

A STUDY OF URBAN FORM IN 18TH-CENTURY
BEIJING

BY

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ABSTRACT

This thesis describes the city form, or more precisely the urban physical structure, of Beijing in the mid-18th century. Most of the descriptions are based on first-hand materials derived from "The Complete Map of Beijing, Qienlong Period." This map was produced in 1750 AD and on a very detailed 1/650 scale. The details and the particular perspective make it possible to reconstruct the form of Beijing at that time. Other materials are also used to support the descriptions and illustrations. These include some historical records, ancient maps, and old photographs.

The first chapter discusses the origins, edition, producers, and other information related to this map. The second chapter begins to reconstruct the early city settled on the site of Beijing. This chapter is based on broad historical resources and is the historical background for the descriptions found in the next three chapters, which define and analyze the three major urban structural systems of Beijing: the enclosure system, the street system, and the hydro system.

The purpose of this thesis is to introduce Beijing's urban structure by descriptions and illustrations, and to explore the possible uses of "The Complete Map of Beijing, Qienlong Period."

Thesis Supervisor: N JOHN HABRAKEN
Title: PROF. OF ARCHITECTURE

ACKNOWLEDGEMENT

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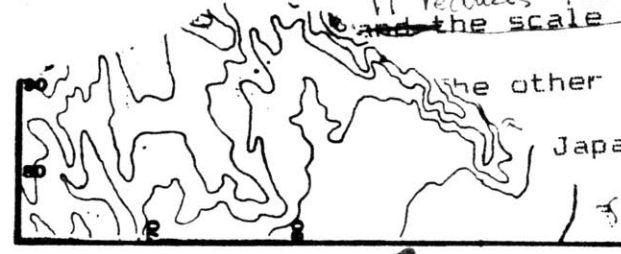
THE REPRINTS

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X

The map is a rare copy in the Forbidden City, discovered in 1935 in the room of the imperial workshops.

There are two editions of this map produced by two different institutions. One edition of them is done by the Palace

It reduces the map to the other edition is



- MAP 5-1 SOURCES (A-C) &
- A: YU QUAN SHI
 - B: BABAO SHAN
 - C: DONGNAN XIE

2 謝謝
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謝謝父母給予我出國留學的機會
(內務府造辦處)
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produced in the Guangxu Period

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樂快享共與苦痛擔

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CHAPTER 1

INTRODUCTION

SECTION I

This thesis develops a systematic way of describing urban form by working through studies on "The Complete Map of Beijing, Qienlong period" (乾隆京城全圖), a very detailed map of Beijing which was produced in 1750 AD. It was my intention to study the physical organization of Beijing in 1750 AD - with the help of the map and many other documents - both on the level of urban structure and urban tissue, as this distinction is defined by John Habraken. To complete this study, descriptions and theoretical discussions are both needed. The scope of such a study, however, goes far beyond which can be done in a Master's Thesis. In the thesis that is

presented here, I only deal with descriptions on the level of urban structure. I hope it will lead to further future studies on Beijing's urban history in that period.

This thesis consists of five chapters. The first chapter discusses the origin, style and background of "The Complete Map of Beijing, Qienlong period." The second chapter integrates different historical sources to describe the evolutionary process of Beijing's urban structure of the approximate period 900 AD to 1750 AD. It provides historical and geographical background for the next three chapters.

In the remaining chapters, the author describes the three major urban structural systems: the enclosure system, the street system, and the hydro system. These descriptions are based primarily on the information extracted from "The Complete Map of Beijing." Materials such as historical documents, novels, and old photographs and pictures are used to support the descriptions.

THE COMPLETE MAP OF BEIJING QIENLONG PERIOD

SECTION 2

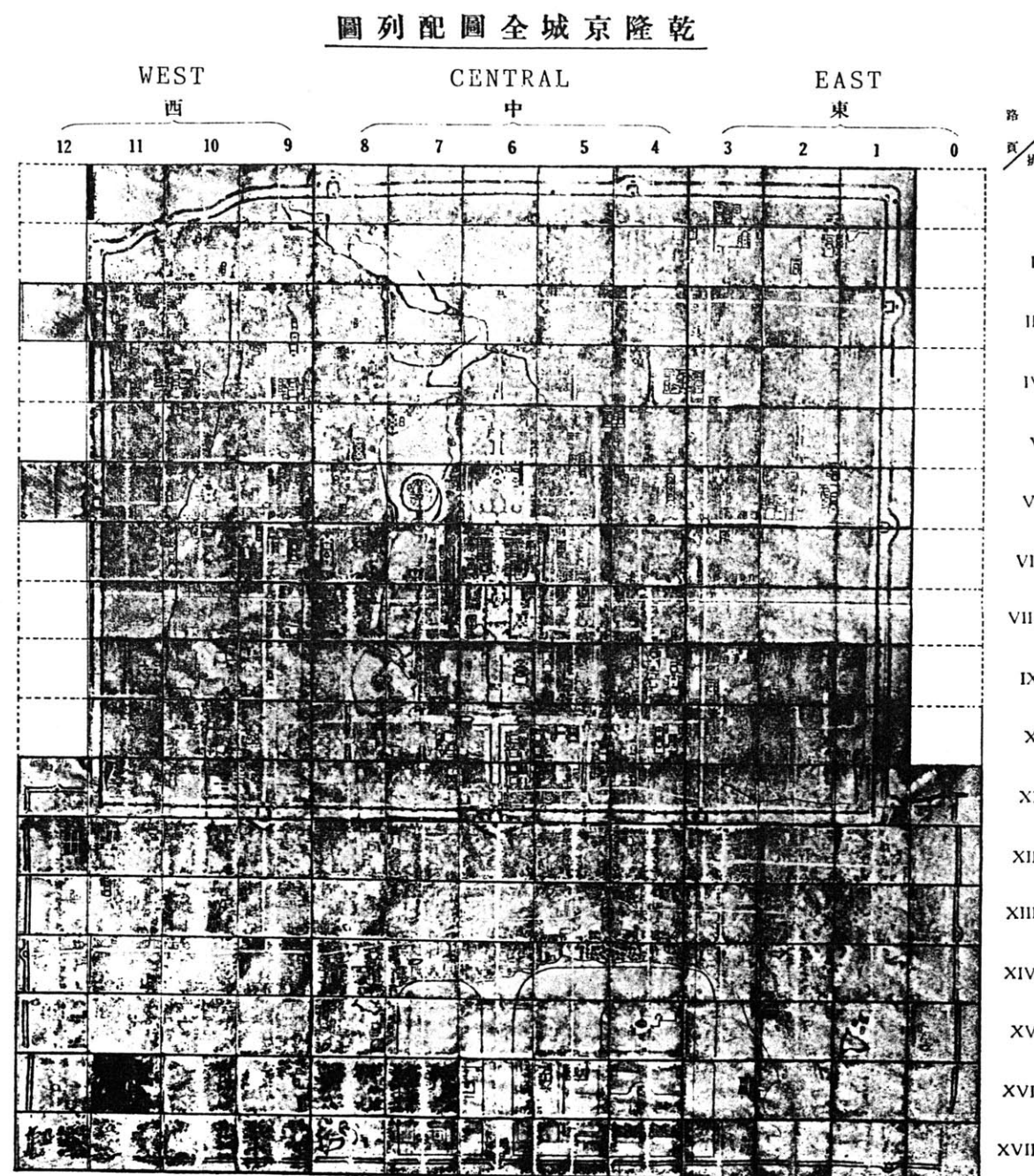
SIZE AND SCALE OF THE MAP

"The Complete Map of Beijing, Qienlong Period" is a map of Beijing surveyed and produced in Qienlong period (1735-1795 AD) of the Qing Dynasty. The map is so large so that the original must be divided into seventeen rows, and each row divided into three sections (WEST, CENTRAL, and EAST in MAP 1-1). The map is in totality divided into 51 sections, and each section is folded into a booklike portfolio of folds of 0.52 M by 0.83 M (1-1). The size of the originals when connected altogether is 13.5 M by 14.14 M. The scale, 1/650, is not described or printed on the map; it is instead based on the comparison

between surveying and the length presented on the map.

THE REPRINTS

The map was preserved in the Forbidden City. It was rediscovered in 1935 in the Map Room of the Imperial Workshops. (內務府 造辦處 輿圖房). It was edited and published by two different institutions. One, in the scale of 1/2400, is published by the Palace Museum of Beijing. The second was published by the Japanese institution in charge of the administration in north China at that time. The scale of this Japanese reprint map is reduced to 1/2600 (MAP 1-3). There are only 200 copies of this Japanese



MAP 1-1 THE COMPLETE MAP OF BEIJING (1750)

misplaced, thus the second wall of the Altar of Heaven switches.

