

摄影：陈云峰
撰文：张俊

Photographed by Chen Yunfeng
Written by Zhang Jun

上册
Vol.1

云南古桥建筑

Ancient Bridges in Yunnan

云南出版集团公司
云南美术出版社

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云南古桥分布图



序言

饶维纯

(中国著名建筑学家)

桥与建筑

在人类所创造的物质文明中，建筑和桥梁是人类所建造的最大的人工构筑物。最早人类建造房子是为了居住，修路筑桥是为了交通。建筑和路桥本是两件不同的事物。随着社会经济的不断发展，建筑的功能不断扩大，人们修建房子不仅只是为了居住，而是为了满足人们的各种功能需求，其中也包括交通。只是为了通过，单纯为了交通的桥梁与建筑还是有区别的，不能完全等同。但是既是桥梁又是房子的风雨桥，其功能既可供人通过，又可遮风避雨，休息停留，与建筑的功能毫无差别，可以说直接就是建筑。

在工程系统框架中，桥与建筑虽然不是一家，但至少是同宗同源的相近的子系统。西班牙著名的现代建筑师圣地亚哥·卡拉特拉克（Santiago·Calatrava）像意大利建筑师路易吉·奈尔维（Luigi·Nervi）一样既是建筑师又是工程师。作为结构表现主义建筑师，他除了从事建筑设计也从事桥梁设计。他所设计的毕尔巴鄂沃兰汀（Volantín）步行桥，把技术与艺术完美地结合在一起，达到了“精妙的平衡”，创造了优美的形象，自然地融入了周围环境之中，堪称桥梁设计的典范。在他看来，桥梁和建筑都是技术与艺术的统一，都处在一定的环境之中，都是为人服务的构筑物，所以桥亦建筑。桥与建筑融为了一体，桥也是建筑，所以本书命名为《云南古桥建筑》是有其缘由的。

古桥的界定

中国的古桥当数建于隋代大业年间（605~618年）的河北赵县的安济桥（又称赵州桥），桥长64.4m，桥跨37.02m，其科学合理的结构和独特的形式堪称我国桥梁史中的典范，至今仍有不少桥梁采用类似的结构形式。

云南的古桥多为明清时期建造而留存至今。由于云南具有特殊的地理条件，多数地区山高坡陡，河流湍急，因而修路架桥更显得艰难险恶。然而云南人民充分发挥自己的聪明才智，克服种种困难，架起了许多独具特色的桥梁，有的形如彩虹，有的形如卧龙，遍布云南各地。

本书介绍的云南古桥最早的始建于唐武德2年（619年），为曲靖沾益平西镇的黑桥，距今已有1300多年的历史。一般古桥始建年代越久远，其历史文化价值越高。所以古桥的界定远限无必要进行界定。近限如何界定呢？建筑历史上所称的古建筑的近限一般以鸦片战争（1840年）为界定，或以辛亥革命（1911年）为界定，在此限以后的建筑就不称为古建筑了，而称为近现代建筑。根据云南的具体情况，本书所列的古桥近限界定在新中国成立（1949年）以前，看来也无不可。因为建国以来的桥梁建设突飞猛进，建成的各种桥梁举不胜举。但是建于1960年的开远长虹桥和建于上世纪末的思澜大桥，无论从时间上或从其所采用的技术材料来看，都不适合划入古桥之列。幸好我们不是研究历史的，如何划分古今，由历史学家界定好了。

古桥的分类

物以类聚，人以群分。在纷繁复杂的事物面前，人们总以不同的原则和角度将事物分门别类加以系统的逻辑的归纳整理。散布在云南各地的古桥形式千姿百态，所处地形与环境各不相同，构成材料就地取材。如何把云南的古桥系统地分门别类呢？分类的方法一般有如下几种：一种以地域分类，即以桥梁所在的地区进行分类，也是本书所采用的分类方法，分为滇西北、滇西、滇东北、滇中和滇南五个地区。这种方法较为方便简单而易于操作。二是以时间分类，即以桥梁建成的年代进行分类。这种方法也简单易行，但是现存的桥梁除少数有确凿的记载之外，多数桥梁的建成年代以无从考证。所以这种方法看似容易，实际上难于操作，三是以构筑材料进行分类，可分为石桥、木桥、铁桥和钢筋混凝土桥等。这种方法浅显易行，一看便知。四是以桥梁的形式分类，即以桥梁的受力方式或传力路线进行分类，可分为梁式、拱式和拉索式桥梁等等。这种方法专业技术

