国家自然科学基金资助项目

中国地貌

明光

中國古代地圖集

明代

AN ATLAS OF ANCIENT MAPS IN CHINA

The Ming Dynasty (1368—1644)

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Cultural Relics Publishing House

Beijing

1994

文 物 出 版 社

(京)新登字 056 号

侯仁之题字

封面设计　张希广
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文物出版社出版发行
文物出版社印刷厂制版印刷
新　华　书　店　经　销
787×1092　1/8　45 印张　2 插页
1995 年 10 月第一版　1995 年 10 月第一次印刷
ISBN 7-5010-0770-5/K・326

序

谭其骧

搜集、整理、汇编古文献，虽不是创造性的文化建设工作，但对文化保存、传布所作出的贡献是很大的，可以说不下于，有时甚至有过于创作者。

最显著的例子是：作为中国上古文化的瑰宝《五经》，不论它们与周公、孔子有没有，有多大的关系，总之全是古代相传某一门类文献的汇编或整理本，而不是出于一时一人之手的创作。《易》是古人占卜之辞和解释这些辞的作品。《礼》是古人记载下来的关于礼仪典章的条文和论述。这两种文书都是到西汉时才被汇集写定成书，以后遂传习不绝。春秋时许多国家都有以"春秋"为名的编年史书，周、晋、燕、齐、宋等国的"春秋"都未能传诸后世，惟独鲁国史官所记鲁《春秋》传了下来，这多半是由于经过孔子的笔削整理，因而被后世儒者尊为经典之故。我们更不能设想要是没有人把几十篇商周至春秋战国的文件汇集为一部《书》，没有人把三百零五篇周初至春秋中叶的诗歌汇集为一部《诗》，这些诗、文能以散篇的形式一直流传下来。整理汇编的功绩之巨大，于兹可见。

《汉书·地理志》和《水经注》是两种具有重大价值的中国古代地理名著。中国文化宝库中能拥有这两部名著，当然得归功于班固和郦道元。但班、郦二人的贡献，主要不在于二人自己的撰述，而在于他们把许多有价值的原始地理著作搜罗汇编在一起，从而使这些宝贵资料不至于散佚失传，得以传诸后世以至于今。要是没有班、郦，这么许多价值很高而篇幅短小的原始作品，就不可能流传下来。

《汉书·地理志》卷首主要辑录《尚书·禹贡》、《周礼·职方》两篇；卷末主要辑录成帝时刘向所言"域分"和朱赣所条各地区"风俗"；中间正文部分叙述西汉后期郡和县二级政区的建置沿革、户口、山川、关塞、城邑、祠庙、古迹、特产等，则主要依据成帝元延绥和之际（公元前9年左右）和平帝元始二年（公元2年）两份簿籍拼凑而成，可能还采录了一些其他资料。总的说来，全志属于班固自撰性质的章句极少，大致到不了十分之一；这篇重要文献的价值至少可以说什九在于辑录旧文。《禹贡》、《职方》由于早已被收入《尚书》、《周礼》，作为儒家经典的一部分篇幅而一直保存得完整无缺，所以班志卷首辑录这两篇，并不显得是一种大贡献。至于正文所辑两份郡国簿籍和卷末所辑"域分"、"风俗"，那就太重要了，内容丰富多采，是全志的精华部分。两份郡国簿籍记录了西汉后期的疆域政区、户口分布、水道源流……等等；"域分"和"风俗"把西汉各地区的经济人文情况铺陈得比《史记·货殖列传》更为详备。我们当然得感谢班固把这些原始资料辑录下来作为《汉书》篇幅的一部分而传诸永久，否则几乎可以肯定早已失传。

古今有许多学者认为，全部《水经注》内容除一些注明引自前人著作的词句外，便都是郦道元根据他自己调查、考察、

研究所得写下来的，这是极大的误解。实际郦道元的足迹非但到不了南朝境界，就是在北魏境内，据《魏书》本传所载，也只到过很有限的几处。当然他到过的地方可能会比列传提到的多几处，但他自己在《水经注序》中就说过“少无寻山之趣，长违问津之性”，他的治学方法是“默室求深，闭舟问远”，可见他决不是一个大旅行家，更不可能是一个从事大范围实地考察的地理工作者。《水经注》这部书是怎样写成的呢？他在自序中也有所交代，那是“窃以多暇，空倾岁月，辄述水经，布广前文”，“脉其枝流之吐纳，诊其沿路之所缠，访渎搜渠，辑而缀之”。原来他是根据“前文”即前人作品所载水道源流和两岸经历，一渎一渠地辑缀下来的。可见郦注和班志一样，主要贡献也是在于郦道元纂集了大量的前人地理著作，而不是根据他自己亲见亲闻所记下来的那一小部分。

有些人可能会说，郦注在引用前人著作时不是都交代清楚了吗？虽然引书多至四百多种，但引文所占全书篇幅并不多，不能因此便认为这部书的性质属于“述而不作”。殊不知古今撰述体制不同。今人著书写论文凡引用前人、他人著作，不论是整节或一句两句，都必须打上引号，注明出处，不这样便公认为是不谨严、不道德的行为。古人可没有这样严格，引用前人著作可以交代出处，也可以不交代，一随行文的方便。《水经注》正是这样做的。郦道元自己在序中说得很清楚，他是在“布广前文”，他当然可以大段整节移录“前文”，无需一一注明引自某书。例如，《江水注》中描述三峡景象的从“三峡七百里中”至“猿鸣三声泪沾裳”那一段，脍炙人口，向来被人们选为显示郦道元文学造诣的代表作；其实这一段是从盛弘之《荆州记》里抄过来的（见《太平御览》卷53），并不是郦氏自己的创作。但在郦氏则认为可以迳行采用，用不着交代出处。这是当时的习惯，并不可怪。一部《水经注》记载到的地域范围是那么辽阔，每处又都要既写地理情况，又写历史事迹，有些段落又描述得那么细致，这决不是凭个人的经历所写得出来的。所以全书采用前人著作而不注明出处的部分，肯定要比注明出处的那部分多上几倍。这也就是说，郦注基本上是一部地理著作的汇编，并不是个人的创作。

这样说决不是贬低《水经注》的价值，蔑视郦道元的贡献。《水经注》之价值连城，正在于它汇集了郦所见到的数以百计的两汉六朝地理著作中的大量资料。郦道元对中国古代地理学作出了杰出的贡献，正在于由于他的搜罗整理汇编，才使大量久已失传的原始地理著作中的一部分宝贵资料，得以流传下来。

上举这些例子，说明了将零篇短帙古文献汇为一编是何等的重要。文字资料如此，图画资料更是如此。

地理之学，非图不明。地图对表达地理情况所起的作用，往往比地理著作更大。我国具有悠久的制作地图的传统，在西周初期的文献记载和铜器铭文里，已有为营建洛邑而绘制的选定城址图（《尚书·洛诰》），为统治者指示“次序祭之”而绘的山川图（《诗·周颂》），记录重大军事行动的《武王成王伐商》，表示王畿以东诸侯疆界的《东国图》（宜侯矢簋铭）等等，足证在此以前必曾已有一段较长时间的制图技术发展过程。尽管目前还没有在原始社会遗存里发现过地图实物，也没有在甲骨文卜辞里找到有关记载，但我们不能排除我国在原始社会晚期、奴隶社会早期已有地图的可能性。