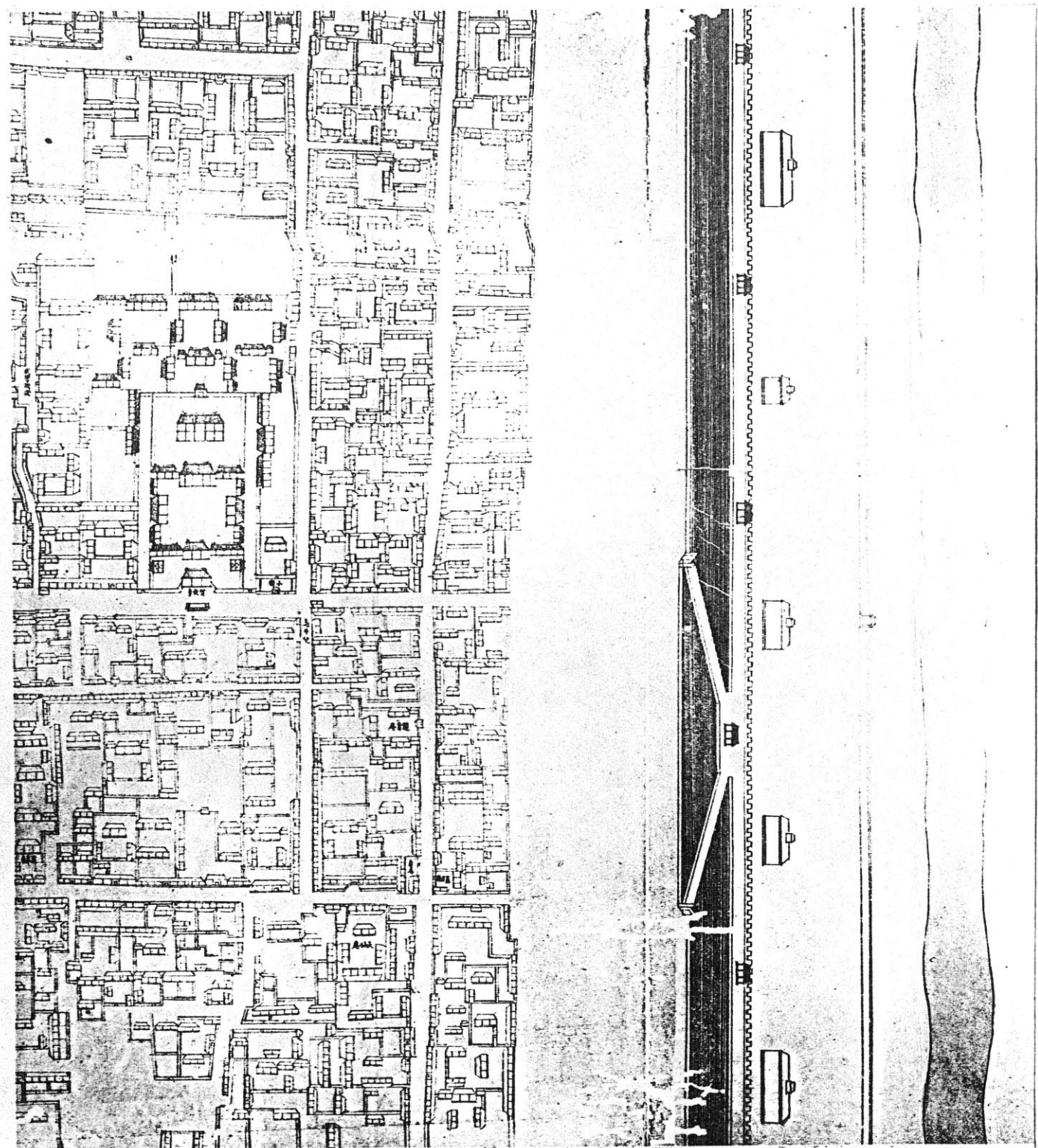
2. The XV row, 10th column of this reprint, the right and left fold have been misplaced, thus the famous temple -- Fayuan Si (法源寺) -- cannot find its front part of the complex.
3. The XV row, 11th column of this reprint, the misplace is the same as the above two.
4. The XIV row, the 11th column and 10th column have been misplaced. The famous Dutodi Miao (都土地庙) and the southern part of Xiejie (斜街) have been moved to the east, and the backpart of Fayuan Si has been moved to the west (MAP 1-1).

THE PRODUCERS AND MAJOR
TECHNICAL DIRECTOR

According to the recent studies (Yang 1984), the surveying and

drawing works of the map required four-and-a-half years. It was begun in November, 1745, and was sent to the Emperor May 16, 1750. The person in charge of the whole project was Haiwang (海望), who is famous for his expertise in building construction and for having many inspired ideas in engineering works. He was in charge of many constructions and other technical works for the Emperors.

Some famous painters were also involved in the production of this map. One is an Italian painter- Giuseppe Castiglione (郎世宁), the technical consultant for the perspective of the map. He developed the perspective principles with a Chinese painter, Shen Yuan (沈源), who taught the drawing skills to the drafters of this map. Shen Yuan is also a



PART OF THE COMPLETE MAP OF BEIJING (XIII--1 of MAP 1-1)
MAP 1-3 SCALE 1/2600, THE SAME AS 1940 EDITION

very accomplished painter. He is famous for his architectural drawings (界畫). The most important painting under his name is the forty sceneries of Yuanming Yuan (圓明園四十景圖).

THE SOCIAL BACKGROUND OF MAKING THE MAP

The Qianlong period (1736-1795), especially during the making of this map, is the summit of the Qing Dynasty, thus the government was able to do many things that would not have been possible during a poor economic period. At the same time, the Emperors of Qing Dynasty were aware of the importance of the accuracy of maps and of the meaning of these maps to the politics, the economy, and to the military.

This internal need was supported by external technical aid. From the Ming Dynasty, the western

missionaries came to China to preach their religion. Some of the missionaries tried to attract the attention of Chinese scholars by demonstrating their newly developed technology. Some of them entered the government to become directors of astronomy and other techniques. The introduction of European geography, surveying techniques, and surveying instruments made possible the large scale and accurate urban surveying.

In the 47th year of the Kangxi period (1708 AD), the Qing Dynasty government started their first national map surveying, based on the western scientific method. This map was finished nine years later (1717 AD). The making of "The Complete Map of Beijing" is based on this experience.

On the other hand, the social

TABLE I-1

RECORDED MAPS of BEIJING between 1740-1745

1723	Qing Huang Cheng Gong Dien Ya Shu Tu (清皇城宮殿衙署圖)	2.38m * 1.78m
1742 (July)	Jing Cheng Nei Tu Yang (京城內圖樣)	
1742 (Nov.)	Jing Cheng Nei Tu Yang (enlarged)	
1742 (July)	Jing Shi Zi Yu Quan Shan Tu Yang (京師及玉泉山圖樣)	
1742 (Nov.)	Jing Shi Zi Yu Quan Shan Tu Yang (enlarged)	
1743	He Dao Guo Qu Tu (河道溝渠圖)	
1743	He Dao Guo Qu Tu (enlarged and carry the image of palaces and some houses, scale= 1/500)	
1745	Jing Cheng Quan Tu (The Complete Map of Beijing) (京城全圖)	

and economic conditions of Beijing also help promoting the making of "The Complete Map of Beijing." Recovering from the destruction suffered during the constitution of the Qing Dynasty, Beijing marched into prodigality. The segregation policy and the eight-flag social structure of the early Qing Dynasty now faced the possibility of collapse. These changes urged the production of many and varied urban maps, especially those executed under accurate surveying. These are all related to the growing change in land possession.

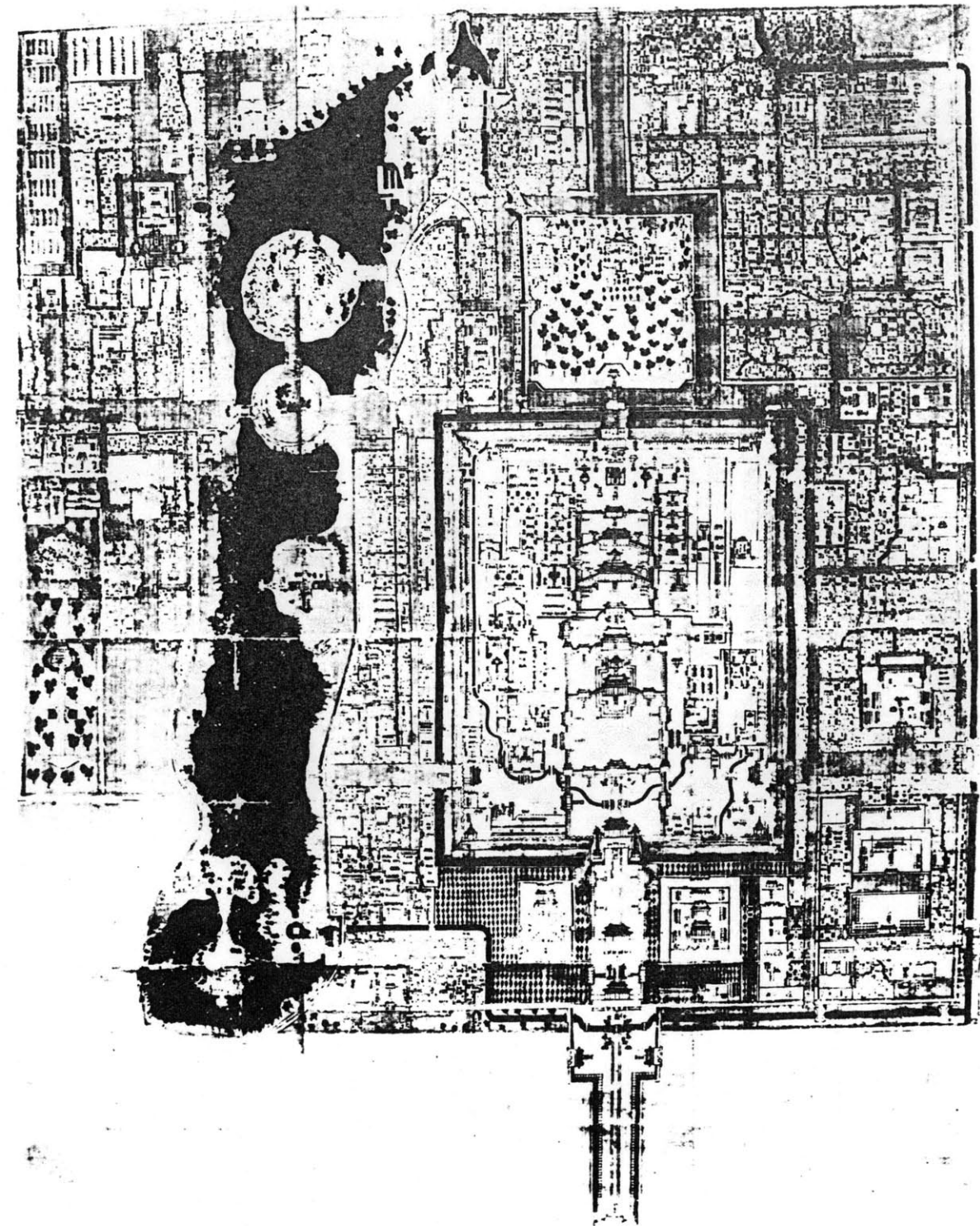
According to the Imperial records between 1742 and 1745, a few different functional maps to have been produced by the Government. It is reasonable to assume that these maps were made for the purpose of dealing with various problems, such as the

change of land possession, canals, ditches, or streets. Among these maps, "The Complete Map of Beijing" is the most sophisticated and accurate (MAP 1-4, Map 1-5, MAP 1-6, MAP 5-6).