性较强。云南的古桥大致有以上几种类型。无论采用何种分类方法，无非是将杂乱的事物条理化、系统化。读者可以从本书所提供资料和图片自己思考。

古桥的处境

前不久新闻媒体报导，云南怒江某地一些小学生还需乘溜索过江上学，引起政府和社会各界的关注，纷纷捐款，终于修造了能供人通行的索桥，从此溜索这一交通工具将退出历史舞台。本书所收集的一些桥梁，特别是公路桥或已拆毁、或在原桥附近修建了新桥，老桥已不再使用，也就无人维修，让它自生自灭，自然淘汰。同时本书所收集的石桥、木桥和铁索桥因材料的关系多已破旧残损，无人维修保养，有的摇摇欲坠，有的东歪西斜，岌岌可危。由于材料的原因，一般石桥较为耐久，留存年代较为久远。现存石桥、除护栏残缺损坏，基本结构尚无大碍。但木桥、索桥破损甚为严重。如德钦、香格里拉和腾冲的悬臂木梁桥，有的支架歪斜、桥面破损、看不出有任何维修保养的措施。又如腾冲的永安索桥和石屏的胡寨铁链桥，桥面已损无存，仅存铁索铁链，任由风雨侵蚀，自然淘汰。那些竹桥、藤索桥就更惨不忍睹。这就是云南古桥所面临的处境。本人前几年在宾川县考察过始建于明嘉靖二十三年（1544年）的南薰桥，当地政府和人民对此桥极为珍视，出资进行修缮保护，好像还列为县级文物保护单位。宾川南薰桥有如此良好的处境，这是云南古桥中为数不多的特例。

古桥的价值

云南古桥陷入如此危难的处境，主要原因是人们对古桥的历史价值缺乏认识，不知古桥弥足珍贵，而未加重视和保护所造成的结果。建筑和桥梁都是人类所创造的物质文明，都是人类社会发展的历史见证。建筑和桥梁也是文化的物化表现，是文化的物质载体。例如上世纪初（1909~1910）建于滇南地区滇越铁路上的石拱桥、钢筋混凝土拱桥和钢桁架桥等是当时中国殖民地半殖民地社会经济和帝国主义列强侵入中国的历史见证，同时也是中外文化交流和先进技术文明的标志。特别是五家寨的人字桥，其独特的结构形式和精湛的制造工艺，令人叹为观止，是本书中唯一列为“全国重点文物

保护单位”的桥梁。始建于1930年的曲靖富源海丹铁链桥，1935年红军第一方面军长征时途经此桥，具有很高的历史文化价值，也是爱国主义教育的基地之一。始建于清乾隆初年的建水双龙桥，桥长148m，桥上建有三座阁楼，其规模与气势在国内极为罕见，被我国著名的桥梁专家茅以升列为全国著名的大型桥梁之一。德钦和香格里拉的悬臂木梁桥，巍山的永济桥、腾冲的永顺桥和通济桥等风雨桥，桥梁的结构形式及桥上的亭廊建筑都具有鲜明特点，具有很高的技术价值和艺术价值。

以上实例可以看出古桥一般具有三个方面的价值：一是社会历史价值与经济文化价值；二为结构传力与构筑技术价值；三为观赏审美价值。一些桥梁具有其中一种或两种价值，而有些桥梁，如五家寨的人字桥则三种价值兼而有之，实为难得的佳构。我们只要用心观察，认真挖掘，也许还会发现许多具有重要价值的古桥。

古桥的保护

鉴于云南古桥现实处境和古桥的历史文化价值，有必要大声疾呼：抢救和保护云南古桥。抢救和保护工作首先要从调查研究开始，摸清家底，挖掘和分析古桥的历史价值和技术艺术价值，分级进行挂牌保护。