《周礼》中《天官》、《地官》、《春官》、《夏官》等篇所载地图品种极为繁多，有包括当时所知“天下”“九州”的大面积图，有一遂（一万家）乃至一闾一里（二十五家）居住区的小地区图；内容则有山林、川泽、丘陵、坟衍、原隰等地貌，有邦、国、都、鄙、乡、里等政区，有农、牧、矿、动植物等矿产，有交通路线，或民族分布，有可以据以判决闾里争讼的土地图，有贵族和庶民的墓葬图等等。《管子·地图篇》所载地图精确度极高，战争时可据以审知道里远近、地形险要，决定行军路线，举措先后。《周礼》、《管子》所说到的地图有一部分可能出于作者想象，未必实有；有一部分当系二书写成时代即战国时代的实况，也有一部分很可能反映了西周、春秋时的情况。

自秦汉至明清，地图的制作随着时代的进程日益普及、发展。单就唐宋时代而言，当时定制，全国各府州每三年或五年都要绘制一次本州地图，和本州的版籍一起上报尚书省。唐、五代、两宋以六百年、三百州，平均每四年一造送计，即有

州图共四万五千。宋咸平后又令诸路十年一上本路图，则两宋又当绘有各路地图数百。尚书省由兵部职方司掌管各地送到的地图，并将各地的图拼合画成一大幅“天下图”，唐五代称为“十道图”，宋改称“九域图”。除统治所及地域内的政区图外，又画有域外的“四夷图”。域内外合起来则为“华夷图”。除疆域政区图外，又有边防、屯牧、邮驿、河渠水利等特种图。除政府各机构和各级地方政府所绘制者外，又有学者私人所制作的各种地图，包括有突出成就的裴秀《禹贡地域图》、贾耽《海内华夷图》、朱思本《舆地图》等等。总之，在这二千多年中曾经制作出来的地图应以万数计，其中有名目见于各正史艺文志、经籍志、纪、传和唐宋以来类书以及诸家书目、其他记载的，即不下数百种乃至上千种。

中国自古以来重视图不下于书，故图与书合称“图书”或“图籍”，用以包括所有传世文献资料。从各历史时期的记载看来，图与书确是长期以来都受到同样的重视。可是，古籍在历经千百年来天灾人祸之余，流传至今的约计达十余万种，论卷数则应达数百万。而古代地图若以一幅图抵一种书，则流传下来的不及古籍百分之一；若以一幅图抵一卷书，则只有古籍的千分万分之一。古地图流传至今的为什么这么少，推原其故，当由于：

一、图的摹绘比书的传写要难得多，所以图的摹绘本一般都要比书的传写本少得多，流传到后世的机会也相应地减少。有些见于记载的图也许本来只有一幅原制品，从没有复制过，这种以孤本形式保藏起来的图，其存在时期当然不可能很久。

二、古代的制图技术还不大可能在等大的缣帛或纸张上，用多种不同比例尺来画出面积大小不同、内容多少不一的地图来，图幅的宽度长度一般都得跟着所画地域范围的大小和内容的多寡而或大或小或长或方。各种地图图幅大小和形状的差别很大，所以只能都以单幅形式收藏，难以装订成册。这就比成册成函的书籍保存起来难得多，一遇事故，更容易损失。有些地图如晋裴秀所见司空所藏“旧天下大图”，用缣八十匹；唐贾耽所制《海内华夷图》，广三丈，纵三丈三尺。这么大的图幅，当然极难长期保存下来。

三、历代书籍或藏在官府，或散在民间；散在民间的比重大致随时代的推移而逐步增加。因而古书的大部分虽在多次劫难中被毁灭了，却还能有小部分保存下来。古代地图则几乎全部是收藏在官府里的，民间藏有地图虽不能说绝无，必然是很少的。因而劫难之来，凡是画在竹、木、纸、帛等材料上的地图，即无一能幸免于难；幸存下来的，只能是刻在石碑上的，或埋在坟墓里的。

四、还有一点就是古代的零碎文字资料可以被汇编为一部“经”而流传下来，可以被采入一朝的“正史”而流传下来，可以被辑缀成一部书而流传下来，而这几种“可以”对难以摹绘、大小不一的单幅地图而言，却都是不存在的。所以不仅经书里没有图，就是地理专著如《汉书·地理志》、《水经注》里，也都是只有文没有图，尽管班固、郦道元都看到过不少前代和当代的地图。这就注定了古地图能否流传下来的命运，完全取决于原制品和当时少量的复制品能否经历千百年来多次天灾人祸仍然保留下来。而事实上这种可能性是不存在的，除非已刻在石上或埋在地下。

正由于地图的流传要比书籍难得多，因而传世的地图不仅数量很少，年代也较近。近代学人所能看到的最早的地图，原来只有八百多年前宋代人所绘制的几幅。直到1973年在长沙马王堆三号汉墓出土了埋葬于汉文帝十二年（前168年）的画在帛上的地图，才使我们看到的古地图实物，一下提早到二千一百多年前。但比之于三千多年前的见于《诗》、《书》和甲骨钟鼎的商周文字记载，仍然要晚上千把年。并且，自汉文帝至北宋后期之间的一千多年，至今也还找不到一幅符合严格意义的地图。本图集所能搜集到的，只有几幅略具地理意义的建筑图和城市图。

古人在当时的技术条件限制之下，除了刻石、入土之外，即无法将地图长期保存下来，也无法把许多单幅地图汇为一编。时至今日，对古人说来是无法克服的限制早已为现代技术所突破。我们当然再也不能听任那些历经劫难幸存下来的古地图，仍然象过去那样只是将原制品或加上极少量的复制品庋藏于图书馆、博物馆、档案馆的善本珍品库里，不令广泛传播；仍然象过去那样以单幅零页的原貌或作为罕见版本书籍的插图而散在各处，不予汇集成编。利用照相缩印技术把

古地图拍下来汇集成编，这是一种保存古文物、传播古文化必须做的工作。这种工作世界上有许多历史比较短的国家都已做了，我们这个文明古国到今天才来动手做，应该说是已到了不容许再推迟的时候。但是由于资料太分散，要汇集起来颇不容易。中国科学院自然科学史研究所为此特于1983年9月邀集有关庋藏研究单位，组成了《中国古代地图集》编委会。在社会主义大协作精神鼓舞之下，经过三年的努力，现在第一册即将定稿付印了，这是学术界一件很可喜可贺的大事。从此以后，目前传世的古地图就再也不会因原件偶然被毁而连图的内容也随之消灭了；从此以后，原来很难看到看全的很分散的许多珍品孤本，可以通过翻阅几册汇编起来的图集而窥其全豹了。所以这套地图集的出版，既具有保存文化遗产的作用，又可以促使有关学者较前更深入一步研究我国古代地理知识和测绘制图技术的发展过程，从而为发扬传播中华民族传统文化立功。就其贡献的性质而言，是可以与汉儒结集儒家经典、班固将西汉地理资料编入《汉书·地理志》、郦道元将汉魏两晋南北朝地理资料辑缀成为《水经注》差相媲美的。

