

Using Travel Reports, Maps & GPS to find the old Shu Postal Road

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September 2012
Updated December 2012

Introduction to the Roads

The old roads through the Qinling and Ba Shan linking Shaanxi and Sichuan remained little changed from the mid-Qing until 1930. Maintaining the north-south routes between these western areas was not high on the agenda as the Qing crumbled and the Republic struggled to achieve unity but they continued to be used by local people, officials and merchants. But western travellers such as Alexander Wylie, Ferdinand von Richthofen, M. L'Abbe Pere Armand David, Pavel Piassetsky, Isabella Bird, Eric Teichman and George Pereira all report persistent difficult and continually degrading roads good only for foot traffic. The use of river transport – where available – must have been an increasingly viable option.

In 1934, the Longhai railroad linked Shaanxi with the east and enabled the transport of heavy equipment and materials. By 1936 it had extended to Baoji and by 1941 to Tianshui. But in 1934 the roads were still unchanged, had continued to degrade and progress was slow. Herold Wiens (1949) notes that the first significant modern motor road building in China was carried out with funding from the American Red Cross Society in 1920-21 in Hebei, Henan, Shanxi and Shandong Provinces. One of the people working on these roads was the (later) General Joe “Vinegar” Stillwell. The road building along the old Post Road that occurred in the 1930's came about as part of an ambitious Shaanxi-Guangxi road (at a grade fit for modern motor transport) planned by the National People's Conventions held by the Guomin Dang in 1929-1931. This was the first time since 1911 that any semblance of a national government and national plan had appeared in China since the fall of the Qing. Eventually, however, it was only the section from Chengdu to Xi'an that was built and it was only finished in 1941. But it is this road that interests us as it was also the main postal road between these centres since at least the Song Period and was described by Marco Polo.

According to Herold Wiens (1949), the new motor road from Chengdu to Guangyuan was completed by 1935 and it followed the old Jinniu Road. This road is basically today's Highway G108. The shorter and easier sections through the Han Valley were also completed by about the same time. In the north, a new road was built through the Wei River valley from Xi'an to Baoji via Fengxiang to the foot of the Qinling by closely following the old Road; and had continued to reach Fengzhou by sometime in 1935. But the terrain making up what was essentially the Lianyun Road or “Bei Zhan” was the hardest and most expensive to tackle and it was not until the pressure of war with Japan increased its priority so that it was completed in 1941. This occurred after the fall of the Burma Road when it was critical to enable materials and soldiers to move between Sichuan (the wartime capital was at Chongqing) and the north to access and transport heavy materials coming in though Russia (Wiens, 1949).

The path of this road after Hanzhong and up to today's Feng Xian is effectively that of today's Highway G316. But in the late 1930's, despite the seemingly slow progress, there was certainly work going on within this section. The Hanzhong Museum has old photographs taken by Zhang Zuozhou (张佐周) in the 1930's showing road building activity in the Qinling. There was serious work in progress aiming to push the Xihan Highway (西汉公路) from Hanzong to Xi'an. The old road through the Qipan Pass and over Jitouguan was replaced by a road and tunnel near the valley floor on the other side of the Bao River from the ancient road during 1936 and other changes were made in the difficult area of the Stone gate. A new Iron Bridge was also built nearby to take the traffic back to the northern side and this part was completed by 1937.



为了保护石门古迹，在上游修建鸡头关大桥，路线改经石门对岸。这是大桥的遗址。张佐周摄

Zhang notes that the changes were (in part) designed to preserve the historical areas of the old Stone Gate tunnel and its rock engravings. He also took photographs of work near Ziudianliang (酒奠梁) south of Feng Zhou. As this was a totally new section and was the final section to be completed in 1941. This indicates that there was probably always some work going on in various places along the route of the new road at this time and that it was completed little by little rather than having periods of no activity followed by a final push in 1940-1941. The old route from Feiqiu Guan (Liufeng Guan) to Feng Zhou was too difficult too use for a motor road and the new road was put through via the town of Shuangshi Pu. Shuangshipu is now the administrative centre and called "Feng Xian" as the County management moved there. New Feng Xian is also a major junction on the route to Tianshui and the road from Feng Xian to Tianshui is the continuation of G316. The road from New Feng Xian to Baoji is a provincial road. This may have happened as the Longhai railway extended to Tianshui with direct lines to Lanzhou and beyond.

By 1942 it seems there were many places in western China where the old roads of the Qing period were still extant but from Chengdu to Baoji there was a new motor road. Since it was built by human labour and materials were short it seems it followed the old road where possible with most significant changes being where the old road could not be modified to meet the lower grades of slope required by vehicles compared with humans and ponies. The southern section of the old road from Chengdu to Baoji can therefore be generally followed by using present day Highway G108 from Chengdu to near Baocheng. The northern section also generally follows the Lianyun Dao along present Highway G136 from just north of Jitou Guan to (new) Feng Xian and it then generally follows a provincial road from Feng Xian to Baoji but along the same path as had been used for centuries. There were some major changes that are well known, such as the changes between Jianmen Guan and Guangyuan in Sichuan, the new road from Feng Zhou to Feiqiu Guan and the new road near the old Stone Gate and Jitou Guan in Shaanxi as well as some other smaller sections in both Provinces to be discussed later. It is also to be expected that the new road of 1941 would depart locally from the old Qing Road as the builders used improved road building methods. The main changes in technology were the greater use of dynamite to blast passages and short tunnels and greater use of modern bridge building technology. Much the same style would have been used on the Burma Road.