本书作者踏遍云南各地，广泛收集了云南古桥的文字和图照资料，全面展示了云南古桥的卓灼风姿，就是保护工作的第一步，为古桥的保护作出了积极贡献。本书作者的调查工作，是自发进行的。作者是从特定的角度观察和分析古桥。古桥的保护工作首先应由文物部门或交通部门牵头组成调查组（包括各方面的专家），对古桥作出科学的实事求是的评价，其后由政府部门按保护级别进行切实的保护与维修。

云南的古桥是前人给我们留下来的宝贵财富，我们后人应倍加珍惜。本书除了全面展示云南古桥的卓蹠风姿，为保护古桥作出了积极的贡献之外，也引起了我们对逝去岁月的追思和继承弘扬祖国传统建筑文化的思考。

2008年5月26日于昆明

注：书中各区域概述，对涉及的自治区、州、县，作全名称记述，为了便于阅读，各古桥的介绍中，只作地名记述。

Preface

Rao Weichun

Kunming May 26, 2008

Bridge and Architecture

Both houses and bridges are the two major types of artificial construction at the early stage in the long course of human history. Only in the old days, hay and wood were popularly used for making houses and bridges in all parts of the world. However, the function of architecture has expanded as the social-economic development progressed.

In many occasions, houses are not only for the purpose of providing shelter, but meeting the increasing demands of the people as well. For instance, the function of a bridge is not simply for crossing the river or a ditch, but for other purposes, such as aesthetics, or landscape. One concrete example, such as, the 'arcaded bridge' shows that it can additionally offer places for people to keep away from the rain or wind, or even rest. Such function has little difference from that of a common house.

In today's modern engineering system, bridges and architecture do not really belong to the same category, but they both present two subsystems from the same root and same origin. The famous contemporary Spanish architect Santiago Calatrava is both an engineer and an architect, same as Liugi Newi, an Italian architect, who created an excellent Volanatin pedestrian bridge, naturally combining technology with art to create an 'elaborate balance.' It is honorably regarded as an apotheosis in bridge design. In a word, both bridges and architectures are an integration of technology and art in the surroundings to a certain scale. They are serving the uses of human beings. Thus, this book is titled 'Ancient Bridges in Yunnan.'

Definitions of Ancient Bridges

From the ancient Ming and Qing dynasties, ancient bridges are comparatively well retained in all of Yunnan. Due to the mountainous geological conditions, many bridges are seen built over deep valleys, spanning swift rivers and mountain cliffs. Obviously, it was a tough mission in the old days to build bridges under such risky conditions. People living in such places, however, overcame a great deal of difficulties to have built all kinds of bridges, by skillfully using the materials and regional availabilities, all over Yunnan Province.

To name the earliest ancient bridges in China, the Anji

Bridge, also called Zhaozhou Bridge, in Zhaoxian, Hebei, which was built during the Daye Reign (606 to 616 AD) of the Sui Dynasty, number the first as a paradigm in Chinese bridge construction history.

When numbering the ancient bridges in Yunnan, the earliest one was built in the 2nd year of the Wude Reign of the Tong Dynasty (619 AD), which is located at Pingxi, Zhanyi, Qujing, named as Heiqiao (Black Bridge). Nevertheless, the longer and more remote a bridge was built in history, the higher historic and cultural value it will get. In fact, the definition of ancient bridge is determined by the time limit of before the Opium War (1804) or before the Xinhai Revolution, also the Revolution of 1911.

However, all the bridges enlisted in this book, though, are determined by the time limit before the founding of the People's Republic of China (1949), since Yunnan is located on the southwest border with comparatively underdeveloped social-economic conditions. Many ethnic inhabited areas still remain at the primitive conditions long after the founding of the People's Republic of China even. In addition, many contemporary bridges are listed just because they are built at the original sites of ancient bridges or near the ancient bridge sites; they are not at all ancient bridges according to the definitions set forth.