本图集预定分三册陆续出版。第一册收集了元以前绘制的地图六十种、二百余幅；第二册将收集明代绘制的地图；第三册将汇集清代前期绘制的地图。原则上凡古人画在帛上、纸上或壁上的，刻在石、砖、崖壁、木板上的，属于文物性质的，全收；原来是一些刻本、影印本书籍中的印刷图则不一定全收，一部书里有几十幅图的，一般选收其中有代表性的几幅。文物性质的图所以要规定全收，当然是由于其价值高，原件难以看到。所以我在此一方面热烈庆祝第一册即将与读者见面，一方面又迫切希望第二、第三册能尽快编定出版，因为我知道第二、三册中必将收集比第一册更多的属于文物性质的绘本地图，这些图原来都是我们极难看到的，深藏在博物馆、档案馆、图书馆里的孤本。

1986年7月3日

PREFACE

Tan Qixiang

The gathering, sorting and compilation of classic documents, though in itself not a creative work in cultural construction, does contribute a great deal to the preservation and propagation of culture. It may be said its importance even exceeds that of those who actually wrote the documents.

The most prominent example is the *Wu Jing (Five Classics)*, a treasure in ancient Chinese culture. Whether it was related or unrelated with the Duke of Zhou (first ruler of the Zhou Dynasty) and Confucius, the Wu Jing was not the work of any one man or of any particular period. It was entirely the result of compliation and arrangement of a certain category of ancient documents. *Yi Jing (Book of Changes)* consists of words of divinations and their explanations. *Li Jing (Book of Rites)* is a record of regulations of and discussions on rites left behind by ancient people. The two books were gathered, arranged and compiled during the Western Han Dynasty, and later handed down from generation to generation. Many feudal states compiled annals using the name Spring and Autumn during the period known by that name. The states of Zhou, Jin, Yan, Qi and Song failed to leave behind their annals. Ony the *Spring and Autumn* recorded by the official in charge of the history of the State of Lu has passed on to us. This is largely because it was sorted by Confucius and thus revered by later Confucian scholars as a classic. It simply cannot be imagined that scores of documents dating from Shang Zhou, Spring and Autumn down to the Warring States Period could have survived to this day as single works without having been compiled into a book. It is likewise hard to imagine that the 305 poems from the beginning of the Zhou Dynasty to the middle of the Spring and Autumn Period could have survived to this day as single works had they not been compiled into the *Book of Poetry*. From this one may have an idea of how great is the contribution to culture made by compilation and arrangement of ancient documents.

The *Di Li Zhi (Book of Geography)* in the *Han Shu (History of the Han Dynasty)* and *Shui Jing Zhu (Commentary on the "Waterways Classic")* are two famous books of great value on ancient Chinese geography. The credit of the inclusion of two such works in the cultural treasure of China should certainly be attributed to Ban Gu and Li Daoyuan, whose contribution lies not so much in the collection and compilation of the many firsthand geographical source writings as in the accounts written by themselves. These valuable source writings or maps have been preserved to this day. They could not have survived without the efforts of Ban Gu and Li Daoyuan.

The *Di Li Zhi in the Han Shu* carries two articles in its beginning: the *Yu Gong* of the *Shang Shu* and the *Zhi Fang* of the *Zhou Li*. The final pages of the book are chiefly devoted to Liu Xiang's division of regions and to Zhu Gan 's enumeration of the customs of the people inhabiting various areas during Emperor Cheng Di's reign. The main body of the book gives an account of the prefectures and counties, such as establishment of administrative units, population, mountains and rivers, cities and towns, ancestral temples and shrines, places of historical interest and special regional products. It is based on two official accounts written between 9 B.C. and A.D.2 as well as other data. On the whole only a small portion in the entire book (about one tenth of it) was written by Ban Gu. The value of this important document lies in the fact that nine tenth of it was edited and compiled from previously existing works.

Yu Gong and *Zhi Fang*, as part of Confucian classics, have been preserved in its entirety. Ban Gu did not seem to have made any great contribution in including them at the beginning of his book. However, the official record of prefectures and counties in the body of the book and the division of regions and accounts of the customs of people at its end, rich in content and constituting its essence, are very important indeed. The two official entries have recorded

the territory and administrative areas, distribution of population, rivers and their sources, etc. of Western Han in its late period. Their discussion of the economy and humanities of the different regions of Western Han are even in greater detail than the accounts in the *Huo Zhi Lie Zhuan (Biographies of Traders)* of the *Shi Ji (Historical Records)*. We have much to be thankful to Ban Gu for having compiled these firsthand data as part of the *Han Shu* to be handed -down as a permanent record, for otherwise they would have been lost to us long ago.

Scholars of modern and ancient times are of the opinion that the *Shui Jing Zhu*, apart from few passages referred to as quoted from the works of previous writers, was written by Li Daoyuan on the basis of his own investigation and research. This is an utterly mistaken notion. In point of fact Li Daoyuan could only have set foot on a limited number of places in the territory of the Northern Wei Dynasty, much less in the territory of the Southern, according to the account in the *Wei Shu (History of the Wei Dynasty)*. Of cource, the number of places he visited could have been somewhat greater than what was mentioned in his biography recorded in the *Wei Shu*. Li Daoyuan in his Preface to the *Shui Jing Zhu* said that he had never been inclined to go for excursions in hills and along streams. The method of his research was to probe into the depth of things in his own room or to find out the conditions in faraway places without the aid of ships. It is thus clear that he was by no means a great traveller, even less was he a geographer engaged in extensive on-the-spot investigation. How then could he have written his book? He made some reference to this in his Preface, saying that

"Having at my disposal plenty of time
Which cannot possibly be wasted,
I wrote the *Shui Jing Zhu* to propagate
What other writers before me have already put down.
I conducted a research into the outlets and
Sources of rivers, their tributaries and the routes
Of their journey and investigated into irrigation canals
And ditches as well, and recorded them all in this book."

From this it can be seen that he based himself on the accounts given by preceding writers to describe waterways, their outlets and sources and the conditions along their banks. The same as Ban Gu's annals, Li Baoyuan's annotation makes its main contribution to culture in gathering and compiling previous geographical accounts rather than in giving eye-witness account of things, which constitutes only a small fraction of their works.