THE CHARACTERISTICS OF THE REPRESENTATION FOR THE COMPLETE MAP OF BEIJING

"The Complete Map of Beijing" inherited the characteristics of traditional Chinese maps, but, by the help of western missionaries such as Castiglione, went beyond these traditional maps. In chinese maps, there are the following characteristics:

1. The most important purpose of a map is to present image; therefore, the distance in a map is usually inaccurate. However, the relationships among elements are correct.



A western influenced map cover the Imperial City produced earlier than "The Complete Map of Beijing"

Also, the characteristics of every element is vividly depicted.

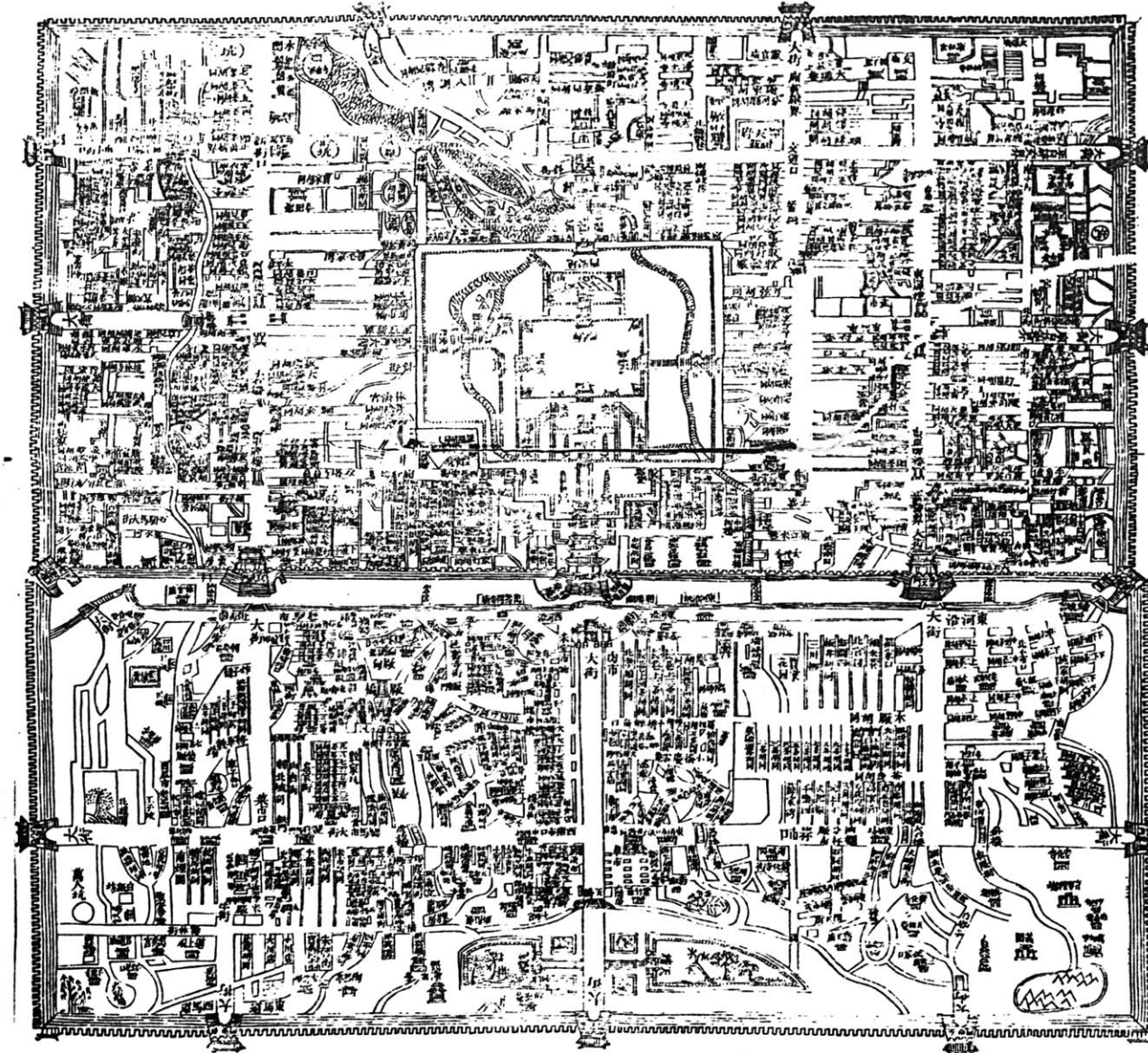
2. It conveys a three dimensional image through a plan.
3. It uses a great deal of text to describe features on the map.
4. It uses details to differentiate the importance of elements.
5. It uses a square network to indicate the distance.

"The Complete Map of Beijing, Qienlong Period" possesses all these characteristics. Further, it gives the elevation of buildings in plan. This particular method is feasible in this map because Chinese architecture has the character that both the plan and the elevation are rectangular. Thus, this presentational method can depict most of the buildings.

However, in special cases, such as that of a circular plan or a tall building, this method becomes inappropriate.

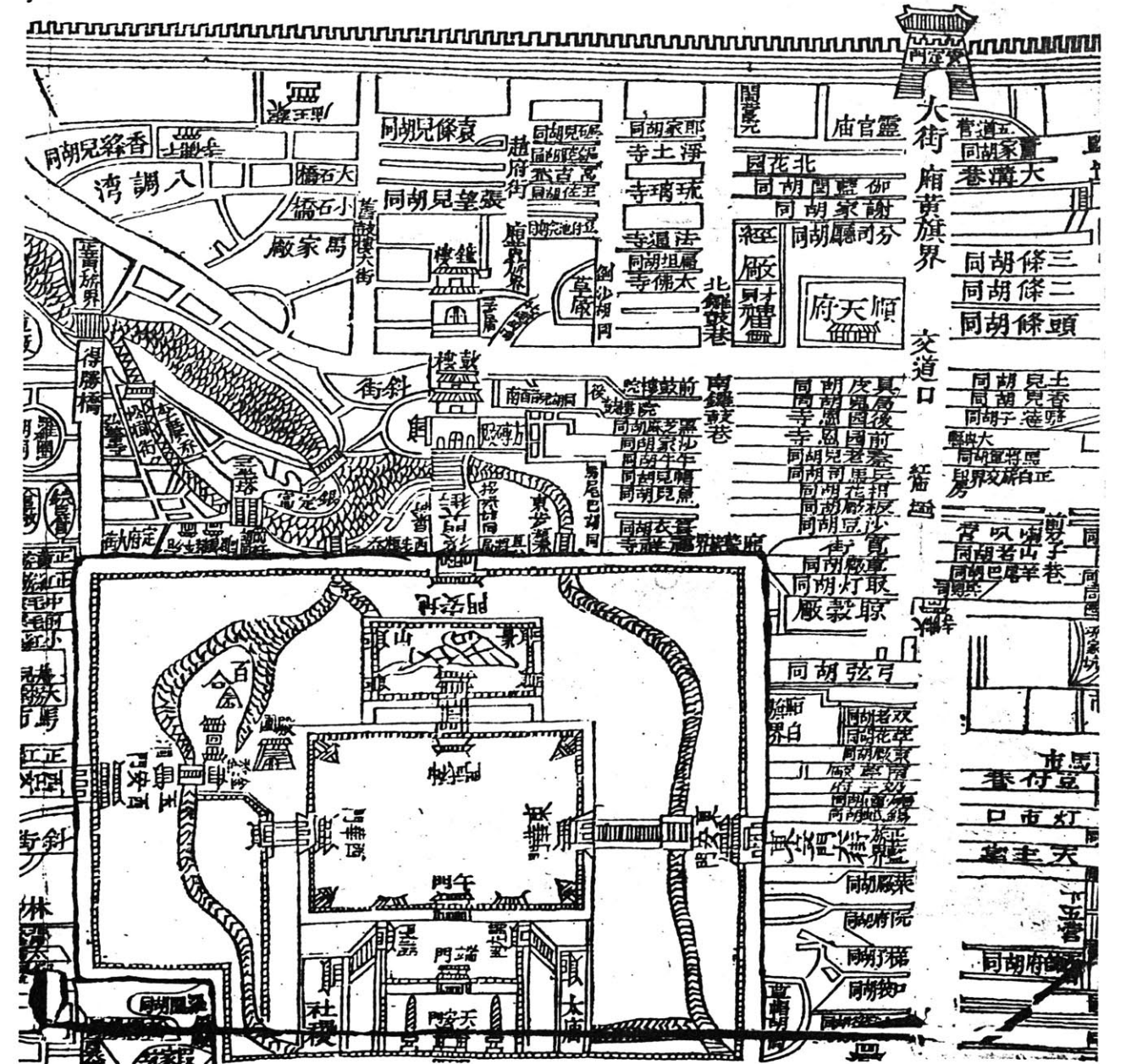
In order to understand more about the presentation conventions of "The Complete Map of Beijing," we need to study further the presentation method alone. However, with the above knowledge and the sign convention provided on the sign convention page (1-2) in this thesis, we can begin our study.