Categories of Ancient Bridges

The systematic categorizations of the ancient bridges in Yunnan generally cover the following aspects:

1. The first category is grouped by regional location, referring to the exact location of bridge. It is the primary categorization of this book for it is simple and easy in operation.
2. The second category is grouped by the time frame, which refers to the construction time of the bridge alone. This is also a simple and easy method to categorize the bridge. Only there are a number of existing bridges in Yunnan which modern people are unable to determine their exact date of construction, making such operation rather difficult.
3. The third category is grouped in terms of building materials, which simply record the materials used for building the bridge, such as stone arch bridge, iron-chain bridge, wooden bridge, and reinforced concrete bridge. This is obviously the simplest method in categorization.
4. The fourth category is grouped by judging the construction form of the bridge, which refers to the stress bearing type. It is a more technical aspect than the first three categorizations. In this category, there are beam bridge, arch bridge or suspension bridge, and so forth.

Fortunately, Yunnan, due to its remote location from the central China, still well retains all kinds of ancient bridges named above, though many of them are no longer existing in the inner

land of China. No wonder, Yunnan is known to the modern Chinese people as a Museum of Ancient Bridges as well.

Present Conditions of Ancient Bridges

In the past days, many school children went to school by using the cable slide in Nujiang area, which aroused the attention of the public and the government as well. Thus, people and organizations, with great concern, actively raised funds to build iron-chain bridges to provide safe transportation for the people living nearby. Ever since then, the ancient cable slide became a part of history.

The ancient bridges at the thoroughfare now are accompanied with modern highway bridges built right next to them. Unfortunately, the ancient bridges are seriously endangered due to lacking attention after being abandoned. Some square stone bridges are still tough and solid over centuries. Some stone bridges among them are still in good physical condition, except some of them are incomplete from missing parts of handrails. Some remaining stone bridges can be even be used for heavy trucks.

Compared with the stone bridges, both the wooden and iron-chain bridges were badly damaged over the years' weathering. For instance, the wooden bridges with suspension arms at Shangri-La and Tengchong are seen deteriorating in shape, the bridge surface is seriously worn from years' of use without care. More examples, such as the Yong'an Iron Chain Bridge at Tengchong and the Huzhai Iron Chain Bridge, they are left only with the iron chains. Examples will also be seen from the bamboo and rattan bridges built over river shoals and hidden in the thick forest. If no more attention is drawn to these disappearing bridges, they will completely wilt from our history.

A few years ago, I was introduced to visit a well-retained bridge at Bingchuan. This ancient bridge, the Nanxun Bridge, was built in the 23rd Year of the Jiajing Reign of the Ming Dynasty (1544). However, this bridge has received continuous care from both the local government and the dwellers for they regard it as a treasure. Funds have been raised from all possible channels to maintain the bridge and enlist it as a protected relic unit at the county level. It is an encouraging but rarely seen example among all the existing ancient bridges.

Values of Ancient Bridges

Facing the endangered conditions of some ancient bridges, I could merely assume that our people are unaware of the historic value of our ancient bridges. Both architecture and bridges are materialized civilization of human history; they jointly witnessed the time transformation of human society. More or less, they are a material carrier of culture.

The stone arch bridges, the reinforced concrete arch

bridges, and the steel truss bridges along the Yunnan-Vietnam Railway in south Yunnan (built during 1909 to 1910), recorded and witnessed the Chinese semi-feudal social-economic conditions. At the same time, they symbolize the China-foreign cultural exchange and advanced technical civilization. In particular, the Haidan Iron-Chain Bridge at Fuyuan, Qujing built in 1930 once saw the Red Army during their Long March, which has extremely valuable historic significance.

The Shunglong Bridge at Jiangshui built in the Qianlong Reign of the Qing Dynasty has a large scale and mighty prestige, and it is listed by Mao Yisheng, a sophisticated Chinese bridge specialist, as one of the famous largest bridges nationwide.

The arcaded bridges, such as Yongji Bridge at Weishan, the Yongshun Bridge, and Tongji Bridge at Tengchong jointly present unique bridge designs, as well as artistic porches, or corridor styles, valuing extremely high in terms of technology and art itself.

