Title: The Qin Maps, a.k.a. the Fangmatan Maps
Date: 239 B.C.
Author: Unknown
Description: From ancient times maps have served a variety of purposes in China. Many were designed as practical educational tools for scholar-officials, to guide, instruct and edify in times of both peace and war. They were also employed as a concrete means of asserting the emperor’s territorial claims, whether local, empire-wide, or world-wide. Maps became symbolic tokens of exchange in China’s domestic and foreign relations, and were even used to depict a perceived link between the realms of heaven and earth. Significantly, they also provided a means by which viewers could take “spiritual” journeys to distant lands - the cartographic equivalent of “travelling [through a landscape painting] while remaining at rest [woyou]”.

Traditional Chinese maps tend not to be drawn to scale, include a great deal of text and are sometimes pictorial. This generalization is accurate in so far as one acknowledges that a number of kinds of mapping practices, reflecting various epistemologies, did coexist. Distinct technologies and map styles were suited to different audiences and purposes.

Seven maps dated around 300 B.C., the Warring States period in China (475-221 B.C.), were unearthed in 1986 from a tomb of the Qin Kingdom. It is located at today’s Fangmatan, in Dangchuan Xiang (Dangchuan Township) under the administration of Tianshui city, Gansu Province. This is a significant discovery in the history of Chinese cartography because the maps antedate by some 130 years the three Han maps (pre-168 B.C.), which were discovered in 1973 in Mawangdui, Hunan Province (see #112.1). To date, the Fangmatan maps are the earliest Chinese maps extant. For brevity, the two sets of maps are identified as the Qin and Han maps in this paper. The Qin maps provide concrete graphic evidence of the earliest Chinese cartographic works relating to map content, symbolism, and cartographic execution. And, compared to any other surviving cartographic efforts from this period in history, demonstrate a well-established and sophisticated cartographic tradition by its use of conventional symbolism, accuracy and utility.

These ancient wooden maps discovered by Chinese archaeologists in northwest China’s Gansu Province have been confirmed as the country’s oldest one at an age of more than 2,200 years. The maps were drawn on four pine wooden plates, 23 cm long, 17 cm wide and 1.5 cm thick each, and include a drawing of Guixian County of the Qin Kingdom, one of the seven major warlords in the era of the Warring States. The maps, believed to have been completed in 239 B.C., are more than 1,300 years older than the Hua Yi Tu and Yu Chi Tu (see Book II, #218), both unearthed in the Forest of Steles in Xi’an, capital of northwest China’s Shaanxi Province. They are 300 years older than the map of Western Han (206 B.C.- 24 A.D.), excavated from Mawangdui in central China’s Hunan Province in 1973, according to the State Bureau of Surveying and Mapping (#112.1). He Shuangquan, a research fellow with the Gansu Provincial Archaeological Research Institute, has made an in-depth study of the maps and confirmed their drawing time to be 239 B.C. “This map provided material evidence of the developed cartology of ancient China and was a precious artifact in the study of China’s map-drawing technologies”, said Li Wanru, a research fellow with the ancient maps laboratory of the Natural Science Research Institute under the Chinese Academy of Sciences.
Each map has clear and complete graphics depicting the administrative division, a general picture of local geography and the economic situation in Guixian County in the Warring States era. Eighty-two places are marked with their respective names, locations of rivers, mountains and forested areas on the maps. What is more surprising is that the maps mark the location of Wei Shui, now known as the Weihe River, and many canyons in the area. The location of the Weihe River marked on the map agrees with the record in the Waterways Classic, a book by an unknown author of the Three Kingdoms period (220-280 A.D.), giving a brief account of the country’s 137 major waterways. Forested areas marked on the maps also tally with the distribution of various plants and the natural environment in the area today.

Unlike modern maps, place names on these maps were written within big or small square frames, while the names of rivers, roads, major mountains, water systems and forested areas were marked directly with Chinese characters. The distances of some roadways were also marked clearly on the map. Experts said that graphics, symbols, scales, locations, longitude and latitude are key elements of a map. The map of Guixian County has all these elements except longitude and latitude, according to historians. Compare these cartographic features with other surviving cartographic artifacts from anywhere during this time in history and you can see just how advanced the art and science of cartography was in this early Chinese period.

In his paper entitled “The Qin Maps: A Clue to Later Chinese Cartographic Development”, Mei-Ling Hsu analyzes the content and quality of the Qin maps, compares them with the Han maps, and evaluates both the Qin and Han maps based on the six cartographic principles formulated by the eminent cartographer/official Pei Xiu (Phei Hsiu) of the third century A.D. Lastly, he discusses the importance of the Qin and Han maps with respect to our understanding of the later development of Chinese cartography, the scope of cartographic inquiry, and fundamental cartographic conceptualization.

The Discovery of the Qin Maps
Over 100 tombs were discovered in the fan-shaped lowlands extending from the piedmont of the Qin Ling (Qin Range, in Shaanxi Province). Only fourteen of the tombs were excavated in 1986, one tomb was of the Han Dynasty and the rest, Qin tombs. This vast burial ground is located in an area of abundant underground water, and much water had seeped into the tombs. Thus many of the ancient artifacts, including the seven Qin maps, were found soaked in water.