Since 1949, there have been truly dramatic changes in China's road systems. However, in many cases the new and improved motor roads were completely new and the older roads were left as secondary roads and improved only as needed for local use. Today's G108 and G136 have certainly been locally upgraded and improved and changes have also been made to the routes since they were first built in the 1930's but it seems the overall path is much the same. Railways have also expanded with the railway between the Wei Valley and Sichuan being a major undertaking along the track of what may have been a very ancient road along the Jialing River. The railway system has also extended into the Han Valley from Hankou. For railways and roads, extensive and increasing use of tunnelling has revolutionised routes through mountains and the same technology has revolutionised highway building. The recent Tollway between Chengdu and Xi'an takes an almost straight path through mountains using tunnels and high bridges over valleys. Fortunately for the preservation of history, because of the advances, the new Tollways generally take quite different paths from the ancient Shu Roads.

Our task is therefore to find the older Shu Roads and also find ways open to visit them. This involves the whole road system with Tollways being the way travellers get to the right area, Highways being the way people get close to the old roads and a combination of tourist centres and off-road ancient relics providing the experience of the ancient roads for people who wish to visit them. In this document, the materials and methods being used to do this at the overall planning stages are collected and described. In the end, the places must be visited, but there is a lot of planning that can be done before a visit making it as efficient and successful as possible. The materials involve original descriptions of the roads by travellers; ancient, old and modern maps and tools, such as scanning and Google Earth, to investigate possibilities and present findings.

Materials and Methods

It is possible to use the descriptions of towns and river crossings made by visitors to indicate what the road used to be like, what places were to be found along it and where changes (to both routes and names) have occurred. It is also possible to use old maps to check for differences and similarities if they can be registered to a modern map grid. We will mainly use an article by Alexander Wylie for the first of these lines of research. An opportunity for the second general activity is presented by the Qing Period Scroll Map that has been described and previously made available on the Shu Roads Web site [HERE](#). Various documents have posed questions that can be answered by visiting the locations of places, establishing if those not yet identified can be found and using GPS to help put a scale on the map. Another important map resource is a Russian Military Map series of Topographic Maps for China. These were made in the 1960's based on earlier aerial photography obtained when the Soviet Union and China were allies in the 1950's and early 1960's. They show China before many modern roads and dams were built. These and other materials have been collected and documented on the web site for use in the field as well as in the laboratory to produce outcomes from the fieldwork. See the main data Table [HERE](#). Our field work and its following analyses have used all of these resources.

Reports by Westerners visiting Shu Roads

Following the Opium Wars, the Taiping Rebellion and the Treaty of Tianjin, merchants, missionaries and military travellers visited the west of China in search of a range of adventures. Some of them visited the Qinling Mountains and travelled Shu Roads. Among the travellers who visited the Shu Roads are six who have been generally recognised and quoted extensively by previous writers, especially Herold Wiens (1949a), Joseph Needham (1971) and more recently by Hope Justman (2007). Joseph Needham also travelled the Shu Road from Chengdu to Baoji (probably on the new road) in the 1940's. There may have been others – especially among missionaries – but the travellers listed above left high quality published notes and papers that can be accessed today. Their publications contain a great deal of information about Chinese people of the time, of the contemporary historical events and of the natural resources as well as the geology and geography of the Shu Road region. However, at this time we will only mention places they visited and leave the rest to a more comprehensive description of these travellers and their legacy. Serious use of the work of these people can only be made by viewing the original texts and on the basis of these we can briefly summarise the Shu Roads they visited:

Catholic Priests on the Great Road (1635-1935)

In the Yuan, Ming and Qing periods, foreign travellers visited the Shu Roads and some left accounts of their travels. Among the early travellers were Catholic Missionaries who moved into the west of China to spread Christianity. The activity started with Marco Polo's c. 1290 account of travels in China, which many Priests who arrived later used to find out about China. The Catholic priests who worked in

the Hanzhong area were Jesuit Fr. Étienne Faber in 1635, Jesuit Fr. Martino Martini in 1655, Franciscan Fr. B. Basilio Brollo in 1701, Franciscan Fr. Jean Basset in 1703 and Vincentian Abbé Armand David in 1873. Abbé Armand David CM was a naturalist missionary as well as traveller. As well as the travellers, the founding and development of the Franciscan mission at Guluba in Chenggu County was a significant historical event. Guluba had been the site of a Christian Church since Fr. Étienne Faber visited Hanzhong before 1700. In 1888 Guluba was expanded into a fortified settlement by Italian missionaries who remained there for over 50 years. The involvement with Catholic Missionaries with the Qinling and Ba Mountain roads adds important information to the specific tales of other travellers. A document has been written to describe this history as it relates to the Shu roads and can be accessed [HERE](#).

