，荫溥赞画得宜。事平，擢礼部尚书，历任吏、记、兵、刑、工等部尚书，晋协办大学士，授体仁阁大学士。总理刑部有年，平反多案，以疾致仕。重赴鹿鸣宴，卒京邸。谕祭再三，赠太子太师，谥文肃，入祀贤良祠，国史有传。子本，字子中，号泉之，嘉庆癸酉，恩赐举人，户部广东司员外郎，淹通经史，谨守遗规，器重璠璣矣。²⁷

他还有《南星驿寄内》一诗：

皇华频岁月，壮志几邮亭。忽听乡音熟，新教旅况经。

万山如堵壁，一客似晨星。今夜深闺梦，知从何处醒。²⁸

说明卢南石的确履经栈道而有入蜀之行，只是现在尚不知确定时间而已。此外，道光《永定县志》还记载有他道光二年为《自他轩诗稿》所写的序。²⁹

再回过头看，严如煜文中所称卢南石为少司徒，其因在于清代官员好用古称，户部尚书为大司徒、大司农、计相，侍郎为少司徒、少司农。嘉庆十八年九月，卢南石“调户部左侍郎”³⁰，这就是严所称“少司徒”的起始时间，尚未考虑卢“使蜀归”的时间。严如煜采纳卢南石的建议，“今卷中各图胥准以开方，十一城四至八到，视他书较清晰焉。”说明诸图均按开方计里的办法作了修订。按严《叙》的落款“时嘉庆十八年岁次癸酉孟冬月”，孟冬月指十月，所以此图完成最早在嘉庆十八年九月之后。

²⁷ 民国二十四年李树德修、董瑶林纂：《德县志》卷十《人物志·耆英》。

²⁸ 民国二十四年李树德修、董瑶林纂：《德县志》卷十六《艺文志·诗内篇》。

²⁹ 道光《永定县志》卷十九《艺文志下》，文曰“乾隆乙卯，余督学中州，适同年生巫君虚轩作宰是邦。虚轩固儒者，所莅有循声，命其二子从余游：长宜福鞠坡，次宜耀远斋也。时鞠坡已登贤书，远斋方应乡举。鞠坡之文，光明俊伟。余尤喜远斋之文沉鸷排奰，有古作者之意，所以勗之者甚厚。嗣余任满旋京师，远斋来应京兆试，必以所业请益，其为文益进。而屡试屡蹶，余每宽譬之。最后，又出其所为诗一卷质于余。祖袭风骚，凌跨侪俗。然其音凄清幽窅，郁郁不自释之怀，时流露于行间，以为此词人之常耳。间岁不复。至甲戌，鞠坡赴礼闱来谒，远斋已赴玉楼召矣。且述其易箠之言，谓：生平文字之契，得于余者最深，遗诗一编，欲得一言，以征凤志。余闻之，悄然以悲，屡执笔，则振触不能下顾，竟无一言，何以慰远斋于地下也！嗟乎，天之予人以福泽，与予人以智慧，非有轻重于其间焉？科名者，福泽之一端，若夫慧业文人，则英声茂实，不必假科名而后显。而世俗不知，或以为丰于才者啬于遇，亦小之乎视造物矣。如远斋之诗，其精气固足长流于宇宙，不必以一第为远斋歉。今巫氏科名鼎盛，十余年来，一门之内，叔侄兄弟成进士者三人，登乡荐者一人，鞠坡已腾蹕词垣。远斋之不为郊祁轼辙者，命实为之；而其可以为郊祁轼辙者，自在也。远斋有知，闻余言，其亦可以稍慰也夫。道光二年壬午重九日，通家生南台卢荫溥题于京寓。”