The maps were drawn in black ink on four pieces of wood of approximately the same size. The thickness is 1.1 cm; the length is around 26.7cm; and the widths of the pieces vary from 15 to 18.1 cm. It took two years of carefully controlled slow-drying to restore the maps. Thanks to the excellent quality of the wood, the results of the restoration are much better than the anticipation of the excavators.

The Qin Maps: Content and Quality
The area coverage of the Qin maps partially overlap with one another, therefore it is possible to collate them to delineate the entire mapped area, as well as to note the relations among the maps. According to the historian Wanru Cao, the Qin Map 1 covers the administrative area centered on the ancient Gui Xian (Gui County, named Gui Qiu on Map 1) in the Qin Kingdom; the other six maps represent sections of this same territory (see below). Gui Xian is located in today’s Tianshui city. Another settlement named Di,
southeast of Gui Xian, is located near the confluence of the Yongning and Gaoqiao rivers.

The entire mapped area is about 107 X 68 km. It comprises three river systems: (a) the Xihan Shui, flowing westward; (b) the Yongning He, flowing southward, which has two major tributaries, Huamiao He and Gaoqiao He; and (c) two short rivers flowing northward into the Wei He. Both Xihan Shui and Yongning He are tributaries of the Jia lingjiang in Sichuan Province. Two drainage divides, the Maiji Shan and Bozhong Shan, separate the three river systems. Note that the divides are correctly shown as mountain ranges rather than single mountains, which are shown with a triangular symbol in many early maps. Rivers and the divides are located fairly accurately.

The entire mapped area is about 107 X 68 km. It comprises three river systems: (a) the Xihan Shui, flowing westward; (b) the Yongning He, flowing southward, which has two major tributaries, Huamiao He and Gaoqiao He; and (c) two short rivers flowing northward into the Wei He. Both Xihan Shui and Yongning He are tributaries of the Jia lingjiang in Sichuan Province. Two drainage divides, the Maiji Shan and Bozhong Shan, separate the three river systems. Note that the divides are correctly shown as mountain ranges rather than single mountains, which are shown with a triangular symbol in many early maps. Rivers and the divides are located fairly accurately.

The orientation of the Qin maps, north at the top, is the same as that of modern maps. A Chinese character shang (top or up) is written at the lower portion of Qin Map 2 and points to the top. This orientation also can be verified by noting the direction of flow of the many rivers shown on the map.

Several types of map standardized symbols are employed on the Qin maps. However, the similar line symbols used to show rivers, roads and drainage divides may appear confusing. Square outlines with enclosed place names identify more important settlements such as county seats, whereas other settlements are named without the outline symbol. A symbol that looks like a pass denotes mountain passes, and sometimes the word bi (a pass or mountain pass) is placed nearby. Finally, there is a pavilion-like sign in Qin Map 2 that symbolizes the site of Xi Xian (Xi County), in former Longxi Prefecture. It is located at today’s Yangjiasi.

Some mountains, streams, valleys and places are also named. A total of sixty-six names are on the seven Qin maps. Of all settlements, only three can be firmly documented today - Di, Gui Xian and Xi Xian. The Chinese characters of river names usually are placed in the order following the direction of stream flow, a common practice observed in later Chinese maps.

A significant and unique aspect of the Qin maps is that in three of them, Qin Maps 3, 4 and 6, there are notes indicating the kinds and locations of timber to be found in the forest (or wood cutting areas). On Qin Maps 3 and 4, a total of eight notes state the distances in mileage to the timber sites. These had to be some of the earliest, if not the earliest, economic maps in the world. Based on the site and distance information, the scale of Qin Map 3 is calculated to be 1:300,000.

What type of person was the owner of the tomb named Dan? Chinese scholars who have studied the collection of the unearthed artifacts have reached different conclusions. He was thought to be a high-ranking military man, or a known scholar and civilian official.
A modern map of China showing the area presented in the Qin Maps. The character "Di" is at the lower right corner of the map and the black dot in the inset map represents Tianshui city.
Qin Map 1. The two river systems are mistakenly connected at the center of the map.

Qin Map 2, note the symbols of a pass and a pavilion, 26.7 x 18.1 cm
Qin Map 3 contains notes on mileage and the timber information in the central portion of the map.

Qin Map 4 shows a river and a road located in the central part of the map, 18.1 x 26.5 cm.
Qin Map 5 is incomplete 18.1 x 26.5 cm.

Qin Map 6 contains an overlap of material with that of Qin Map 4.
Qin Map 6 drawn on a wood block.

Qin Map 7.
It is arguable that the Qin maps of Tianshui Fangmatan are claimed to be the world’s and Chinese earliest maps in practical use, however, the emphasis on their “practicality” bears resemblance to the tradition of practicality in the Qin dynasty. The contents of the maps are useful in investigating the aspects of local ecology and environment where the documented “Phoebe zhennan material” proves to be most valuable. Both administrative and military maps in ancient times put emphasis on the recording and displaying of information about forest trees. The Qin maps of Fangmatan highlight the trees’ “materials”, “sizes” and their “publications” which are realized as reflecting on the local vegetation conditions and their economic benefits thereof. The excavated wooden board drawings depict images of wildlife in the forest region and represent significant historical data of ecology. The maps of the Qin tombs in Fangmatan provide information about water transport in the forest region which familiarizes us with the water resources at the time and therefore proves to be invaluable.

References:
Cao, Wanru, *Wen Wu* No. 12, pp. 78-85.