Alexander Wylie (1868)

Alexander Wylie travelled from Chengdu in Sichuan to Da'an in Shaanxi along the Jinniu Road. His paper describing what he found and the geography of China, the roads and the waterways was published in the Proceedings of the Royal Geographical Society of London in 1869 (Wylie, 1869). He lists places visited at village level if there is something of interest and pays special attention to rivers and river traffic. The places he visited along the way have been collected in a [Table](#) that is available with a general description of his journey being [HERE](#). The general context of the times can also be found on the Shu Roads Web site. These materials have been supplemented by a field visit and material based on what was found has been added to the documents. After they reached Da'an in Shaanxi, Wylie and his party made major use of river transport to return to Hankou on the Yangtze River (from where they had started). However, to avoid a dangerous section of the river that had many rapids, they went overland on an important linking road of the Shu Road linking system of the Han Basin. The route went from Hanzhong to Xixiang and on to Shiquan and is discussed in a document to be found [HERE](#) using the findings from the field visit – that included the Guluba site. The new information about the Jinniu Road and the Xinxiang road will be added to the Shu Roads Google Earth presentation after some mapping has been done using the Russian Military Topographic Maps to be discussed later.

M. L'Abbe Pere Armand David (1872-1873)

Pere Armand David made three major journeys in China studying the wildlife and collecting specimens of the flora, fauna and geology. He was the first European to see and study the Giant Panda and has given his name to a species of deer (Pere David's deer) previously unknown to Europeans. His third journey in 1872-1873 included investigating areas of the Qinling Mountains. He was working near Baoji and decided to go the Hanzhong basin before returning to Hankou by boat. Maybe Wylie's successful journey suggested this to him. He was aware that Baron von Richthofen had just (1872) travelled through the Qinling using the Lianyun Road so he decided to take another route along what is usually called the Baoye Road. He started on February 15, 1873 and travelled into what today is usually called the Shitou River valley, past the Guangdang Mountains and through the Wuli Po. Reaching the

tableland he stayed at a village called Jutou Jie which is the site of the present day county seat of Taibai. He notes that there was a road from here to Guozhen in the Wei Valley which interested von Richthofen. They continued along the Bao River through Jiangkou to join the main Lianyun Road. Von Richthofen had already passed this way in 1872 but he also read David's descriptions – especially of wildlife and geology – with great interest and included them in his later reports. He stayed for some time near Chenggu and Mianxian and made expeditions into the mountains. Some of his activity is included in the document on [Catholic Priests](#). He then went by boat from Chenggu to Hankou. Unfortunately, his boat was wrecked and lost many specimens – but survived to write his diary.

Baron Ferdinand von Richthofen (1870-1873)

Baron Ferdinand von Richthofen, (an Uncle of the Red Baron) travelled extensively in northern China between 1870 and 1873. He was collecting information for both commercial and scientific interests. He was a geologist and was very interested in the diaries of Pere Armand David. In 1872 the Baron travelled from Baoji to Chengdu along the Lianyun and Jinniu Roads. Pere David informs us he stayed in Baocheng and did not go into Hanzhong. He published an extensive and very interesting set of letters (von Richthofen, 1870) in English but the majority of his work was in German. Herold Wiens knew both German and Chinese and his Thesis (Wiens, 1949a) contains a list of places and other information along the route using material collated from Wylie, von Richthofen, David and Isabella Bird. His list is therefore the most comprehensive combined guide to this route, which has been the “Da Lu” since at least the Yuan period when it was travelled by Marco Polo (Yule, H. and Cordier, H., 1903). Although Wiens includes geology, geography, geotechnical evaluation, barrier passes and many places to village level in his description, it is not as detailed as the original traveller reports which therefore still provide added value.

Col. Sosnovsky's Russian Expedition of 1874

Russian travellers accompanying Col. Sosnovsky's expedition came to Hanzhong from Hankou by boat in 1874 and then travelled to Gansu and Lanzhou via Mianxian, Liuyang, Huixian and present day Tianshui (Qing period Qin Zhou) along what is today Highway G316 (see Piassetsky, 1884). Apart from the roads through the Han Valley, they did not travel by the main Shu Roads but left significant information on the off-roads through Gansu that became so important near the end of WW2. The description of the Han River route from Hankou to Hanzhong is detailed and very valuable. The interactions between the Upper Han and the Lower Han and the shipping information are all important in Shu Road research.

Mrs J.F. Bishop (Isabella L. Bird) (1897)

Isabella was an “intrepid” lady traveller of the 19th century whose book outlining her adventures travelling in the west of China and into the regions where Tibetan peoples live in the west of Sichuan is a classic as well as highly informative and readable. Her description of Chinese people and their ways is objective but not as “distant” as are

descriptions made by most male writers of the time. Her contribution of knowledge of the Shu Roads is less than her contribution to knowledge of and appreciation of Chinese. She travelled to Baoning (present day Langzhong) in Sichuan and north to a rest station for missionaries. From there she travelled to join the Jinniu Road (Da Lu) a little south of Old Jiange (present day Pu'an Zhen). She travelled south along the road to Mian Zhou (present day Mianyang). Although her journey on Shu Roads was short, its combination with information provided by Wylie and von Richthofen has been very useful.