圖全善首內城師京

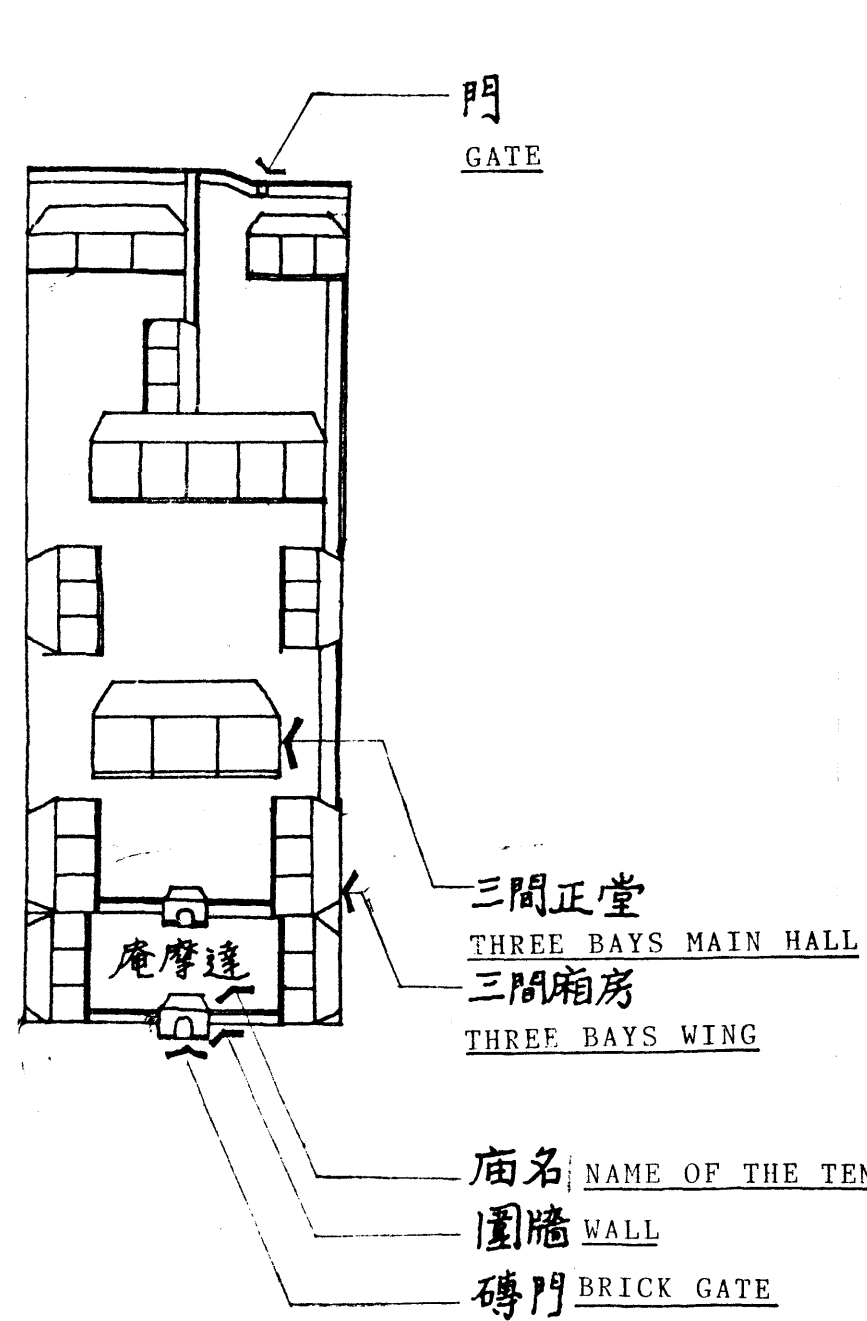


MAP 1-5 JING SHI CHENG NAI SHOU SHAN QUAN TU (1744)
A traditional map produced at 1744

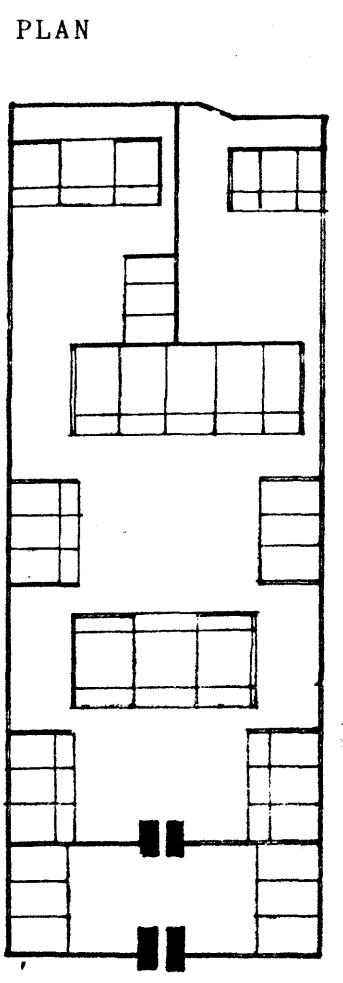
京師城內首善全圖



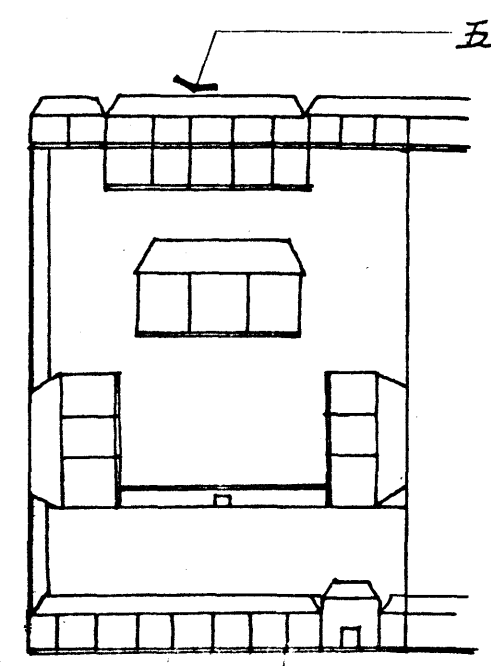
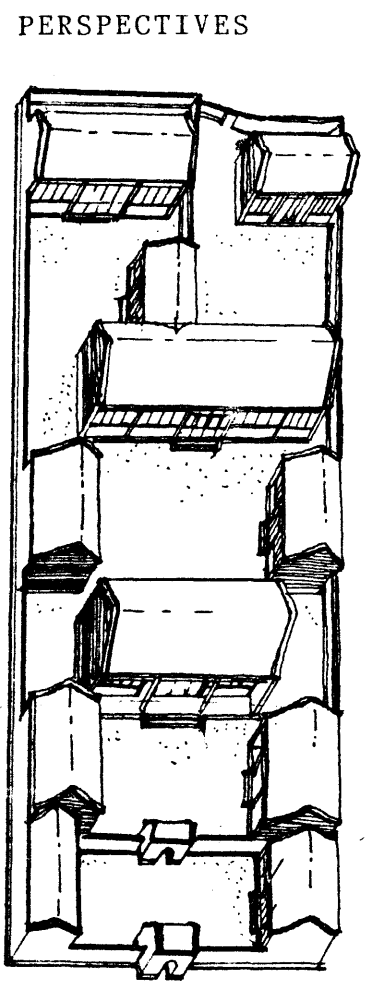
MAP 1-6 JING SHI CHENG NAI SHOU SHAN QUAN TU (PARTIAL)



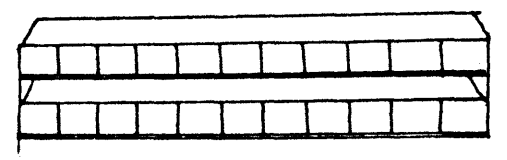
PRESENTATION OF THE COMPLETE MAP



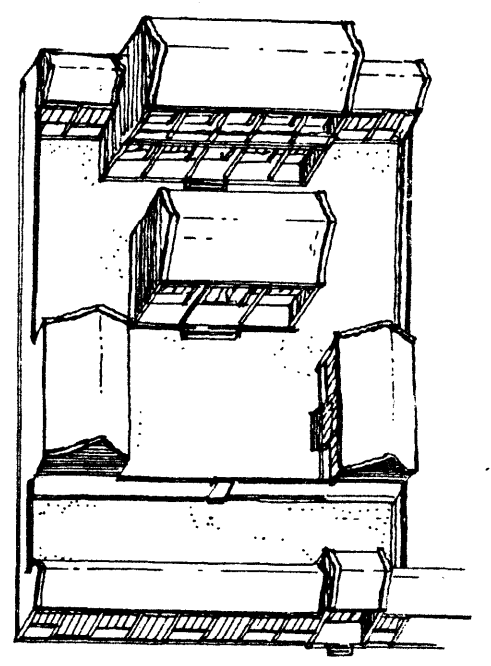
AUTHOR'S INTERPRETATION IN MODERN PRESENTATIONS