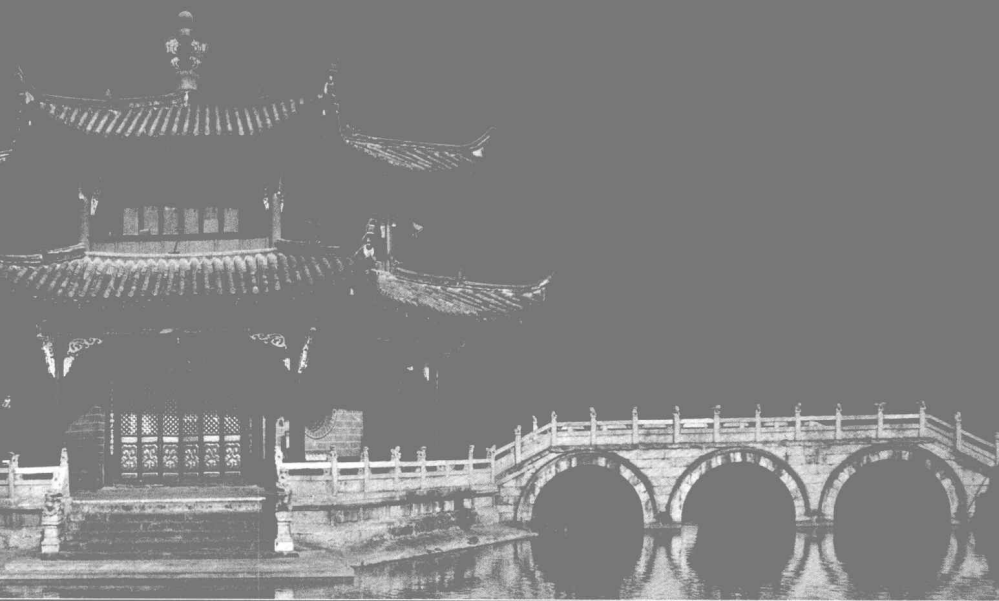
The value of ancient bridges are highlighted in three aspects; which is their socially-historical value and economically-cultural value; their structural transmission and structural technological value; and finally, their appreciation and aesthetics value. The "Herringbone Bridge" of Wujia Village comprises these three values solely, which is rarely seen among all the other bridges.

Protection of Ancient Bridges

To respond to the present states and conditions in terms of historic and cultural values carried by the ancient bridges in Yunnan, it is high time that we take actions to seriously protect these disappearing ancient bridges in Yunnan, especially.

The author of this precious bridge collection left his footprints all over Yunnan's mountains and along its river, taking a hard journey to gather all the possible facts and pictures related to the ancient bridges. The publishing of this book does not only represent the modern people today with the outstanding and graceful charms of the ancient bridges remained in Yunnan, but it has dramatically made contributions to the active protection of these disappearing ancient bridges.

Reading the book and looking at the graceful pictures of the bridges left behind by our great ancestors, we, the latter generations, should cherish them with double efforts. The great panorama of the ancient bridges in Yunnan spreading before us in this book has additionally brought consideration about our profound past, as well as the development of the motherland's traditional architectural culture.



目录

上册

滇西北

迪庆10-16 丽江市17-33

大理市34-127

滇西

临沧市130-136 保山市137-182

下册

滇东北

昭通市6-19 曲靖市20-51

滇中

楚雄市54-78 昆明市79-104

玉溪市105-109

滇南

普洱市112-129 西双版纳131

文山132-155 红河156-211

Contents

Vol.1

Northwest Yunnan

Diqing 10-16

Lijiang 17-33

Dali 34-127

West Yunnan

Lincang 130-136

Baoshan 137-182

Vol.2

Northeast Yunnan

Zhaotong 6-19

Qujing 20-51

Middle Yunnan

Chuxiong 54-78

Kunming 79-104

Yuxi 105-109

South Yunnan

Pu'er City 112-129

Xishuangbanna 131

Wenshan 132-155

Honghe 156-211

滇西北

怒江傈僳族自治州、迪庆藏族自治州、丽江市、大理白族自治州北部，位于云南的西北部，西与缅甸相邻，北与西藏自治区接壤，东与四川比邻，南与云南的保山、临沧相连。是横断山脉和云贵高原的衔接带。

2亿多年前，印度次大陆板块与冈瓦纳大陆分离，不断向北漂移，最终与劳亚大陆（欧亚大陆板块）相碰撞。在激烈的造山运动中，强大的压力使海底的地壳抬升出海面，使平川变成了不断变化的高山峡谷。这就是今天的青藏高原，今天的横断山脉，今天的滇西北。