Eric Teichman (1917)

As a Consular Officer, Eric Teichman made a series of journeys through north-west China in 1917. His book has extensive material on the political and social conditions in China at the time. One reason for his journeys was to investigate the success or otherwise of the suppression of Opium cultivation. His association with the Shu Roads came about as he took a route that maximised his travel to places off the major roads. His party left the main road at Tongguan and headed into the Qinling to ostensibly go to Xing'an or present day Ankang. They went first to Luonan Xian, then on cutting across the direction of most existing roads to reach present day Shangluo Shi (Qing period Shang Zhou). Continuing to cut across the existing and modern road networks, they walked over more mountains to Shayang Xian. He then headed west over yet more mountains to Zhen'an Xian where he reached a Shu Road called the "Kugu Road". Teichman set out along this road heading for Xing'an (Ankang) and went as far as Lianghe Guan. There, despite his party's desire to take to boats, Teichman insisted on setting out another way. They climbed to a high pass and arrived at Maping He. Accompanied by the Magistrate of Xing'an they then climbed and slid more than 30km to arrive at Xing'an Fu. Teichman and his party went by road to Hanzhong through Shiquan which Teichman says forms a junction of the present road with the Ziwu Road from Xi'an. After Shiquan, the road followed by Teichman is the same as that used in the opposite direction by Wylie when he avoided the rapids between Yangxian and Shiquan. A document has been developed based on records and a field visit describing how we can reconstruct the route and providing more information on the places on the route up to the present day. It can be found [HERE](#). On the way, Teichman visited the Italian catholic Mission called Guluba which had only been opened after Wylie travelled the road. This road was an important linking road in the Han Basin at one time but fell from favour sometime in the late Qing. The Guluba site is also in need of repair. From Hanzhong, Teichman decided to travel to the Wei Valley via another of the famous Shu Roads – the Tangluo Road. A web page and comprehensive set of documents and materials based on this journey can be found [HERE](#).

Teichman's travels in 1916 and 1917 were extensive. In addition to the previous cross-country travels he also made journeys along the main roads, describing the geography and the conditions he found there at the time. As well as his excursions along the back roads of the east and the Tangluo Road he also made a classic journey (probably similar to that of Marco Polo) from Xi'an to Chengdu via the Wei Valley main road, the Chencang Road, Lianyun Road and Jinniu Road. On this journey he did not visit Hanzhong. His careful description is precise and detailed. It is not clear if his diary was used by Herold Weins but when taken with the various other

descriptions of the main road, its route and towns on the way in the late 1800's and early 1900's can be established and cross checked with some accuracy.

General George Pereira (1921-1922)

George Periera made a number of journeys in China. He was Military Attache at the British Legation in Beijing in 1905-1910, where he learned Chinese. Pereira's greatest achievement was to be the first British traveller to reach Lhasa from China (Pereira, 1924) and the first European since the visit by L'Abbe Huc in 1845. His papers and diaries (following his unfortunate death in Yunnan) were edited and compiled by Sir Francis Younghusband. Pereira's diaries provide useful information about Shu Roads just before the modern road building activity began. As part of his epic voyage to Lhasa, Pereira needed to travel from Xi'an to Chengdu. Because of security concerns, General Pereira travelled to Hanzhong by the Ziwu Road rather than the Da Lu through Baoji. His description of the journey started with the ascent into the Qinling Mountains via the valley of the Fengyu River. He travelled via Guanghuo Jie and Jiangkou to Xunyang Ba and Ningshan Xian. He travelled to Lianghekou but varied the journey by going to Jinshui He where the Yangxian magistrate was waiting for him. From there he travelled along the Han River to Hanzhong. From Hanzhong, he again had to use a secondary road through the Micang Mountains as the Red Lantern Society (remnants of Boxers) held the main road. His description provides important and unique information on this route to Nanjiang. Pereira went by river transport from Nanjiang to Ba Zhou (present day Bazhong), then by road to Baoning Fu (present day Langzhong Shi) and on to Chengdu. At this point, however, the hardest part of his journey was only just starting.

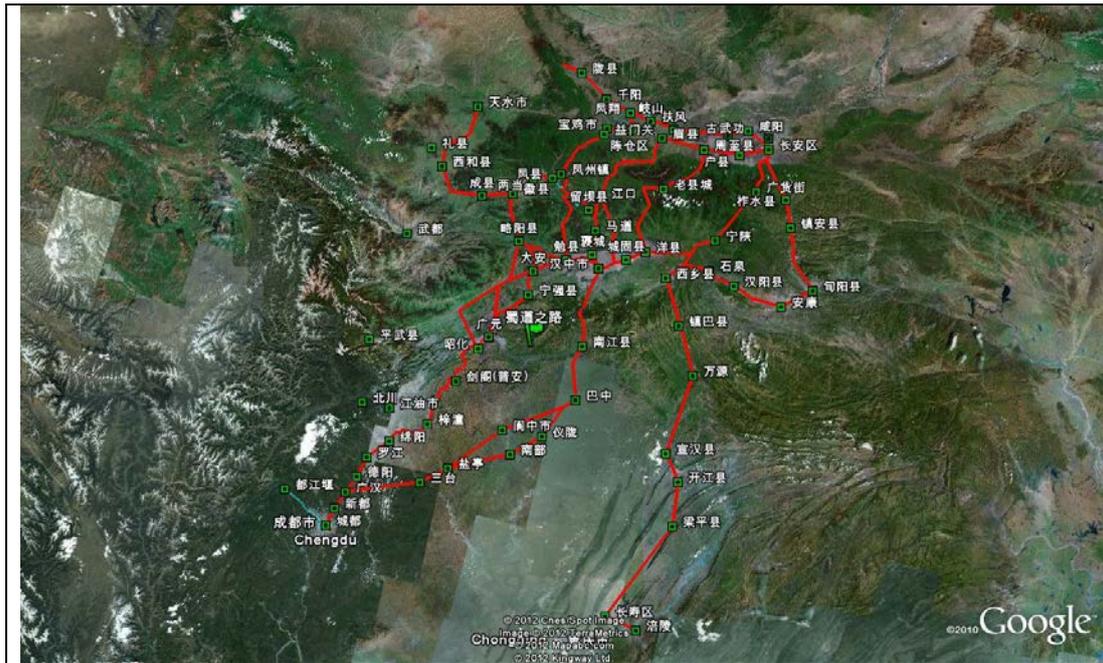
The Shu Roads Google Earth Presentation

An extensive Shu Roads presentation for Google Earth has been developed to display the sets of tracks and routes we believe are close to the old roads and a set of places we believe are places that were on or near the old roads and are also accessible today. The presentation is network linked and has overlays allowing places to be visible at two "scales" with main places being visible when looking at the whole presentation and smaller village level places being visible when looked at more closely.