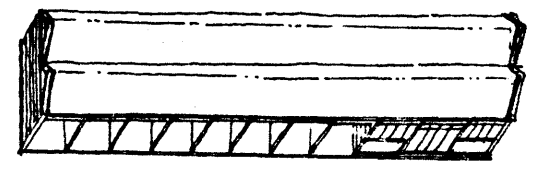
PRESENTATION OF THE COMPLETE MAP



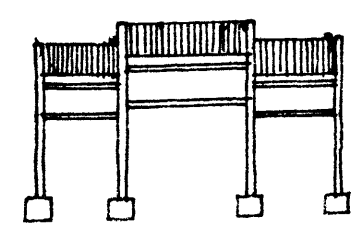
DOUBLE ROOF STORES



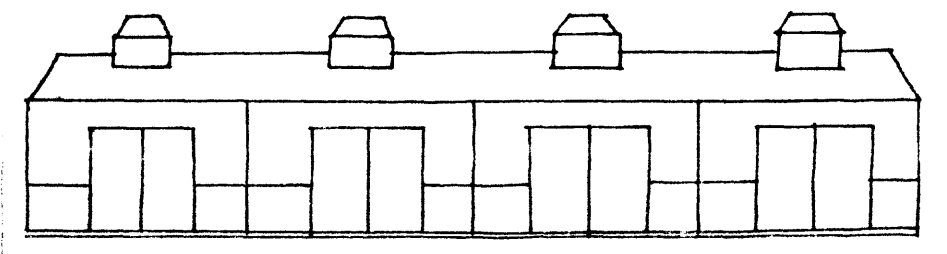
AUTHOR'S INTERPRETATION IN PERSPECTIVE



IDENTIFICATION OF SOME URBAN ELEMENTS



PAVILION



WAREHOUSES

1-2 SOME CONVENTIONS IN THE COMPLETE MAP

CHAPTER 2

EVOLUTION OF URBAN STRUCTURE

BEIJING FROM 907 TO 1750

The descriptions in this chapter are based on extensive historical sources, and describe the evolution of Beijing's urban structure from Xijin Fu (析津府, 南京 i.e. Nanjing) of the Liao Dynasty (907-1125 AD) to Beijing in the middle of the Qing dynasty (1644-1910 AD). The descriptions will focus on changes of city form and the reasons and ideas behind these changes. Changes in different periods will be reconstructed and illustrated in the same scale maps so that the reader can easily compare one to another.

On the reconstruction of the physical form of Beijing's past, the author, where possible, uses

documents based on the document-writer's personal experiences of the site or on their first hand material instead of second hand materials written by other scholars. First hand materials in my definition are archaeological findings. The archaeological findings may include the rediscovery of ancient sites, grave stones and other materials. Some second hand materials are used as references to fill the gaps where first hand materials are not available. The historical materials are presented in chronological order to examine the relationship of different documents, thus to clarify the reliability of every document.

In this sense, the reconstruction can be more reliable. However, some questions remain; most originate from the lack of evidence. Hopefully, future archaeological discoveries will enable us to renew this reconstruction.

This chapter provides the historical background of the city for the study of urban structure at 1750. With this background, it will be much easier for us to understand the reasons and sources of variations on urban forms, as well as to realize the original ideals and design concepts in the design of this city. Besides, through the chapter, the author tries to remind

readers of a few points that he would like to make.

1.

The common answer to the question of why in the most recent 900 years of Chinese history Beijing gradually becomes the political center of China, is that the agricultural and economical center of China moved southward so that transportation for the supporting materials to the capital favored Beijing over other possible sites. The author considers the southward movement of the agricultural center as one result of the conflicts among the agricultural "Han" tribe (漢族) and the nomadic tribes. Especially, it is related to the rise of nomadic tribes coming from Northeast China. Beijing was the center of the conflicts, and was used as the headquarters for southward

movements of nomadic tribes and as the center of defence for the Han Tribe. This military importance made the rulers of this city control large numbers of soldiers, thus raising the political status of the city. Emperors are not willing to let other persons control so many soldiers, therefore, the best way was to move their capital to Beijing. The author considers this argument more substantial than that of the transportation conveniences.

2.

The second issue in this chapter is to show that a city, regardless of its size, is very much like a house. It evolves through a longer time range, and has sudden changes from time to time. These sudden changes, no matter how strong the powers behind them are, must respect the existing settlements. This

respect for the old settlement influences the form of all cities, and because of it we are able to find clues to the old cities.

XIJIN FU, LIAO 907-1125

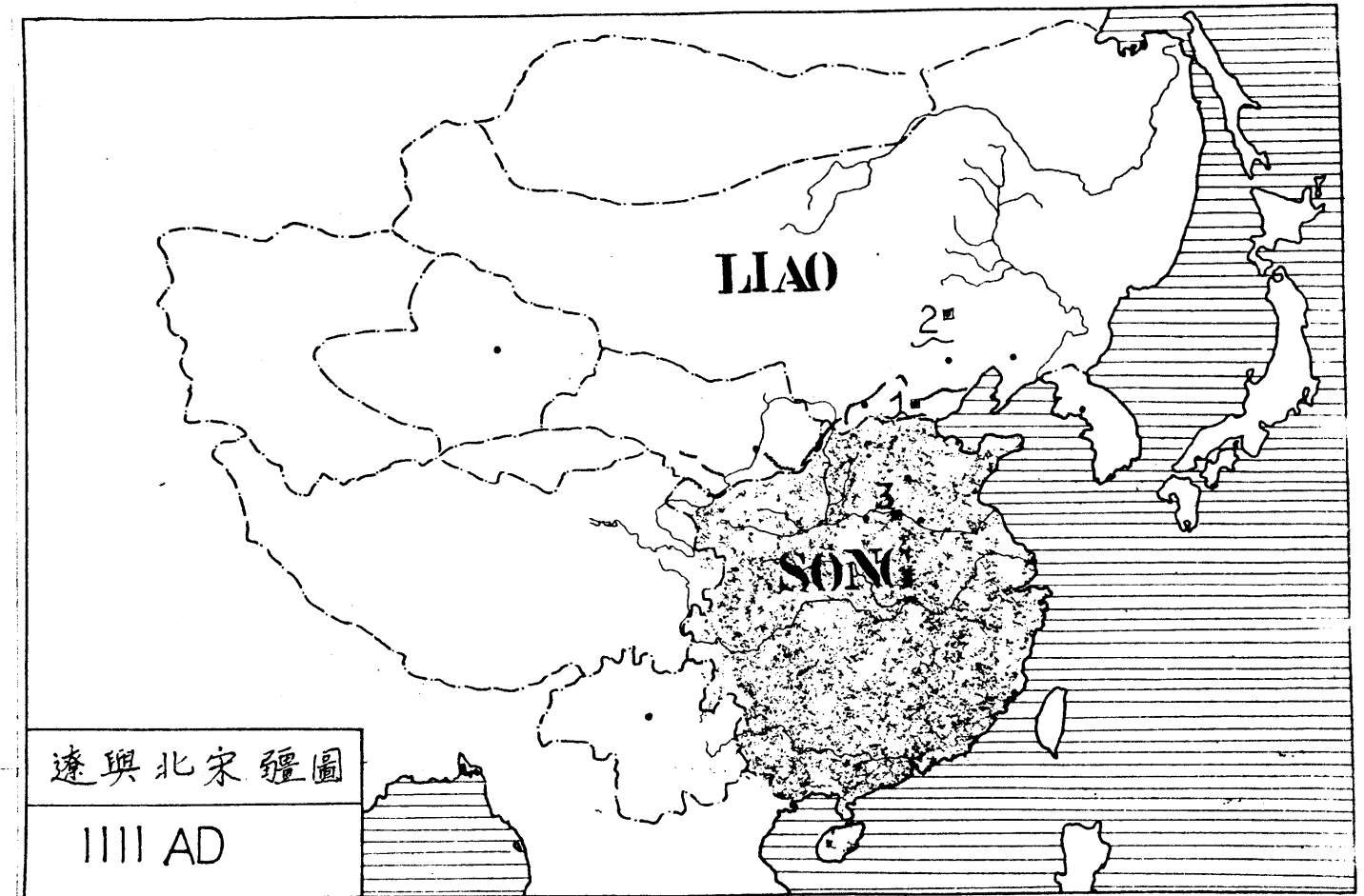
SECTION 1

The Liao Dynasty is a dynasty founded by a nomadic tribe called Kitan (契丹). The territory controlled by the Liao Dynasty stretches from Northeast China to Mongolia. The southern territory of the Liao Dynasty even includes parts of present Shanxi (山西) and Hebei (河北) provinces lying south to the Great Wall. Xijin Fu (析津府) is located at the center of the area south to the Great Wall.

It is customary for nomadic tribes to have more than one capital. Among the five capitals of the Liao Dynasty, Xijin Fu is the southern capital - Nanjing. Nanjing did not enjoy a prominent political status in the early Liao Dynasty, mainly because it lies too close to the

southern border where the Liao Dynasty borders and conflicts with the Song Dynasty. However, the city was vital to Liao's economy (MAP 2-1).

Liao inherited the old city established in the Tang Dynasty (唐, 618-907 AD). According to a Tang Dynasty record, Nanjing is a rectangular city, nine "Li" ("Li" = 240 Steps = 1200 "chi," "Chi" = 0.318 - 0.345 M) in east-west and seven "Li" in north-south. There are two gates on each side of the city wall, and a moat outside the city wall surrounds the whole city. There are, in the city, seven east-west and six north-south streets. They divided the city into thirty blocks. Two blocks at the



1. Xijin Fu (Nanjing)
2. Linhuang Fu (Shangjing) Liao Dynasty
3. Biangjing (Dongjing) Song Dynasty

遼〈南京析津府〉
 遼〈上京臨潢府〉
 宋〈東京汴梁(汴京)〉

MAP 2-1 TERRITORIES OF LIAO AND SONG DYNASTY

? southwestern corner were the Imperial City, thus leaving 28 wards (坊). Each of these 28 wards is enclosed by walls with gates and gatetowers.