滇西北整体地势呈西北高，东南低。有高黎贡山、怒山、云岭等山脉。梅里雪山的卡瓦格博峰，海拔6740米，是云南最高峰。怒江边的红旗坝，海拔730米，是这一地域的最低河谷。金沙江、澜沧江、怒江及其支流形成数百条纵横交错的大小河流，呈羽状遍布全境。高山、峡谷、江流形成了世界上独特的“三江并流”自然奇观，被称为“世界地质地貌博物馆”。

滇西北“踞全滇之上游，通巴蜀之要塞”，唐代已成为沟通滇、川、藏经济贸易、文化交流的通

道。还是我国最早与东南亚、西亚各国进行文化交流、通商贸易的重要门户。约公元前，有一条隐秘在崇山峻岭中的“南方丝绸之路”——蜀身毒道（从成都经大理、保山进入缅甸、印度、巴基斯坦、阿富汗）从这里经过，比西汉张骞通西域的“北方丝绸之路”还早。

自从人类站立在地平线的第一天起，人类就渴望着地平线消失点的光彩。它，诱惑着激励着人类，一天天成长，一天天成熟。物质的交流使生活丰富，文化的交流使精神充实。物质的交流总是携伴着文化的交流。生活在横断山脉纵谷地带的人们，为了扩大生存活动的地域，追逐梦想中的理想，必须翻越一座座崇山峻岭，跨越一条条江河峡谷，把不同的物质、文化交流沟通。因此，在滇西北的山川河流上，就地取材，因势架构了一座座大大小小、形形色色的桥。

桥的类型，随地貌山势的变化而不同。从前，北端的怒江州和迪庆州，因山高谷深，几乎全为木平桥（梁桥）和索桥（藤索桥、铁链桥和溜索）。20世纪初，美籍奥地利植物学家约瑟夫·洛克在丽江考察时，曾留下了许多珍贵的资料。往南下行，山势渐趋平缓，山间的坝子、江河两岸的缓坡也逐渐增多。丽江市除木平桥和索桥外，出现了较多的拱桥。南端的大理州，地势更趋平缓，河流纵横，拱桥出现的更多，有石拱桥、木拱桥，装饰也更丰富多彩。历代的大理工匠用杰出、精湛的技艺创造了众多的桥梁。云龙县被誉为“滇西桥乡”、“桥梁活化石”。



Northwest Yunnan

Nujiang Lisu Autonomous Prefecture, Diqing Zang (Tibetan) Autonomous Prefecture, Lijiang City, and Dali Bai Autonomous Prefecture are all situated in the northwestern part of Yunnan Province. This area borders on Myanmar in the west, and is the conjunction belt of Hengduan Mountain range and Yunnan-Guizhou Plateau.

About 200 million years ago, the Indian subcontinent split apart from the Gondwana continent and continuously drifted northward, and finally collided with the Laurasian continent. A tremendous pressure forced the land of the ocean floor upward forming what we know today as the Tibetan Plateau, Hengduan Mountain Range, and northwest Yunnan.

The terrain of Yunnan is high in the northwest and low in the southeast, where is dominated with high mountains ranges including Gaoligong Mountain, Nujiang River, and the Yunling Mountain Range. The Kawagebo Peak of Meili Snow Mountain points up some 6,740 m above the sea level, making it the highest elevation of Yunnan, while the Hongqi Basin by the Nujiang River falls to some 730 m above sea level, symbolizing the area's lowest valley. The Jinsha River, the Lancang River, the Nujiang River and all their tributaries create an interlaced patchwork of rivers and streams that spread over the entire area. High mountains, deep gorges and rivers form the unique natural spectacle of "Three Parallel Rivers" and make thus the area "The World's Museum of Geology and Topography."

As early as the Tang Dynasty, the Northeast part of Yunnan was already the passageway linking the cultures and commercial trade of Yunnan, Sichuan and Xizang (Tibet). The

Shu Shendu Dao ((Sichuan-India Road), passed right here, which is known as the Southern Silk Road which existed even earlier than the Northern Silk Road opened by Zhang Qian when he was sent on diplomatic mission to Western Regions (a Han Dynasty term for the area west of Yumenguan, including what is now Xinjiang and parts of Central Asia). This area became thus the first gateway for China's cultural and commercial intercourse with south and Southeast Asian countries.