The roads are either "routes" which join places by straight lines as indications of the roads or Tracks, often where GPS tracks have been recorded. The Russian Maps have also been used to create "Line Strings" based on older 1960 roads to create sensible links between places still without GPS Tracks rather than use straight lines. However, this has an additional task to establish how true to the Shu Roads these routes are on the ground as well.

The current presentation is available at:

http://www.qinshuroads.org/Google/GE_KMZ_Files.htm



The places in this presentation have been located in various ways. Many have been located using GPS waypoints and others have been inferred from ancient and modern maps and also the Google Earth and other map gazettiers. They have been maintained in a data base allowing the set to be re-built when changes occur. The code provided to users makes network links to the base information. Hence, and update on the web is immediately available to all users.

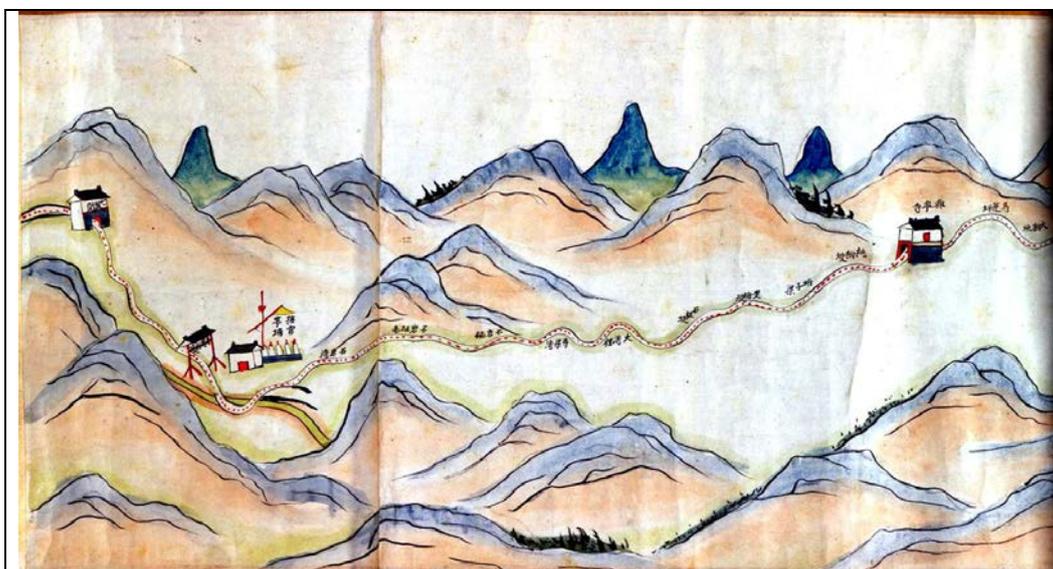
The Shu Roads presentation is available from the web site as are some demonstrations using the Russian Maps, DEM data and some photo-journeys to relics and scenic places. The current field work collection can be found [HERE](#). People are encouraged to send questions and information about errors or variations in the Shu Roads presentation to the principal researchers.

The Qing Period Scroll Map of the Bei Zhan

A Qing period scroll map from the late 1700s, in the keeping of the US Library of Congress (<http://www.loc.gov/rr/geogmap/>) since 1930 and called “The Shu Road from Shaanxi to the Sichuan Border” (陕境蜀道图) was scanned by the LoC at high resolution and used in collaborative research with the Hanzhong Museum to identify changes and similarities in the route between the Qing and the present and to identify the places along it. A brief description based on information provided by the US LoC website for the maps is:

“The images make up a complete scan of a 17 metre (55 foot) long scroll preserved and held by the Geography & Map Division of the US Library of Congress. The scroll map shows the main (postal) road from the Wei River valley of Shaanxi Province (陕西省) to the border with Shu (Sichuan) in the Qing Period. It is read from right to left and starts at the then walled city of Baoji (宝鸡) in Shaanxi to finish on the border between Shaanxi and Sichuan Province (四川省) at a place called Qipanguan (七盘

关). There is a section of the road including Mianxian (勉县) and Gu Yangpingguan (古阳平关) that is missing from the scroll, but that does not detract from the overall value of the map. It was purchased by Arthur W. Hummel (Heng Muyi, 恒慕义) in China in 1930, who donated it to the LoC collection.”