The Imperial City shares part of the southern and western walls with the Outer City. The length of the city walls of the Imperial City without the sharing parts is 5 "Li" (i.e. 15000 Chi). The Imperial City has four main gates, one on each side of the city wall and two extra gates symmetrically positioned on the two sides of the southern main gates. The main gates and the northwestern corner pavillion of the city are the most prominent landmarks in the city.

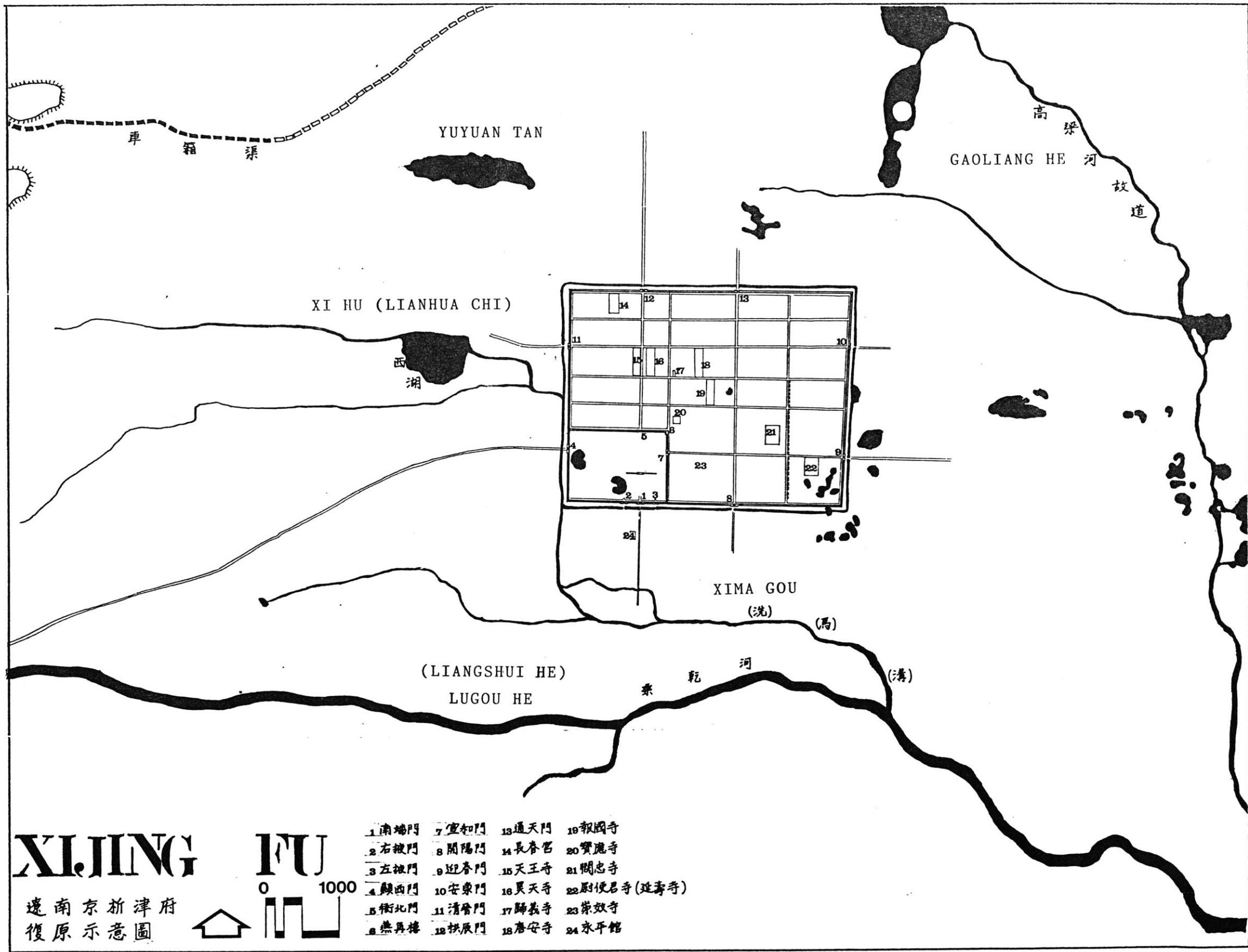
An embassy for receiving foreign envoies locates outside the front gate of the Imperial City. Across the major north-south

axis from the embassy, there is a parade ground for the Emperor's recreation and reviewing of troops. A few "Li" south to the embassy, the old Lugou River (盧溝河) flows in the course of the modern Liang^ssui River (凉水河).

The wards in the city are filled with houses, shops and hundreds of temples. Some of the temples can still be identified on "The Complete map of Beijing, Qienlong period" and other maps. There are markets located north of the imperial city. A few customhouses are in these markets for collecting tax. Nanjing's tax collection is the most important financial resources of Liao government (MAP 2-2).

The total population of the city, according to some documents, is estimated to be

three-hundred thousand. Some experts are suspicious about this number. Nevertheless, Nanjing had a large population and was very prosperous at that time.

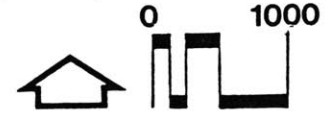


XIJING FU OF LIAO DYNASTY

- 1. Nanduan Men
- 2. Youyi men
- 3. Zuoyi men
- 4. Xianxi Men
- 5. Yabei Men
- 6. Yen Jiaolou
- 7. Xuanhe Men
- 8. Kaiyang Men
- 9. Yingchun Men
- 10. Andong Men
- 11. Qingjing Men
- 12. Gongcèn Men
- 13. Tongtian Men
- 14. Changchun Gong
- 15. Tianwang Si
- 16. Haotian Si
- 17. Guiyi Si
- 18. Tangan Si
- 19. Baoguo Si
- 20. Baoying Si
- 21. Minzhong Si
- 22. Yushijun Si
- 23. Chongxiao Si
- 24. Yongping Guan

XIJING FU

遼南京析津府
復原示意圖



- | | | | |
|--------|---------|---------|---------------|
| 1. 南端門 | 7. 宣和門 | 13. 通天門 | 19. 報國寺 |
| 2. 右掖門 | 8. 開陽門 | 14. 長春宮 | 20. 寶慶寺 |
| 3. 左掖門 | 9. 迎春門 | 15. 天王寺 | 21. 欄忠寺 |
| 4. 顯西門 | 10. 安東門 | 16. 昊天寺 | 22. 尉使君寺(延壽寺) |
| 5. 衝北門 | 11. 清管門 | 17. 歸義寺 | 23. 崇效寺 |
| 6. 燕真樓 | 12. 拱辰門 | 18. 唐安寺 | 24. 永平館 |

MAP 2-2

YENJING OF EARLY JIN 1125-1153

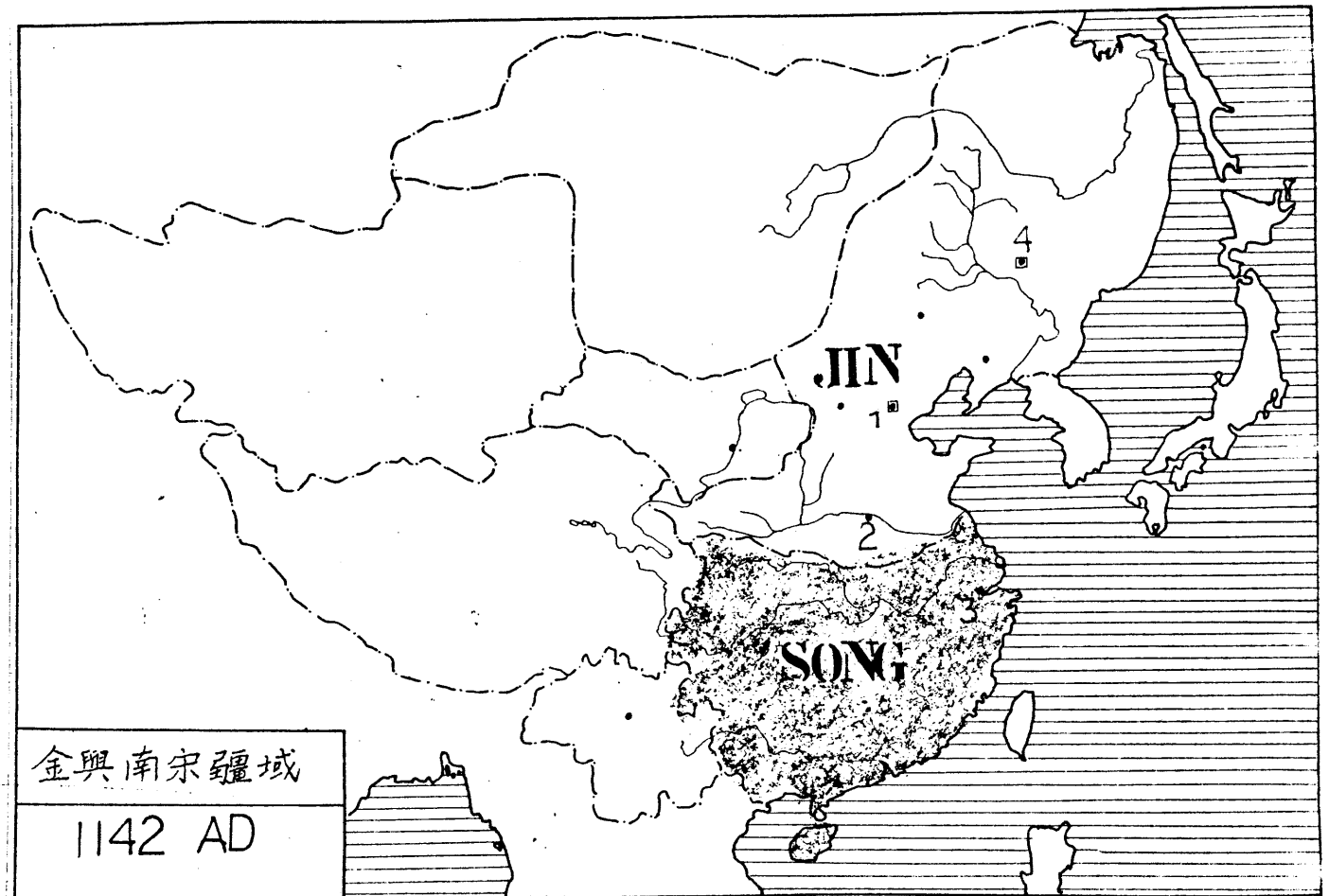
SECTION 2

The Jin Dynasty, following Liao Dynasty, was founded by another nomadic tribe - Jurchen (女真). In 1114 AD, the Jurchen troops began their revolt against the Liao Dynasty. In eleven years, step by step, the Jurchen conquered all the five capitals of Liao, thus exterminating the Liao Dynasty (MAP 2-3).