Some would probably argue that in his *Shui Jing Zhu* Li always provides the source of anything he quotes. Although he quotes from as many as over 400 places, his quotations do not occupy much space, so we cannot say that he only gives the accounts of others without writing anything himself in his work. But the way of compilation as it is done today is different from that of Li's time. In modern times when one writes an article, one has to use quotation marks for anything quoted, whether it be a sentence or a whole passage. Failing to do this a modern writer would be accused of a breach of ethics. Ancient writers were not so strict about this, however. They were at liberty to give or not give the source of their quotations as they saw fit when they wrote. That was just what Li Daoyuan did in his *Shui Jing Zhu*. He made this quite clear in his Preface. In making use of the writings of previous authors, he could very well have quoted whole passages without giving the source of his quotations from other books. For instance, in the volume on *Jiang Shui Zhu* he gives a description of the Three Gorges of the Changjiang River. What follows is a passage people nowadays quote quite often. It starts by

"Within the seven hundred *Li* of the Three Gorges" and ends with

"Three cries of the ape makes the traveller's garment wet with tears."

This description has long been regarded as Li Daoyuan's representative work, showing his high attainment in literature. In point of fact, however, the passage is a quotation from Sheng Hong's *Jingzhou Annals* [see Vol:52 of *Tai Ping Yu Lan (Taiping Imperial Encyclopaedia)*]. Li did not write the passage himself. He thought he might very well just use it without mentioning its source. This had been the practice with ancient writers, and there is nothing in it to be surprised at. A book like the *Shui Jing Zhu* could not have been written on the basis of the personal experience of any one man, since it keeps such a detailed account and covers such an extensive scale of territory, geography and history. It is, therefore, certain that passages where sources have not been given outnumber by several times those where sources have been given. This is to say that the book is in the main a compilation of many works rather than the work of an individual.

In so saying I am not derogating the value of the *Shui Jing Zhu* or belittle the contribution of Li Dayoyuan. The immense worth of his book lies in the fact that it has compiled a huge amount of data from the hundreds of works on geography of the Western Han, Eastern Han and Six Dynasties which Li had come across. It is his outstanding contribution that he collected a vast amount of precious data from among a vast number of first-hand geographical

books long lost to us, and enabled them to be handed down to posterity.

What is stated above shows how imporant it is to compile short, scattered ancient writings into a book. Such is the case with written material, and even more so with pictorial material.

The science of geography cannot explain itself without the aid of maps. Maps play a far more important role in descrribing geographical conditions than written geographical accounts. China has a rich tradition in map making. Written documents and inscriptions on bronze vessels reveal that there was a map of the chosen site of a city in the *Luo Gao* of the *Shang Shu (Book of History)*. In the *Zhou Song* of the *Shi Jing (Book of Peotry)* can be found a map of mountains and rivers "in the order" to be visited by rulers "to offer sacrifices". The *Expedition against Shang by Prince Wu and Prince Cheng* records the major operations launched by the two princes. The *Tong Guo Tu* inscribed on a *gui* (a bronze vessel used as a food container) owned by Marquis of Yi indicates the boundaries of principalities east of the imperial domain. These provide adequate evidence of the existence of a rather long process of map making before maps were actually drawn. In spite of the fact that no material object of a map has hitherto been found among the remains of the primitive Chinese society, neither are there related rocords in divination writings inscribed on tortoise shells, still we cannot rule out the possibility that maps existed in China's late primitive society or in the early period of its slave society.

The articles on Heavenly Official, Earthly Offical, Spring Official and Summer Official in the *Zhou Li (Rites of the Zhou Dynasty)* contain a great variety of maps, such as the big one on the nine *Zhou* under heaven, which is a poetic name for China, maps of the residential districts of ten thousand households, and even maps of the location of every 25 households. In the maps there are topographical accounts of mountains, forests, rivers, streams, grave mounds, plateaus and low-lying areas, the administrative areas of feudal states, nations, capitals, frontier towns, villages and precincts as well as products of agricuture, animal husbandry, minerals, fauna and flora. Also seen on these maps are transport lines or the distribution of ethnic groups as well as the distribution of land holding, which served as a basis to settle disputes on land possessions. There are besides maps of grave mounds of the nobility and the common people. The *Di Tu Pian* in the *Guan Zi (Book of Master Guan)* carries maps drawn with great precision. In time of war these maps provide a good guide to ascertain the distance of towns or villages and to indicate strategical positions, on the basis of which the route where an army was to march or which towns to attack first were decided. One part of the maps in the *Zhou Li* or in the *Di Tu Pian* of the *Guan Zi* might just be works of imagination by their authors, while another part of them reflects actual conditions then prevailing in the Warring States Period. A third part could very well be reflections of situations of the Western Zhou Dynasty and the Spring and Autumn Period.

From the Qin and Han down to the Ming and Qing Dynasties map making in China became more and more popular and developed in the course of time. During the Tang and Song Dynasties each *fu* or Zhou (prefecture) had to draw its own map every three or five years and submit it to the Shang Shu Sheng (Department of State Affairs) together with its census. The three hundred prefectures in the Tang, Five Dynasties and Northern and Southern Song Dynasties—covering a period of 600 years, made maps on an average of every four years. This brought the number of maps with a total of 45,000. In the Xian Ping reign of the Song Dynasty it was decreed by the emperor that each *lu* (district) must submit a map of its precinct every ten years. In the Northern and Southern Song Dynasties several hundred maps of different districts must have been drawn. The maps were submitted to the Shang Shu Sheng (Department of State Affairs) by the Zhi Fang Si (Bureau of Maps) under the Department of War. From these maps the Shang Shu Sheng drew a general map of China by the name of Shi Dao Tu (map of ten regions) in the Tang and Five Dynasties. The name was changed to *Jiu Yu Tu (*map of nine regions) in the Song Dynasty. Apart from this map which included territories under the jurisdiction of the central government, there was another map indicating areas beyond the jurisdiction of the central government, known as the *Si Yi Tu (*map of border tribes). These two maps were put together to become the *Hua Yi Tu* (covering territory under and beyond the jurisdiction of the central government). Besides the above-mentioned maps of China's administrative areas and territories, special maps were drawn to indicate border defence, military farming, postal routes, rivers and irrigation canals. In addition to maps drawn by various government departments and by local governments, there were those drawn privately by scholars, including the outstanding map *Yu Gong Di Yu Tu* by Pei Xiu, the *Hai Nei Hua Yi Tu* by Jia Dan and the *Yu Di Tu* by Zhu Siben. In all, there must have been tens of thousands of maps in the course of over 2,000 years. Several hundred up to one thousand such maps are included in records of literature and art of history books written in biographical style, in records of Confucian classics and classical works, and in biographies as well as encyclopaedias and catalogues of books of various schools from the Tang-Song period onwards. There were also several hundred or even as many as one thousand maps recorded in other works.