A number of published papers and other Chinese material have been translated to make the opinions of Chinese scholars accessible and example images have been developed from the base scanned data to help with research at brush stroke and annotation level. These materials and further information about the scroll is available through the web page:

http://www.qinshuroads.org/LOC_Scroll_web/LOC_Scroll.htm

This page is one of a number under the Shu Roads project web site at:

<http://www.qinshuroads.org/>

The Shu Road project is making use of the map to develop modern maps of the paths of Shu Roads through the Qinling and south to Sichuan. A general introduction to the Shu Roads and the Shu Road project can also be found at the website at:

http://www.qinshuroads.org/docs/html/Shu_Roads_Introduction.htm

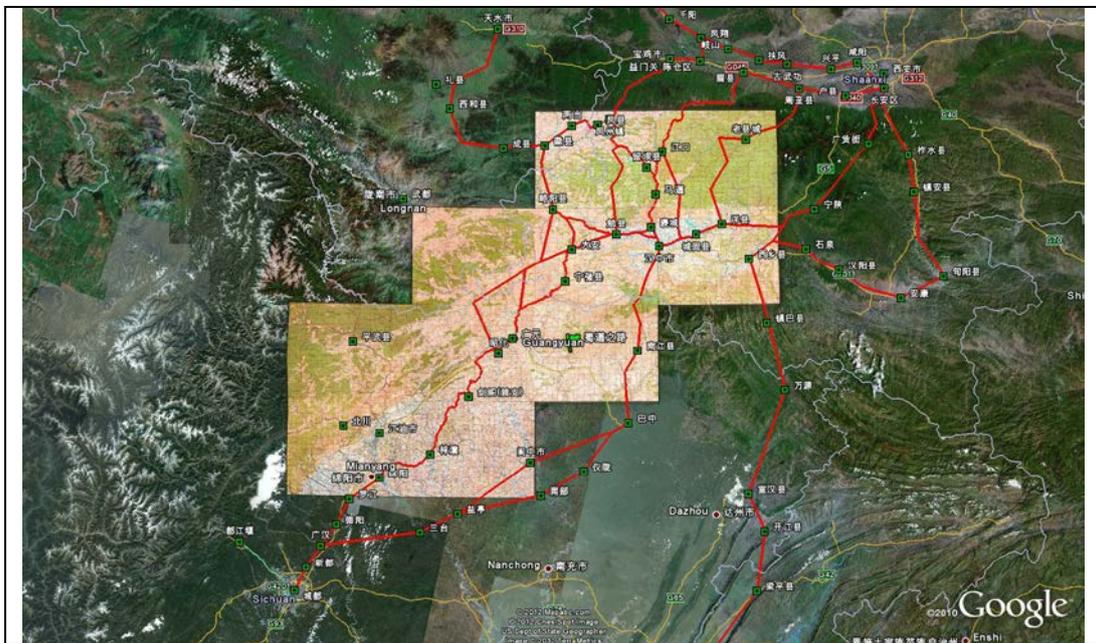
Russian Topographic Maps from the 60's

In the 1960's, the Russian Military created a Topographic mapping series at 1:200k and 1:100k for much of China (East View Cartographic, 2005). It was based on aerial photography acquired during the period of China-Soviet Russia cooperation. These maps form a useful geographic base for mapping Shu Roads as the main changes since the 1930's was only to the Chengdu to Baoji Highway and the provision of some new railways. Many dams were not yet built. The Shimen and Bailong Dams (for example) did not yet exist and many of the provincial roads were apparently still only upgrades of paths used for many years. The maps provide a useful reference and source of reasonable estimates of the former roads prior to the major road and

highway expansion that occurred since (say) 1980. More comprehensive documentation of the maps and how to interpret the Cyrillic text can be found [HERE](#).

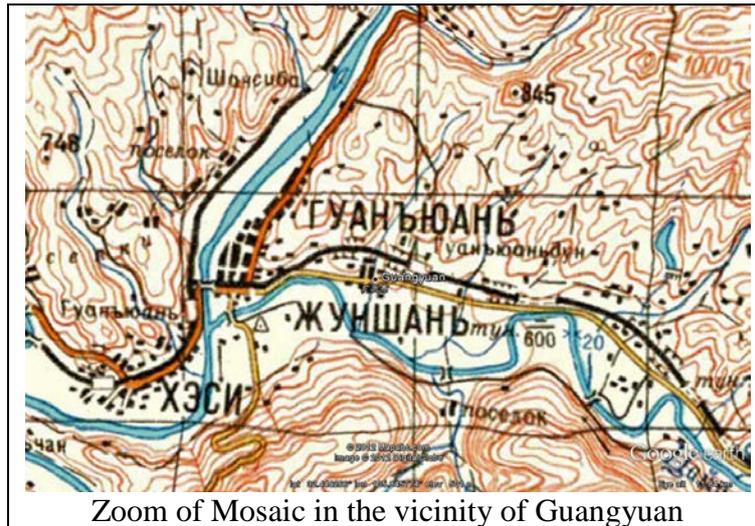
The Base Mosaics

The base 1:200k map series comprises map sheets using the Gauss Kruger projection (zone 18 in this case) based on the Pulkovo 1942 Datum and Krassovsky spheroid. The 1:100k series divides each 1:200k map sheet into four. There is a book describing these and other members of the map series (published in English as East View Cartographic, 2005) in which the differences between the 1:200k and 1:100k for military purposes was that the 1:200k series were primarily for reconnaissance whilst the 1:100k maps were primarily for operational use. The 1:100k series has more unpaved and secondary roads, more detail in human land use and greater detail in terrain such as in rivers, gullies, ravines and streamlines.