During the Jurchens' campaign against Liao, the Song Dynasty proposed a plan to attack the Liao Dynasty from the south to match the Jurchen's attack on the north. The Jurchen and Song made an agreement that after they destroyed the Liao Dynasty, the Jin Dynasty would control the territories north to the Great Wall, while the Song Dynasty would control land south to the Great Wall, including

Nanjing. However, the Song Dynasty troops made no progress at all, while the Jurchen troops captured all the five capitals of the Liao Dynasty. The Jin Dynasty then became unwilling to comply with the agreement. Eventually, the Song Dynasty paid a high price to the Jurchen to retain Nanjing and its surrounding territory.

Two years later (1127 AD), the Jurchen replenished their troops and began their southward movement against Song. the Song Dynasty troops could not withstand the Jurchen troops. The Jurchen destroyed the Song Dynasty in a short period of time. A royal prince of the Song Dynasty fled to the south and established a South Song Dynasty in Hangzhou (杭州).



- 1. Yenjing Jin Dynasty
- 2. Biangjing Jin Dynasty
- 3. Linan (Hangzhou) Song Dynasty
- 4. Shangjing Jin Dynasty

- 金燕京
- 金汴京
- 南宋 臨安
- 金上京

MAP 2-3 TERRITORIES OF JIN AND SONG DYNASTY

Afterwards, both sides deadlocked along the areas north to the Yangtze River for twenty years.

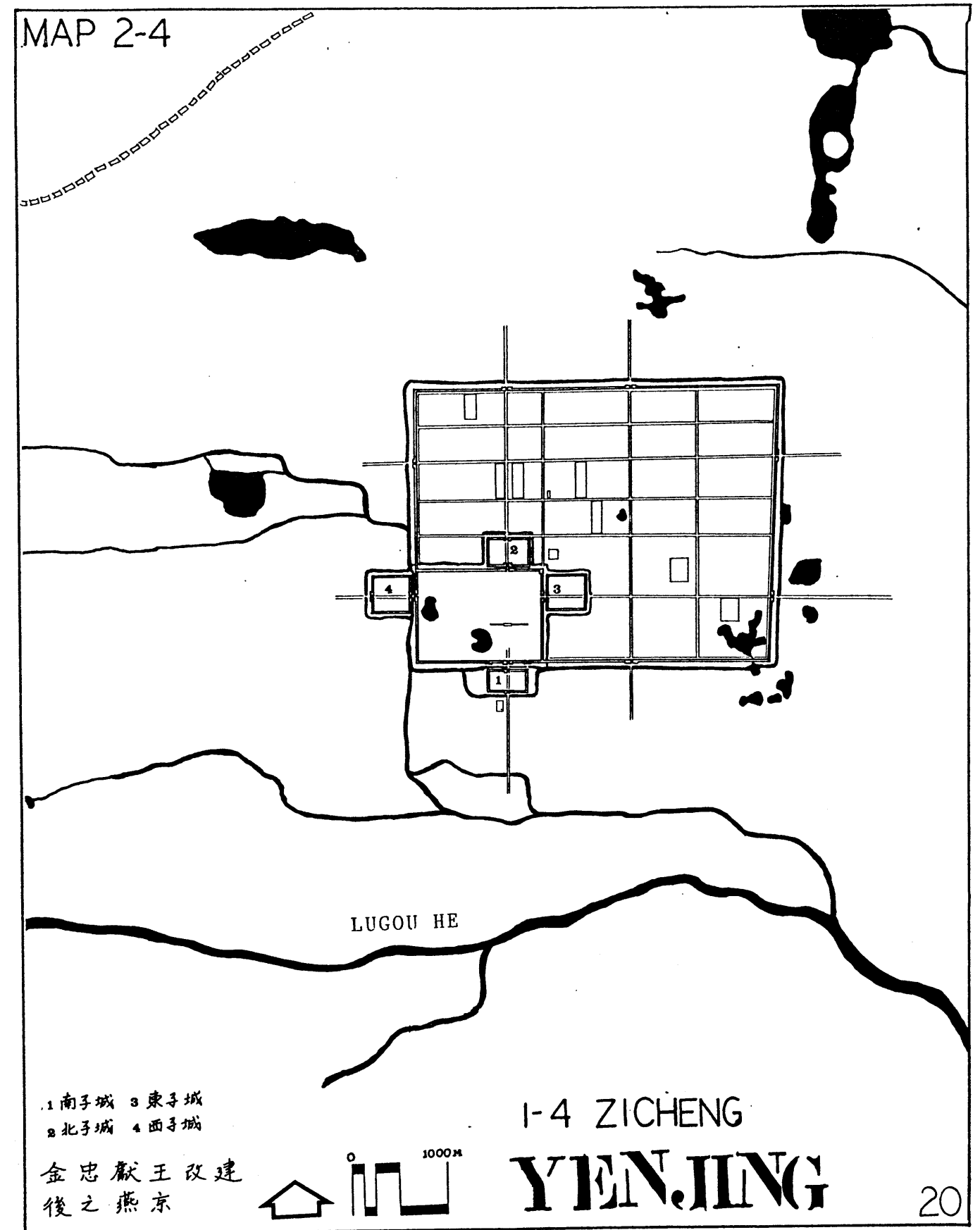
During the stalemate period, Zhong Han (宗翰), the leader of "The Eagles" in the cabinet of the Jin Dynasty, proposed moving their capital to Yenjing (燕京, the name for Beijing during Jin Dynasty). The city would then have become the headquarters of Jin's southward campaign. This proposal was not favorably received. However, major renovation was carried out under the direction of Zhong Han.

The construction of four "zicheng" (子城) was held. A zicheng is a castle outside the gates of a city. Zhong Han built one rectangular "zicheng" outside each of the four gates of the Imperial City. Each

"zicheng" has two gates aligned with the axis of one gate of the Imperial City. There are overpasses for emergency transportation from the Imperial City to each "zicheng" (MAP 2-4).

Zhong Han was an expert of military affairs, therefore "zichengs" were built purely for military purposes, one reason being to defend the city against invasion by the newly-established South Song Dynasty. They felt threatened because the defected Song Dynasty had vowed to fight back. Furthermore, learning from the history of the Kitan, Zhong Han really worried about the revolt of another nomadic tribe from the north.

These four "zichengs" were retained during the reconstruction of Zhongdu in 1150 AD because the Emperor Hai



Ling (海陵) respected the thought of Zhong Han. Just as Zhong Han had predicted, the city was besieged by the Mongolian troops during 1211 to 1215, but the Imperial City was saved by the defensive power of the "zichengs."

ZHONGDU — CENTRAL CAPITAL

SECTION 3

In 1151 AD, the Emperor Hailing of Jin Dynasty had an ambition to conquer the whole of China. He sent his Prime Minister Zhang Hao (張浩) to reconstruct Yenjing. At the same time, he himself led the troops in their major southward campaign.