Since remote antiquity illustrations have been regarded as important as written accounts in China. The Chinese

term *tushu (tu* meaning illustration, *shu* meaning book) is coined to denote what is known as book in English. The term *tushu* or *tuji* embraces documental material of all sorts handed down from generation to generation. Judging from the records of the different periods in Chinese history, illustrations and written works have always been receiving equal attention. About 100,000 categories or several million copies of anicent books have survived to this day in China's long history marked by constant natural disasters and man-made calamities. Yet ancient maps that have been handed down constituted only one percent of ancient maps, if we take one ancient map for one set of books. Surviving ancient maps constitute only one thousandth or one in ten thousand books, if we regard one ancient map as equal to one book. How then are we to account for the scarcity of surviving ancient maps in China? The reasons for this must be as follows:

1. As the drawing of maps is much more difficult than the writing of books, maps that have been handed down are far less than books that have been written. The chances for the survival of maps are correspondingly reduced. Some of the maps referred to in books may only have one original copy, and may never have been reproduced. No doubt such rare books could not have been preserved for a great length of time.
2. Ancient map drawing technique could not have resulted in producing maps that show different areas and have different contents with different scales on paper or thin silk of equal size. The width and length of maps must correspond to the size and content of the range of topography to be drawn. These maps might be big or small and oblong or square as the case may be. Their size and shape vary a great deal from map to map. Maps are therefore usually preserved separately and hardly ever bound into volumes. They cause far more difficulty in preservation than books or books in cases whenever calamity occurred. The *Jiu Tian Xia Da Tu,* an old grand map of China kept by the Si Kong (Minister of Public Works) and once seen by Pei Xiu, made use of 80 bolts of silk. The *Hai Nei Hua Yi Tu,* drawn by Jia Dan of the Tang Dynasty, measured 3 *zhang*[1] in width with a length of 3 *zhang 3 chi*[2]. In view of their size, it was extremely difficult to preserve such maps over a long period of time.
3. Books had been preserved in China throughout the ages either by the government or in scattered fashion among the people. Books that came into the hands of the people increased in number as time went by. That was why most books were destroyed during calamities while a small part of them had survived. Ancient maps were almost entirely kept by the government. Few if any were kept in the home of private people. In consequence of calamities ancient maps, drawn on bamboo, wood, paper or silk, were totally destroyed. The only ones preserved were either found on stone tablets or buried in tombs.
4. Another point is that fragmentary written accounts from ancient times would be handed down from generation to generation if they were compiled into a *jing* (classic), gathered into a *zhengshi* (standard, authorized history) or edited as part of a book. However, the likelihood of single maps, hard to draw and varied in size, surviving under such circumstances is nil. This is why no map can be found in *jing shu* or Confucian classics. Even monographs on geography like the *Di Li Zhi (Book of Geography)* in the *Han Shu (History of the Han Dynasty)*and the *Shui Jing Zhu* contain only written accounts with no maps, despite the fact that their authors Ban Gu (32—97) and Li Daoyuan (466 or 467? —527) must both have seen many maps of former ages or of their own times. Whether or not ancient maps would be handed down from generation to generation rests completely with the preservation of original maps or the few reproductions during repeated calamities in the course of several thousands of years. As a matter of fact, such likelihoods simply doesn't exist, except in the case of maps inscribed or engraved on stones or buried underground in tombs.

Due to difficulty in circulation and preservation, maps that have come down to us are not only few but also of comparatively recent times. The several earliest maps seen by modern Chinese scholars are those drawn by Song Dynasty map-makers about 800 years ago. A map dating from 168 B.C. (12th year of the reign of Emperor Wendi of the Han Dynasty) drawn on silk was unearthed in 1973 at No.3 Tomb of Western Han Dynasty in Mawangdui, Changsha. This is the earliest artifact in the form of a map discovered so far. It brought the date of the earliest existing map to over 2,100 years ago. Yet this map is about 1,000 years later than those mentioned in the *Book of Peotry* and in the *Book of History,* or recorded in the Yin-Shang Period on tortoise shells and bronze bells and bronze cooking vessels with three or four legs. We still have not discovered any map of the period of over 1,00 years between the reign of the Han Emperor Wendi and late Northern Song Dynasty that can be called a map in the strict sense. What have come to hand and are included in this ancient Chinese atlas are some maps of construction sites and of cities, which are of some geographical significance.

The technological limitations imposed on ancient Chinese map-makers, whose only way for the long preservation of maps was to engrave them on stones or burying them underground, have been surmounted by modern technological advances. These limitations once made it impossible to preserve maps for a long time or to compile many single maps into an atlas. At the present time when technological diffiulties have long been done away, we

certainly should no longer be content with the small number of original ancient maps and the very few of their reproductions in libraries, museums or archieves as rare books or treasures. These maps ought to be circulated. Neither should we allow scattered single maps or pages of maps continue to exist everywhere or as illustrations to rare copies of anicent books. We should compile these maps into atlases, which is a work to be done without delay for the preservation of ancient cultural relics and for the propagation of ancient culture. This work has been undertaken by countries that have a history shorter than China. China itself, with an ancient and long history, is beginning to compile its atlas of ancient maps. Yet such compilation involves difficulty, since the maps are too scattered. In September, 1983 the Institute of Natural Sciences under the Chinese Academy of Sciences called together all organizations related to map making and formed an edtorial board for the compilation of an ancient Chinese atlas. After three years of concerted effort in the spirit of socialist coorperation on a large scale, the final text of its first volume will soon be sent to the press. This is a great event that gives cause for joy and celebration in the academic circles of China. Henceforward existing ancient maps will be preserved and handed down to posterity, and their fate of destruction by accidental factors resulting in maps being lost without even knowing their content will be avoided. Rare and scattered maps, so difficult to see in their entirety, will be ready to hand, if one will only scan the atlas, whose publication will not only preserve China's cultural heritage but also promote further inquiry into the development of ancient geography and map-making technique in China. Consequently, we shall be making a contribution to the development and propagation of traditional Chinese culture. The nature of the contribution may be compared to the compilation of the *Di Li Zhi* in the *Han Shu* by Ban Gu, who made use of Western Han geographical data that appeared in the works of Confucian scholars of the Han Dynasty, or to Li Daoyuan's edition of many geographical data of the Han, Wei, Jin and Northern and Southern Dynasties into his *Shui Jing Zhu*.

The three vloumes of *An Atlas of Ancient Maps in China* will be published one after another. Volume I consists of 60 kinds of maps totalling over 200 maps drawn prior to the Yuan Dynasty. Volume II consists of maps drawn during the Ming Dynasty. Volume III consists of maps drawn in the early period of the Qing Dynasty. As a matter of principle, we have collected and compiled into these volumes all maps drawn on silk, paper or walls as well as those engraved on stones, bricks, rocks or wood by the ancient Chinese so long as they belong to the realm of cultural relics. We have not compiled all printed maps from block-printed editions or from photo-offset copies. When scores of maps are found in one book, a few representative maps will be chosen and included in our atlas. Maps that are regarded as cultural relics have to be included on account of their high value and the difficulty of seeing their originals. In celebrating the publication of Volume I of *An Atlas of Ancient Maps in China,* I earnestly hope that Volume II and Volume III will be published soon, because they include even more drawn maps of the nature of cultural relics, which are not open to the public and kept as rare works in museums, archieves and libraries.