The map sheets selected were digitised at 400 dpi and geocoded by East View Cartographic (now called East View Geospatial, <http://www.geospatial.com/>). In the case of the maps above, the original digitised map sheets had a basic pixel size of 12.686 metres. This is over-sampled to preserve annotations and line work and the resolution was changed to 25m for the operational mosaics. To import into Google Earth, the projection was changed to Geographic with close to 1 second resolution. The set of maps used for the Shu Road fieldwork at 1:200k scale were grouped into three mosaics each made up with four of the 1:200k map sheets. The mosaics overlapped in one original map sheet as indicated in the Google Earth screen shot above.

As an indication of resolution, if an image is at full “zoom” in Google Earth it may look like:



The three mosaics shown above cover an area between Zitong (near Chengdu) and Feng Zhou. Recently, mosaics at the two ends (Chengdu and Xi'an) have been added to complete the set of five mosaics. They have been made available as Google Earth network linked super overlays allowing zoom to highest resolution and data serving across the web. The Google Earth KMZ files can be accessed [HERE](#) or as part of the general collection of background information about the field work [HERE](#). The colour balance and resolution may be improved in the future. Similar products can be created with 1:100k maps and it is planned for this option to be used in the area between Guangyuan and Jianmen Guan where there are considerable differences between the old road and the roads since the motor road was built.

The mosaics cover an extensive area at a range of levels of detail. They can provide default routes where there are no GPS data as well as indications of change between the original (1930's) motor road and modern highways. The lists of places visited by the travellers can also be used to find where the ancient roads moved away from the highways. The 1:100k series includes important but un-paved roads so it is the best option for the latter use. The mosaics can be downloaded from the web site via the collated table of materials for the field work:

http://www.qinshuroads.org/dalu_fieldwork/DaLu_References.htm

More detail on the collection of Russian Maps, the Google Earth presentations and the total coverage that is being developed into further presentations is to be found in a document included with the Google Earth KMZ presentation files called "[Russian Mosaics Info.pdf](#)". Particularly significant is that it has a section on the interpretation of the Russian text. The text is Cyrillic but is, in fact, a Russian language transliteration of Chinese and is compatible with Wade-Giles and Pinyin transliterations. It was devised originally by a Russian Orthodox Priest called Petre Ivanovitch Koporoff (1817-1878) whose religious name was Palladius. So, the system is called the "Palladius System". The consistency of use of the Palladius system in these maps was established by transliterating many examples.

A Table has been developed to help with transliterating from the Cyrillic to Pinyin. It is available on the web along with this document ([HERE](#)) and will be joined by new documents on the maps as soon as they are ready.

Questions about the roads

The most useful materials for us at this time have been the detailed paper by Wylie for the Jinniu Road from Chengdu to near Da'an in the Han River Valley, Ferdinand von Richthofen's papers for the road between Baoji and Baocheng, Herold Wiens collation of von Richthofen and Wylie for the whole road from Baoji to Chengdu and confirming or additional information provided by Teichman as well as Teichman's information on the Tangluo Road. The Baoye Road, the Ziwu Road, the Kugu Road and the Chencang road have not concerned us yet but will be left to later documents. Pere Armand David travelled along part of the Lianyun Road from where it is joined by the Bao River and the Baoye Road to the Jitou Pass and the Han River Valley. But his journey notes do not have the geographic perception and detail of Wylie's paper for the Jinniu Road or Teichman's for the Tangluo Road. A Table of places Wylie visited has been collected and a number of questions resolved by the field visit in June 2012. The Wylie table and document are in the main data table to be found [HERE](#). The Qing period scroll map from the late 1700's has also had good uses in the northern area to establish routes and places. Finally, the set of Russian Topographic Maps is particularly valuable as a means to find variations between the modern roads and the original motor road built in the 1930's and 1940's and to conjecture which variations may indicate old roads.

Following the field visit in June 2012, many places have been resolved and new GPS points have been prepared to add to the Shu Roads Google Earth presentation and its data base. The next matter to resolve is how to use the new GPS Tracks and the Russian maps to define an additional set of local road variations that better represent the older roads. The locations we will hopefully address are briefly described below.

Possible variations and new routes on the "old" road

1. Chengdu (成都)

Wylie says they left Chengdu by the North Gate. My suggestion is that G108 as marked on the Russian map continues into the centre across the main bridge and can be accepted as surrogate. But this needs checking.

2. Zitong (梓潼) area

Using Highway G108 as the default, there seems to have been road straightening in places since it was built but otherwise it is the same as the provincial road. The Russian Map shows a temple a bit North of Qiqu Shan where the Temple of 文昌帝君 or Wenchang Dijun, god of literature and writing that Wylie saw is located. There is some uncertainty around "Shanting Pu" and it may be off the present road. The Russian map provides a better path here.

3. Wulian Zhen (武连镇)

There is a major change in the modern road even from the 1960's road (an old road?) near here. The reports by Wylie and Teichman have helped locate the township and the temple and the Russian map provides the previous road loop off the present road.

4. Old Jiange (古剑阁)

Another major change occurs south of Old Jiange (Pu'an Zhen, 普安镇). We used a way point from the Russian Maps to find where the divergence starts. Photographs in GE indicate it is now a major hiking trail for the old road and it can be correctly added using the older route on the Russian maps.

5. Jianmen Guan (剑门关)

There is an even greater divergence at Jianmen Plank Road site. The "old" modern road (G108) goes around Jianmen Guan as does the Russian map but the modern Tollway goes through the Sabre Gate. The old road did not go through to the river valley but went off at Jianxi Bridge to Damushu then Tianxiong Guan and down to Zhaohua. The route through Damushu is not on the 1:200k Russian maps but may be on the 1:100k map.