³⁰ 《清史列传》卷三十六《大臣传续编一》，第2817页。

道光元年，严如煜擢升为陕安兵备道，”辛巳春，奉宫砺堂制府檄同川、陕、湖北三省委员查勘边境，自春孟至夏仲，蒞事于往时所未经历者，得流览焉。于曾经历者，得再三至焉。而共事诸君子，蜀则述轩李君、古山陆君，楚则郎轩倪君，汧谷范君，秦则六琴方君、梦禅陈君，或旧勦戎幕，或久宦岩疆，皆能洞达时务，而练习乎边事，爰谘爰询，各出身所经历，互相参考，盖皆有得焉。”最后写成了《三省边防备览》一书。此书完成于道光二年，卷一诸图均用开方计里法，且郑炳然并未参考这次考察。看来此图最晚应在道光元年之前完成的。也就是说此图在嘉庆十八年九月至道光元年之间完成的。

四 《汉江以南三省边舆图》和《三省山内道路考》推论

诚如严如煜注文所说”程途里数，另刊一册。如查某处，按册看图，可得其概。”李孝聪先生则”据注文，此图应与一册描述道路程途里数的书相配合，而且还应有《汉江以南三省边舆图》合为一套。后二部图书，国会图书馆未藏。”³¹与此图相对应的，名为《汉江以南三省边舆图》。所谓”三省”即汉江以南的陕西汉中府、兴安府，四川的保宁府、绥定府和夔州府，湖北郧阳府、宜昌府。这些地方”均犬牙相错，其长林深谷，往往跨越两三省，难以界划，故一隅有事，边徼悉警。”³²其绘制应与前图一致，可视为清代中期大巴山地区图。

前引的”程途里数”之书，即《三省山内道路考》。2009年，北京海王村拍卖有限责任公司举行的中国书店第51期大众收藏书刊资料拍卖会上，即有此书，半框，单册，不分卷，题署”楚南严如煜、蜀北郑炳然全辑”，23×13.3厘米。首叶为陕西汉中府，自注”南郑县，嘉庆十三年奏将宁陕总兵移驻汉中，与兵备道同城。”然后以东、南、西、北方位描述其交通路线与里程：

东 四十里，柳林铺。三十里，城固县。平原坦途。

南 二十里，祖师殿。三十里，牟家坝。二十里山路，青石关，南郑巡
检驻此。二十里，回军坝。二十五里，天池子。二十五里，羊圈关。入川
省通江界。二十里。西河口。三十里，保儿坝。三十里，碑坝场。三十

³¹ 李孝聪编著：《美国国会图书馆藏中文古地图》卷二《区域地图：省、府、州、厅、县》，第50页，文物出版社，2004年1月。

³² 严如煜：《三省边防备览》卷十一《策略》。

里，韭菜崖。二十里，坝溪。二十里，朱家坝。三十里，青池子。四十里，楼子庙。三十里，平溪坝。四十里，板桥口。二十里，青峪口。三十里，新场坝。三十里，涪阳坝。三十里，扛金岭。二十里，石岭子。三十里，通江县，共程五百九十里。此路由牟家坝入山，回军坝、天池子、羊圈关一路，从老林中行走，羊圈关为川边要隘。

此书刊刻之后，严如煜还纂辑了《三省边防备览》一书，两者对照，内容略有区别。如前书分陕西等四省，再以府、县相第；后书则分别以省、县，并列里程。如南郑县：

东 四十里，柳林铺。三十里，城固县。平原坦途。

南 二十里，祖师殿。三十里，牟家坝。二十里山路，青石关，南郑巡检驻此。三十里，回军坝。二十里，天池子。二十里，羊圈关，入川省通江县界，山路陡险。³³

其中南郑下无注文，青石关至回军坝，前者标二十里，后者为三十里；回军坝至天池子、羊圈关，前者各为二十五里，后者则为二十里。看来严如煜还不断修订三省道路的内容，以便更加准确、完善。

顺便提及，《汉江之南三省边舆图》和《三省山内道路考》所作时间，也应与《汉江之北四省边舆图》一样，是嘉庆十八年(1813)九月至道光之间完成的。

³³ 严如煜：《三省边防备览》卷二《道路考上》。