From the first day that we human beings started the exchange of commodities, the exchange of cultures has always been conducted together. In order to expand the domains of living and activities, to attain ideals and realize their dreams, the people living in the Hengduan Mountain range and the near river valleys had to cross huge mountains and steep gorges to share and exchange materials and cultures. Thanks to this, among the mountains and rivers of northwestern Yunnan people set up homes and villages, and with this, they created all different sizes and varieties of unique bridges, according to what they could reach locally.

The styles of bridges vary with the physical features of places. Because of high mountains and deep gorges, the bridges in northern part of Nujiang and Diqing prefecture are usually wooden flat bridges or cable bridges. At the beginning of the 20th century, when Joseph Rock, an American Austrian was surveying Lijiang, he left behind many precious materials.

While traveling southward, the mountainous terrain gradually flattens people can see more, the gentle slopes flatland or basin in the mountains and on the two sides of river. In Lijiang, besides flat wooden bridges there are also many arch bridges. In the southern part of Dali Prefecture, the landscape is flatter, and so arch bridges appear more often over the many small and large rivers; bridge decoration is also rich and colorful. The Dali's craftsmen of past dynasties created many beautiful and picturesque bridges. Yunlong County is renowned as, "The Hometown of Bridges in West Yunnan" and, "The Living Fossil of Bridges."





迪庆州

Diqing

澜沧江，源于中国青海唐古拉山脉，经西藏昌都流入云南，自西双版纳州出国境，称湄公河，再经缅甸等国从越南流入南海，被称为“东方的多瑙河”。澜沧江全长4880公里，中国境内长1612公里，在云南流经迪庆、怒江、大理、保山、临沧、思茅、版纳七个州、市，流长1240公里。

在德钦，澜沧江江面海拔2006米，卡瓦格博峰海拔6740米，从江面到峰顶净高差4734米，坡面斜线距离为14公里。滇藏交界处的溜筒江渡口，历史上是茶马古道进藏的咽喉，人、马全靠溜索渡江。溜索为藤篾浸酥油绞缠而成，易损坏，常有人马坠江。20世纪30年代，约瑟夫·洛克在此过溜索，留下了“性命系于一绳的冒险行动”的记述。1946年丽江商人赖跃彩，在此建成铁索桥——普渡桥。

The Lancang River, as it originates from China's Qinghai Tanggula Mountain Range and flows toward Xishuangbanna and exits China, is also called, "Mekong River" outbound. As it flows through Myanmar and Vietnam, where it enters the sea, it is given a nickname as "the Oriental Danube." The Lancang River of its entirety is 4,880 km long, 1,612 km of it flows inside China's border, and 1,240 km flows through the Yunnan Province.

In Deqin, the elevation of the surface of the Lancang River is 2,006 m while the elevation of the neighboring Kawaboge Mountain is 6,740 m. From the river water to the mountain summit there is an elevation difference of 4,734 m with a diagonal distance along the slope of some 14km.





伸臂木梁桥 又称悬桥、挑桥，位于德钦县。石、木构架，主要由墩（桥基）、伸臂和桥面三部分组成。山高谷深或水流湍急难于砌墩，为获得较大的跨径，用圆木纵横迭架，从两岸向河心呈梯状层层挑出，相距五六米时，承梁搭接，铺板成桥。

The Stretching Arm wooden bridge is situated in Deqin county. This bridge consists of a stone and wooden structure, and is mainly comprised of three parts: the bridge pier, the “extended arms”, and the bridge surface. In order to obtain a broader span, round wooden logs are arranged length wise and width wise in an alternating fashion, from both river banks, layer by layer protruding toward the river center. When the gap in the center is only about 5 or 6 m (W), long wooden beams are used to connect and complete the bridge surface.





多墩式伸臂木梁桥 又称伸臂填墩木梁桥，位于香格里拉县。一般架设在河面较宽、水流较缓的河道上，多墩，桥面较长。填墩，用圆木围成菱形墩框，中间用石块填实，菱形分水墩，在汛期可减少水的冲击力。

上图：多墩式伸臂木梁桥，菱形分水墩。

下图：多墩式伸臂木梁桥，方形分水墩，由冷杉圆木架成，可通载货卡车。

This multi-pier wooden bridge is located at Shangri-La, Zhongdian. Normally, this type of bridge is built over a wide river, using logs to lead up into diamond-shaped piers with stone pieces to fill in the middle.