6. Zhaohua (昭化)

Zhaohua was on the old road and Guangyuan was reached from Zhaohua using two ferries. From Guangyuan to Jianmen Guan Zhen has probably seen the greatest change of any section of the road. This is no surprise as most of it was originally by stone steps and too steep even for ponies - other than Sichuan ponies. We have undertaken a major effort using Russian maps and the travel reports as well as our tracks to Tianxiong Pass and a location we have for Damushu to fill in the route. The proposed paths are now included in the Google Earth presentation. Zhaohua is also now a "Gu Zhen" (古镇) and is being preserved.

7. Mingyue Xia (明月峡)

The main road has diverged from the Russian Maps and from (modern) G108 since we came in 2007 again following the Sichuan Earthquake of May 2008. According to the Russian Maps, the old (1941) road goes along the cliffs nearby. The 2007 track we took to reach Mingyue Xia from the south is now covered by a new power station. There has been a huge change since the Earthquake with a major tourist park created here and stretching north through the gorge celebrating historical shu roads, river traffic and the geology as well. The new entrance is to the north. We have updated the tracks as tours and relic sites in the GE Presentation.

8. Long Dong (龙洞)

Based on the Russian maps, the road seems to have changed quite a lot along the river here since the first motor road. Old bridges have gone and it is only when Qipan Guan (棋盘关) is reached that G108 and the Russian Map come back together. After

Ningxiang the roads are consistent to Fenshuiling (分水岭). We have been using the old road around the Long Dong as a relic site and tour in the presentation.

9. Mianxian (勉县)

Until Mianxian the route of the older road in the Russian Map and that in modern maps as well as our GPS Track data are all similar. From Mianxian to Baocheng there are significant differences. We have located the older road to Baocheng as used by David, Wylie, Teichman and von Richthofen. Near Huangsha Zhen (黄沙镇) the former road is as shown clearly on the Russian map. In addition, the upper limit of navigation is now clarified. Weins said it was 新铺湾 but there were other opinions, such as Wylie who suggested “Tsae-pa” (Cai Ba, 蔡坝). They are simply twin towns across the river from each other. Both are right! Xinpu and Caiba are both on the Russian map on opposite sides of the river. These have all been clarified in the data base.

10. Jitou Guan (鸡头关)

Around the Dam there are many changes! The ancient road from Baocheng to the Bao River via Jitouguan and Qipanzi is known by GPS from hiking in 2009. It is now included in the data base as a photo-trek. The 1940's road went on the other side through New Stone Gate Tunnel and crossed on an iron Bridge shown previously in the old photograph at the beginning of this document. The very old road went entirely on the western side of the Bao River to Wuguan. The modern road stays on the eastern side for longer than the first motor road. It crosses the Bao River at Qingqiao Yi. These are now reflected in the GE Presentation.

11. Liuba (留坝)

There seems to have been a new section built just south of Liuba. Possibly also north of Gaoqiao Pu (高桥铺). The Qing period map may help here if the present towns have Qing relics but otherwise the Russian map will be used. It is never clear if a modern town is in the same place as a Qing or older town. But using locations of the towns with the same name is often the best we can do. This is still being decided.

12. Liufeng Guan (留风关)

The biggest change in the northern section of the road is at Liufeng Guan. The 1940's road goes on an entirely different path north across the Jiudianliang pass (酒奠梁) to modern Feng Xian (old Shuangshi Pu, 双石铺). Then the new road to Baoji is no longer G316. G316 goes to Tianshui. The very old road went across the Feng Ling (风岭) from Liufeng Guan to the old Feng Zhou. The latest presentation includes an estimate for the track through Xinhong Pu (心红铺) but better solutions will require hiking to obtain GPS tracks. There is some question about the differences between Sancha Zhen and the old barracks in the Qing Map. Recent acquisition of maps developed between 1808 and 1822 are helping here.

The road from here to Baoji and on to Xi'an via the inland route of the old road has changed greatly in quality and grade using modern road building techniques, tunnels and bridges. However, there has been little change in the geographical route it follows. For that reason, very few – if any – of the old road surfaces or other remains are to be found here except for stele, temples and monuments along the way or preserved in Museums. But it is still worth the drive.

Conclusions

An extensive set of materials has been collated for the field expedition and as a basis for investigating the routes of the older Shu Roads and the modern roads and their associated history. A primary objective of the field work was to establish GPS locations and correct errors in the Shu Roads presentation. This has been done and the material is being incorporated into the presentation. There were a range of secondary questions as well that have been described in various documents on the web and a number of maps (old and more recent) were prepared on A3 paper for use in the field – as the modern equivalents of the Qing Scroll Map. A general site for the field work material and outcomes may be found [HERE](#).

Following the field work, the documents collected for the visit have been updated and extended where it is useful and new documents prepared and added to the above web page. A document describing [Catholic Priests who travelled the Shu Roads](#) has also been made available for discussion as has a document about the route from [Hanzhong to Xixiang](#) used by Wylie and Teichman (Teichman in reverse). The present document has been updated as a reference for a series of separate detailed discussions of the changes to the roads as briefly outlined above. If the information on the maps and other materials is insufficient this document will be updated but otherwise the next task is to produce a series of discussions on the specific local areas of significant change.

The next stage following these detailed studies is to update the places data base and define variations and new surrogate tracks from the Russian maps – either as default Shu Roads or as tours of relics for modern travellers.

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