1. 1 *zhang*=3 1/3 metres.
2. 1 *chi*=1/3 metere.

前　言

明代（公元1368－1644年）地图的绘制，基本上是继承中国传统制图学的理论和方法，即主要继承西晋裴秀（公元224－271年）提出的“制图六体”（见《晋书·裴秀传》）：“一曰分率”（比例尺）、“二曰准望”（方向）、“三曰道里”（人行路程）、“四曰高下”（高取下）、“五曰方邪”（方取斜）、“六曰迂直”（迂取直）绘制平面地图六项原则，以及至迟在北宋（公元960－1125年）出现的“计里画方”（用方格的边长表示距离里数）的方法。然而，明代地图在种类和数量方面，都有较大发展，特别是在中国地图学发展史上，有不少独特之处，因而值得重视与研究。

明代地图的发展，主要受如下几方面的影响：

1.传统地图。中国传统地图的绘制，就图上是否画有方格而论，可以分为两类，一类是有计里画方的平面地图，另一类是没有画方的平面地图。明代以前的地图，图上有画方的不多。从传世的地图来看，时间较早有画方的地图是刘豫阜昌七年（公元1136年）刻石的“禹跡图”和南宋绍兴十二年（公元1142年）刻石的“禹跡图”。此二图内容相同，且有同样错字，例如在今珠江水系的西江上游都有“佷水”之名，二图“佷”字皆误，应为“浪”，说明二者所依据的原图是相同的。原图为北宋的长安本。“禹迹图”上方注记有“元符三年依长安本刊”等语。元符三年为公元1100年，二图均注明“每方折地百里”，故北宋已有计里画方的地图无疑。流传下来的其他地图，如天水放马滩战国秦墓出土的绘在木板上的地图、长沙马王堆汉墓出土的绘在帛上的地图和宋代刻石的“华夷图”、“九域守令图”、“地理图”以及宋、元地方志中的地图，大都没有画方。当然，没有画方，不等于没有比例尺。从有关的文献记载来看，如《北堂书钞》记晋裴秀的“方丈图”，“以一分为十里，一寸为百里”，这是表明图的比例尺为1∶1800000，而不是表明图上有画方。唐代贾耽（公元729－805年）的“海内华夷图”，也有“率以一寸折成百里”的记载（见《旧唐书·贾耽传》），但还不能从而得出一定有画方。元代朱思本的“舆地图”，虽已失传，而罗洪先在“广舆图序”中指出：“元人朱思本，其图有计里画方之法”。因此，朱思本的“舆地图”，肯定有画方。不过，文献中明确记载明代以前的地图之有画方者，实不多见。

明代地图，有计里画方的，已增加不少。罗洪先的《广舆图》，不但图幅多，而且均有画方。在《广舆图》的影响下，郑若曾的《万里海防图论》、陈组绶的《皇明职方地图》、程有守等的《惠州府志》和叶春及等的《永安县志》中的地图，亦均画方。此外，明代著作中的地图，亦有若干图幅有画方者，如吴学俨等的《地图综要》，唐时升等的《方舆胜略》和王在晋的《海防纂要》等著作中，都有部分地图有画方。有画方的地图，大都有明确的计量表示，较为精确。

2.军事的需要。1368年明太祖朱元璋领兵最后攻占了元朝的大都（今北京），元顺帝妥欢贴睦尔北逃蒙古，至此元朝的统治结束。但北逃的元顺帝不甘心失败，经常派兵南下，企图收复失地，以致明代的北部边境，受到很大威胁。与此同时，东部沿海的辽东半岛、山东半岛、江苏、浙江、福建、广东均遭受倭寇的骚扰。进入明中叶以后，倭寇侵扰更甚。因此，明代配合军事需要绘制的边防地图和海防地图较多。

3.西方制图学的传入。明万历十年（公元1582年）耶稣会传教士利玛窦(Matteo Ricci, 公元1552—1610年)来到中国，他用西方的地图投影方法，多次编绘用汉文注记的世界地图，有全球图、南北半球图和东西半球图等。其中以1602年刊印的《坤舆万国全图》（全球图，分六幅）影响最大。明人著作中，如章潢辑《图书编》，唐时升等纂《方舆胜略》和王圻编《三才图会》等书中，都收入有利玛窦在中国编绘的世界地图。在西方制图学的影响下，少数中国学者编绘的地图，也有加绘经线和标示纬度的。

明代地图的种类较多，大致可以分为：行政区域图、航海图、海防图、边防图、河防图、水利图、历史沿革图、城市图、商路图以及道士和堪舆家所绘的山水图等。

行政区域图主要有全国性的（或包括域外的）舆图、地方行政区图和大量地方志中的地图。图中主要表示山川和政区位置。流传下来的图幅较大较珍贵的明代舆地总图有："大明混一图"（巨幅彩绘）、"杨子器跋舆地图"（彩绘）、"王泮识舆地图"（彩绘）和"古今形胜之图"等。此外，在刻本书中，还可以看到不少全国性总图。地方行政区图如果包括地方志中的地图，数量是比较多的。明刻本地方志中有地图的也较多。惟彩绘本地方行政区图却不多见。北京图书馆收藏有彩绘的"陕西舆图"、"江西全省图说"、"三关图说"和"淮安府图说"等（后三者附有文字说明，故称图说）。

中国的航海图，现在能看到的最早的一幅是茅元仪编辑的《武备志》卷二百四十所附的"郑和航海图"（图的原名是"自宝船厂开船从龙江关出水直抵外国诸番图"）。此图用自右至左"一"字展开式绘成，与中国传统的"一"字展开式的江河图相似。全图以南京为起点，最远到非洲东岸的麻林地（今坦桑尼亚之基尔瓦基西瓦尼）。图中列出地名多达五百个，其中亚非诸国的地名约三百，图中最为突出的是沿航线注记的罗盘针位。此图反映的大约是宣德五年（公元1430年）郑和最后一次下西洋的情况。

海防图的编绘，是明代地图的特色之一。其中比较重要而且影响较大的是郑若曾的"万里海防图"（1561年刊）。图自广东西部沿海，向东再向北"一"字展开，包括福建、浙江、江苏、山东、河北等省沿海，直到辽东半岛。图以海居上方，地居下方，这是受中国山水画的远方居上布局的影响。原图有画方，"每方百里"。但是现在看到的四库全书本《郑开阳杂著》和明刻本《筹海图编》中的地图，均将画方略去，甚为可惜。图上所绘港湾、岛屿、卫戍设置以及文字注记都较详。彩绘本海防图比较珍贵的有徐必达的"乾坤一统海防全图"（公元1605年徐必达进献朝廷的图），是根据郑若曾的十二幅详本万里海防图绘制的。

边防图中以北方边防图为主，其代表作是许论的"九边图"（公元1534年进献）。传世的明彩绘本"九边图"（中国历史博物馆和辽宁省博物馆均有收藏），图上虽可见许论墨款，但已不是许论进献明世宗的原图，从图上有1558年建置的行政区名来看，可知此彩绘本是据许论原图修订摹绘而成。彩绘"九边图"主要表示九镇（辽东、蓟州、宣府、大同、偏关、榆林、宁夏、固原和甘肃九镇）地区的山川、卫所、城堡和关塞。其他北部边防图的内容，也多是这样，而且大都参考了许论的"九边图"。