Top: Multi-pier stretching arm wooden bridge with diamond-shaped water division pier.

Bottom: Multi-Pier stretching arm wooden bridge with square-shaped water division pier, using fir log, available for cargo truck to pass through.



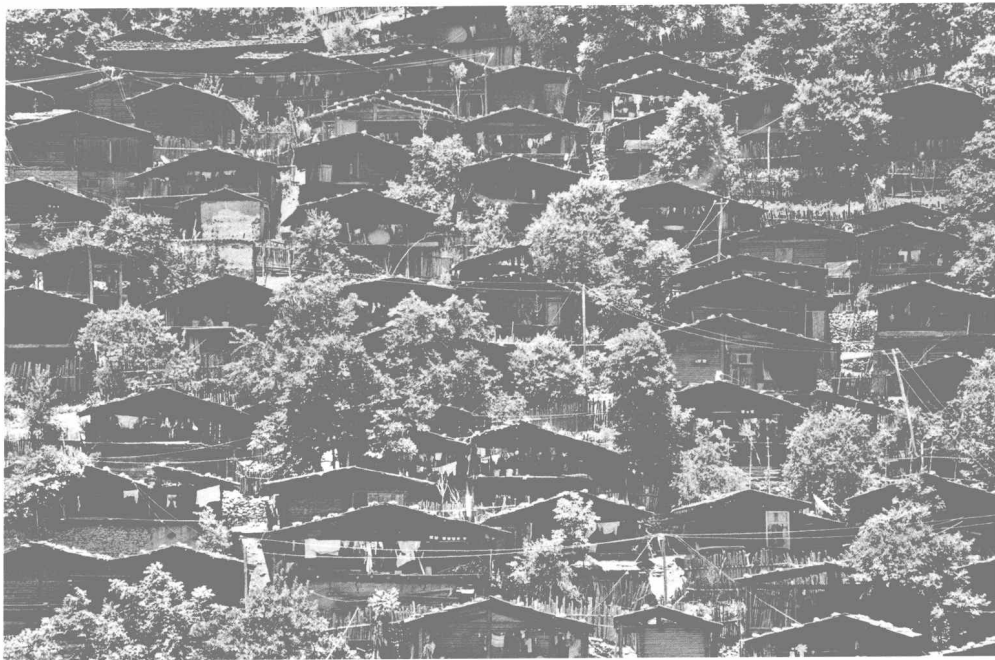


澜沧江边的傈僳族山寨。傈僳族多居住干栏式木楞房，俗称“千脚落地”房。房屋多建在向阳的山坡上，用几十根粗木柱支撑，再搭绑横木，铺设地板，以竹篾围挡成墙，顶覆盖茅草或木板。叶枝镇同乐村，2004年尚未通车，过江得靠过溜索。

下图：澜沧江边赶街的傈僳族。

The Lisu people living along the Lancang River are mostly inhabited in dry clay wooden houses, and the houses are built on the slope exposed to the sun. Up to 2004, no road was available to Tongle Village at Yezhi Town, and the zip-sliding was the only mean of transport.

Bottom: Lisu people at the fair street along the Lancang River





怒江溜索 怒江沿岸许多偏僻的地方，至今傈僳族、怒族赶街仍要携带着粮食、化肥、猪羊等物品从溜索上来往。过江的人、畜将身体用绳索捆绑在形如筒瓦的溜筒（溜槌）上，从溜索较高的一端凭借惯性滑向对岸。现今，溜索已改为钢索、滑轮，随着现代桥梁的兴建正逐渐消失。图为福贡子里甲乡的溜索，长约100米左右，离江面高约20米。

Nujiang River cable slide

The Lisu and Nu people live at the remote places along the Nujiang River still use cable slide to and fro. The longest cable slide is now remained at Lizijia Township, Fugong, Nujiang, which is about 100 m. in length, 20 m off the water surface.