河防图以潘季驯的"河防一览图"（公元1590年绘）最为出色。图自星宿海黄河源起始，由右向左"一"字展开。图的特点是黄河与运河并行绘出，黄河居上，运河在下，主要表示河道和堤防工程，并有文字注记。此图曾在山东省刻石，惜原石今已不存，仅见拓片。

水利图多见于水利论著之中，如张国维的《吴中水利全书》、任余福的《三吴水利论》等著作中都有多幅地图。

历史沿革地图，可以吴国辅等撰《今古舆地图》（公元1644年刊）为代表，书中计有总图和历代沿革地图共五十七幅。图以朱墨分古今，这在传世的刻本书中始见于明刻本。

城市图在地方志中常见，如闻人诠：《南畿志》中有"都城图"（南京），沈应文：《顺天府志》中有"北京皇城图"。明万历年间（公元1573－1619年）刊的"北京宫殿之图"反映了明代北京宫殿布局的特色。

商路图有黄汴《一统路程图记》（或《士商必要》）中附的“南京至十三省各边路图”和“北京至十三省各边路图”两幅，可为代表。这类地图的内容大都比较简略。

明代以前，道士和堪舆家所绘的山水图，多已亡佚。明正统（公元1436－1449年）刊本《道藏·洞玄部·灵图类》中所附“五岳古本真形图”，用墨色有屈曲的长方形表示山体，这或许是道士们的传统绘法。堪舆著作中的地图，以徐善继、徐善述兄弟所撰《地理人子须知》（或《人子须知资孝地理心学统宗》）中的“中国三大干龙总览之图”和“金陵图”比较重要。一般堪舆家的山水图，大多表现范围很小的局部山体。山体多呈弧形加晕滃线。

明代地图发展的标志，可以由下述情况表明：

1.综合地图集的出现和地图种类的增加。罗洪先编绘的《广舆图》，虽然主要是根据朱思本的《舆地图》，但在内容和形式上都有所发展。像《广舆图》这样一本有计里画方的综合性地图集，包括全国总图、分省地图、边防图、海防图、黄河图以及海夷图等，其内容之丰富可以说是空前的。“郑和航海图”绘出了横渡印度洋的罗盘针位航线，也是郑和以前所没有的。郑若曾编撰《筹海图编》参考过许多图籍，但整个海疆的海防图，而且图上有计里画方，可能以其“万里海防图”为首创，是明代最有影响的地图之一。曹君义刊“天下九边分野人迹路程全图”（崇祯年间，公元1628－1644年），绘有经线和纬度，虽较粗略，但它受西方地图投影的影响，较早把经线和纬度表现在所编绘的地图上。

2.图例的出现。朱思本的“舆地图”可能已附有图例，惟原图已佚，其具体情况是否与《广舆图》图例相同，则不得而知。《广舆图》列有山、水、道路和政区等建置的图例二十四种。罗洪先在“广舆图序”的最后写道：“省文（即图例）二十有四”，并列出山、水、道路、府、州、县等图例二十四。“杨子器跋舆地图”使用的图例符号亦有二十余种，并于图的左下方附有全部用文字表达的图例。而叶春及等纂修的《永安县志》（万历刻本），始于图的左下角列出图例。

3.地方志数量的增加。地方志中大都附有多幅地图。明代纂修的地方志，其数量较宋元时期为多，因此地图的数量也相应增加。

尽管明代地图的数量和种类都有较大发展，而且西方制图学也于万历年间传入，但却未能突破中国传统平面制图理论的局限，其主要原因大致有以下几点：

1.封建社会的桎梏。西方近代科学技术的产生，是在资本主义生产迅速发展的条件下出现的，而中国明代的封建社会，虽然出现过资本主义萌芽，但仅仅是萌芽而已，未能迅速发展取代封建的生产方式。中国封建的自然经济，即使到了明代中叶以后，商品生产和流通范围仍然极为有限，缺少竞争性，对于科学技术和社会文化革新的要求也不十分迫切。另外，具有一定科技基础和实践经验的人大都地位不高，开阔视野与更新知识的机会又少，水平自然不易提高。所以，当时中国的科学技术，包括地图学在内，就不可能像文艺复兴之后的西方那样飞速发展。

2.保守思想的阻碍。利玛窦在中国肇庆、南昌、南京和北京等地多次编绘世界地图，传播地为球形和世界有五大洲等知识，虽然在士大夫阶层中曾引起过很大震动，但是能完全接受的人并不多。如利玛窦在《入华记录》中所记：“人（指中国士大夫）尚多有诽诋此地图（指他所编的世界地图）者”。至于探讨地图投影的理论和方法以促进中国地图学发展的，尤为罕见。崇祯八年（公元1635年）兵部职方司主事陈组绶，由于工作的需要主编《皇明职方地图》，他在序中论及所据前人的地图和加以改进之处时，提到的只是元人朱思本的计里画方，对意大利人利玛窦的地图投影和经纬度测量，则毫无评述。这种情况，一直持续到一百年后清代康熙皇帝主持测绘“皇舆全览图”时，才有大的改变。

3.闭关自守的危害。明王朝建立之后，积极与各国进行贸易，并设宁波、广州和泉州等市舶司。明成祖朱棣为了进一步发展对外关系，派遣郑和等人带领船队远航亚非各国进行友好访问和贸易，故十五世纪初有郑和七次下西洋的壮举。当时中国的航海技术和规模都领先于世界。但是，为什么后继无人呢？主要原因之一是明成祖派郑和下西洋没有把经济效益放在第一位，以致费用过大，财政拮据。后来远航被中止了，大型船舶也不再建造，甚至郑和下西洋的档案，都被

销毁。失传的郑和航海图原绘本很可能遭此劫难。

郑和远航的结果，在经济上没有带来效益，加以倭寇对中国沿海的侵扰日益加剧，明中叶后，王朝便采取闭关政策，封闭市舶司，不与海外通商贸易。导致资本主义萌芽十分微弱，社会生产力未能提高。这些对于科学技术的发展非常不利，对于中国地图学的发展，自然也不例外。

曹婉如

FOREWORD

During the Ming Dynasty (1368—1644), maps were on the whole drawn using cartographical theories and methods handed down from the past, mainly the six rules for making plane maps formulated by Pei Xiu (224—271) of the Western Jin Dynasty (265—316) after he had summed up the experiences of earlier cartographers and the *ji li hua fang* method of showing distance in *li* (*1 li*=about 1/2 kilometre) by the length of each grid's side that made its appearance in the Northern Song Dynasty (960—1125) at the latest. Pei Xiu's six map-making rules are: 1)"Fen Lu", scale; 2)"Zhun Wang", direction; 3)"Dao Li", distance measured by man's pacing; 4)"Gao Xia", in case two landmarks are not on the same level, they have to be reduced to the same level; 5)"Fang Xie", right angle curves have to be reduced to obilique lines; 6)"Yu Zhi", curves have to be reduced to straight lines. Whether in type or in quantity, however, Ming Dynasty maps still witnessed a major development. Particularly in the history of the development of Chinese cartography, maps of the Ming Dynasty have no lack of unique points worthy of our inquiry. What follows is a tentative exploration of the factors affecting the development of Ming Dynasty maps, the types of Ming Dynasty maps , the signs of the development of Ming Dynasty maps, and the reasons for the failure of Ming Dynasty maps to develop toward the modern stage.

The development of maps in the Ming Dynasty was probably closely related with the following factors:

1. Carrying on the merits of traditional maps. In the light of whether or not they are drawn on them with grids, traditional Chinese maps may be divided into two types. One type is made up of plane ones drawn by use of the *ji li hua fang* method, and the other type consists of plane ones on which grids are not drawn. Few maps prior to the Ming Dynasty have grids on them. Among the maps handed down from ancient times, the earlier ones having grids on them are the *Yu Ji Tu* ("禹跡图",Map of the Tracks of Yu the Great) engraved on stone in the 7th year of the Fucheng reign (1136) of Liu Yu (1073—1146) and the *Yu Ji Tu* ("禹迹图", in which the character "跡"of the former is changed into "迹") engraved on stone in the 12th year of Shaoxing reign (1142) of the Southern Song Dynasty (1127—1279). The two maps are alike in substance, and they have the same wrongly written characters, for instance, the character "佷"(Hen) in the name of "佷水"(Henshui River) marked in the upper reaches of the West River of the present Zhujiang River system in both of them is wrong and should be written as"浪水" (Yin). It is thus shown that the two are based upon the same original map. The original map is a Chang'an edition of the Northern Song Dynasty, for the upper part of the latter *Yu Ji Tu* is noted with such words as "Printed on the basis of the Chang'an edition in the 3rd year of Yuanfu reign (1100)" and also because both maps are clearly indicated with the words "(a side of) each grid stands for 100 *li*", the Northern Song Dynasty doubtlessly already possessed maps of the *ji li hua fang* type. As to other handed-down maps, such as those drawn on boards excavated from the Warring States Qin (476 BC—221 BC) tombs at Fangmatan in the southeast of Tianshui, those drawn on thin, tough silk excavated from the Han Dynasty (206 BC—AD 220) tombs at Mawangdui near Changsha, the *Hua Yi Tu* (Map of China and the Barbarian Countries), *Jiu Yu Shou Ling Tu* (Map of China and the Barbarian Countries), *Jiu Yu Shou Ling Tu* (Map of Administrative Division) and *Di Li Tu* (Geographical Map) carved on stone in the Song Dynasty (960—1279), and those included in local chronicles of the Song-Yuan period (960-1368), most of them are not drawn with grids. Of course, the absence of grids does not signify that there is no scale. According to what is recorded in relevant documents, for example, *Bei Tang Shu Chao* (Copied Material of the South-Facing Hall) refers to Pei Xiu's *Fang Zhang Tu* (Ten *Chi* Square Map) as "taking 1 *fen* (=1/3 cm) to represent 10 *li* (1 *li*=1/2 kilometre) and 1 *cun* (=3 cm) to represent 100 *li*", which clearly shows the scale of the map to be 1: 1,800,000 and which does not imply the presence of grids on the map. The *Hai Nei Hua Yi Tu* (Map of Chinese and Barbarian Peoples Within the Four Seas) is also put down in *Jia Dan Zhuan* (Biography of Jia Dan) of *Jiu Tang Shu* (Old History of the Tang Dynasty) as having "a scale of 1 *cun*:100 *li*), but this too does not mean that the map must be drawn with grids. Though the *Yu Di Tu* (Terrestrial Map) of Zhu Siben (1273—1333) of the Yuan Dynasty (1271—1368) has been lost through the generations, we nevertheless know for certain that the map has grids drawn on it, because in the preface to his *Guang Yu Tu* (Enlarged Terrestrial Atlas) Luo Hongxian (1504—1564) of the Ming Dynasty points out:"The map of Zhu Siben of the Yuan Dynasty makes use of the *ji li hua fang* method." It is thus quite evident that grids are drawn on Zhu's *Yu Di Tu*. In fact, however, one rarely comes across maps prior to the Ming Dynasty explicitly recorded in documents as having grids drawn on them.

By the Ming Dynasty, more and more maps came to be drawn with the *ji li hua fang* method. The *Guang Yu Tu* of Luo Hongxian includes numerous maps on all of which are drawn with grids. Under its influence, the maps in Zheng Ruozeng's *Wan Li Hai Fang Tu Lun* (As Regrads the Map of 10,000 *Li* of Coast Defence), Chen Zushou's *Huang Ming Zhi Fang Di Tu* (Imperial Ming Atlas of the Official in Charge of Maps and Tribute from Every Quarter), the *Hui Zhou Fu Zhi* (Chronicle of Huizhou Prefecture) by Cheng Youshou and others, and the *Yong An Xian Zhi* (Chronicle of Yong'an County) by Ye Chunji and others are without exception all drawn with grids on them as well. In addition, grids are also found on a number of maps attached to Ming Dynasty works. For instance, a part of the maps that appear in the *Di Tu Zong Yao* (A Summary of Essential Maps) by Wu Xueyan, the *Fang Yu Sheng Lue* (Geographical Records) by Tang Shisheng and others, and the *Hai Fang Zhuan Yao* (A Compilation of Essentials of Coast Defence) by Wang Zaijin and others have grids drawn on them. Most of the maps with grids drawn on them have definite measures for presentation, so they are all quite accurate.

2. Needs of military defence. In 1368, Emperor Tai Zong of Ming, Zhu Yuanzhang (1328—98) led his troops to attack the Yuan capital Dadou (present Beijing) and finally succeeded in seizing it, and the rule of the Yuan Dynasty was thus brought to an end with Emperor Shun Di's flight north to Mongolia. But Emperor Shun Di, who had fled to the north, would not reconcile himself to be so defeated. In his attempt to recover lost territory, he frequently sent troops down south so that the northern border of the Ming Dynasty was seriously threatened. In the meantime all along the east coast from the Liaodong Peninsula and Shandong Peninsula to Jiangsu, Zhejiang, Fujian and Guangdong, there was harassment on the part of Japanese pirates, and during the middle period of the Ming Dynasty in particular, such harassment was sped up and became most rampant. All this accounts for the large amount of border defence maps and coast defence maps as well being made in the Ming Dynasty.

3. Influx of Western cartography. In the 10th year of Wanli reign (1582) of the Ming Dynasty, the Jesuit missionary Matteo Ricci (1552—1610) came to China. With the adoption of Western projection, he engaged himself time and again in the compilation and drawing such world maps with Chinese explanatory notes as map of the world, map of the whole world, map of the Northern