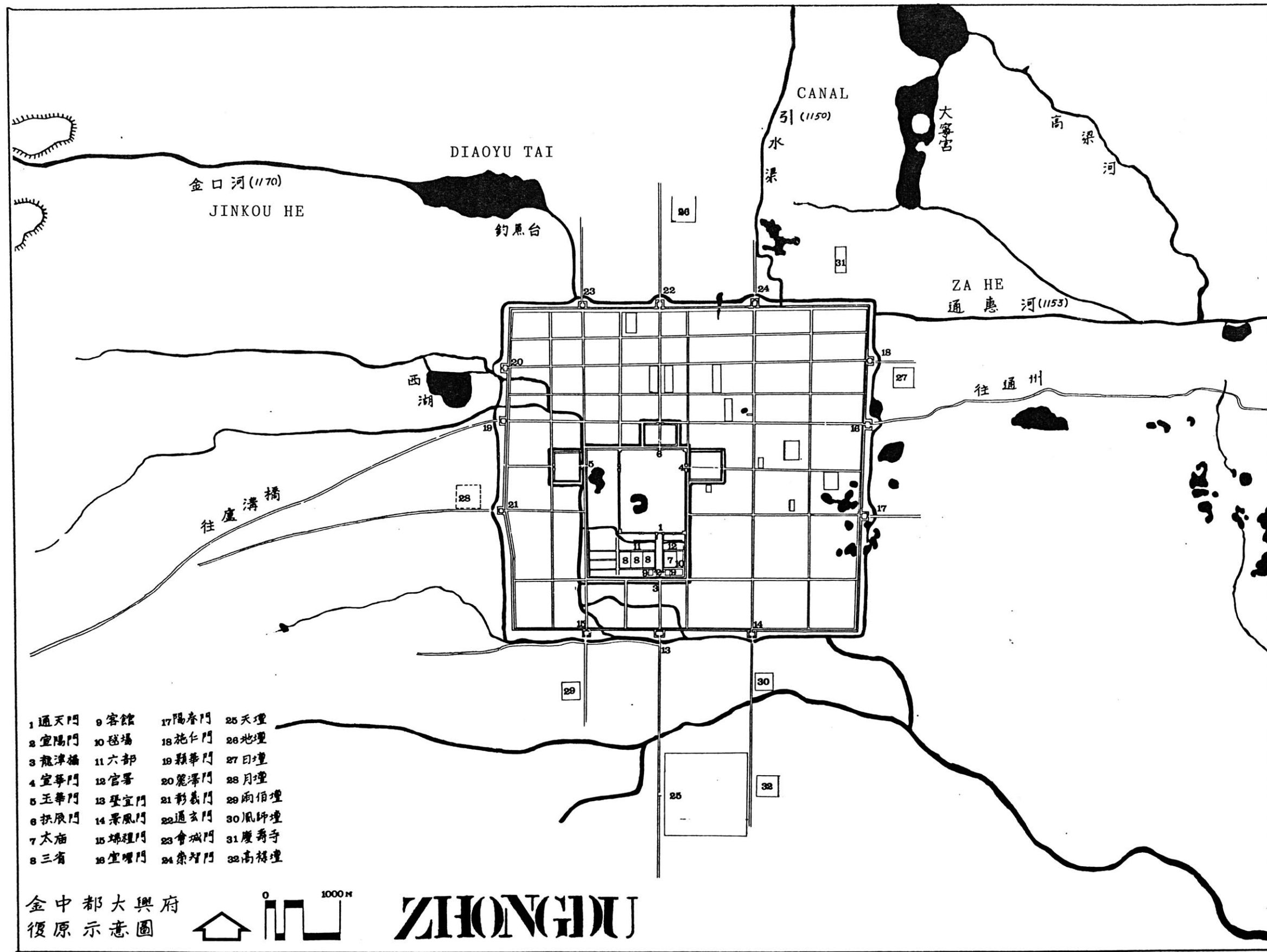
Zhang Hao, the planner of Zhongdu, was a Chinese scholar. He redesigned the city based on two major references. One is his interpretation of an ancient ideal capital (MAP 2-7). The second reference is to copy the Palace City of Bianjing (汴京), which was the former capital of the Song Dynasty.

Using part of the pre-existing city walls, the outer city was

enlarged for about 1,000 steps (1 step = 5 "chi", 1 "chi" = 0.311-0.345 M) in the south and the west. The expansion is meant to conform to the ideal geometry of a 9-"Li" by 9-"Li" square (1 "Li" = 300 steps = 1500 "chi" = 477-517.5 M) for a capital city.

Coordinating the old streets and a few new streets, the city had nine major latitudinal and longitudinal streets. Each street had the width of 72 "chi" (about 24 M, or the width that allowed 9 carriages to move along side). One of every two streets led to a gate. In total, there were three gates on each side of the walls and each gate had double gate-doors.

The perimeter of the Palace City



1. Tongtian Men
2. Xuanyang Men
3. Longjin Qiao
4. Xuanhua Men
- Yuhua Men
6. Gongcen Men
7. Tai Miao
8. San Sheng
9. Ke guan
10. Qiu Chang
11. Liu Bu
12. Administrations
13. Fengyi Men
14. Jingfeng Men
15. Duanli Men
16. Xuanyao Men
17. Yangchun Men
18. Shiren Men
19. Haohua Men
20. Lize Men
21. Zhangyi Men
22. Tongxuan Men
23. Huicheng Men
24. Chongzhi Men
25. Tian Tan
26. Di Tan
27. Ri Tan
28. Yue Tan
29. Yubo Tan
30. Fengshi Tan
31. Qingshou Si
32. Gaomei Tan

- | | | | |
|-------|--------|--------|--------|
| 1 通天門 | 9 客館 | 17 陽春門 | 25 天壇 |
| 2 宣陽門 | 10 磁場 | 18 施仁門 | 26 地壇 |
| 3 龍津橋 | 11 六部 | 19 穎華門 | 27 日壇 |
| 4 宣華門 | 12 官署 | 20 麗澤門 | 28 月壇 |
| 5 玉華門 | 13 登宣門 | 21 彰義門 | 29 兩伯壇 |
| 6 拱辰門 | 14 景風門 | 22 通玄門 | 30 風師壇 |
| 7 太廟 | 15 坤禮門 | 23 會城門 | 31 慶壽寺 |
| 8 三省 | 16 宣曜門 | 24 崇智門 | 32 高禘壇 |

金中都大興府
復原示意圖

0 1000 M
ZHONGDU

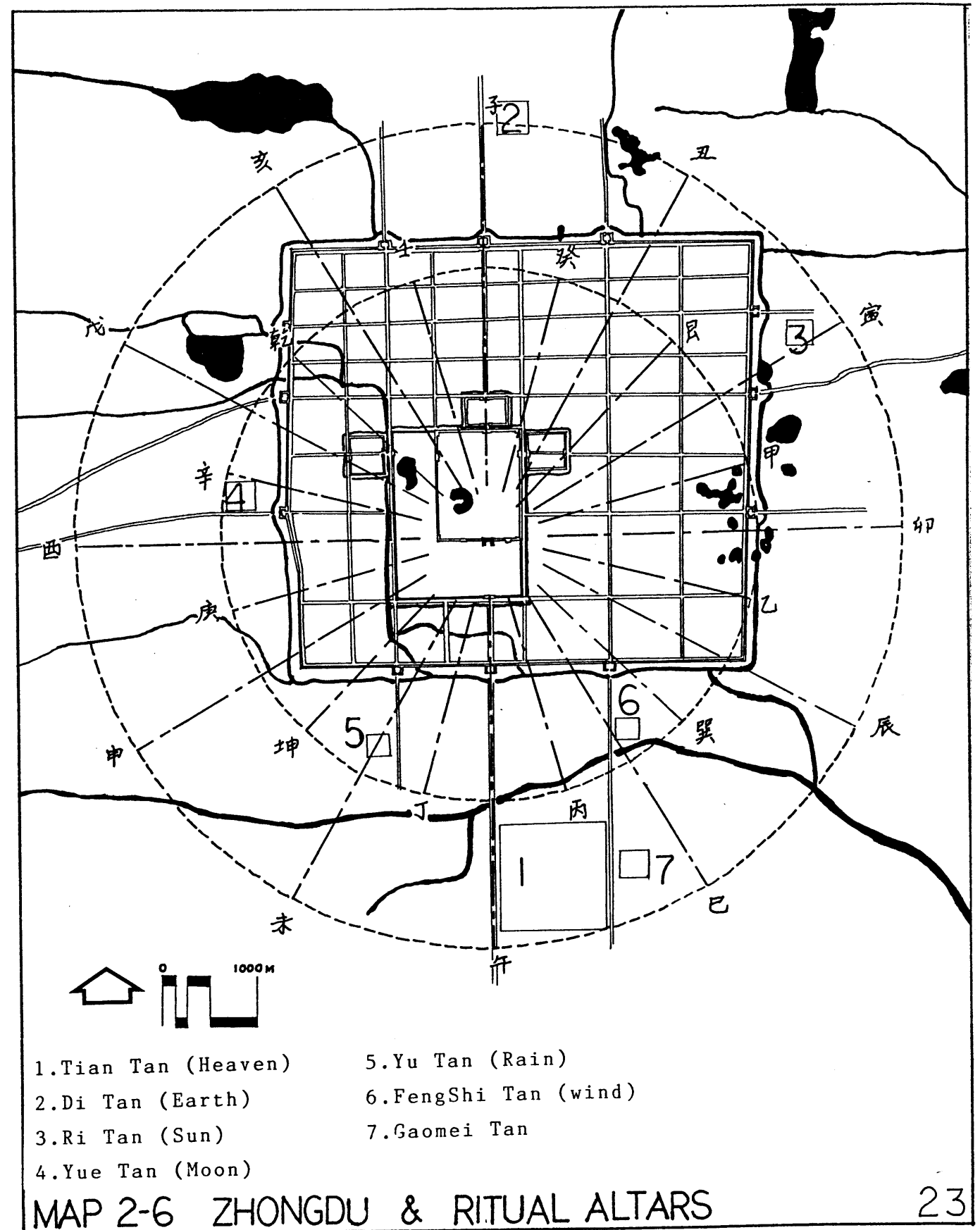
of Zhongdu is 9 "Li" and 30 steps (i.e. 13530 "Chi" = 4300-4670 M). The rectangular city walls had longer north-south walls. There were four main gates, one on each side of the palace city wall. There were four main gates, one on each side of the palace city wall. Four pavilions were built, each at one corner of the city. The southern gate of the palace city was regarded to be the center of the earth. Its appearance was more splendid than that of the other gates. By the sides of the Southern Main Gate is a pair of "yimens" (掖門, minor-gates).

Another layer of enclosure was constructed for the Imperial City by using part of the old western outer city wall. Between the southern gates of the Palace City (P in MAP 2-5) and the Imperial City (I in MAP2-5) is the Imperial Boulevard (between 1 & 2 in MAP 2-5) (御道). On both sides of the boulevard,

there were open-channel drains with willow trees on both sides of the drains. Further out from the drains, there were verandas along the sides of the Imperial Boulevard. At the southern end of the verandas, two towers have been built to symbolize the support from both civil and military officials.

On the east side of the boulevard, there were government institutions, the temple of ancestors and the parade grounds. On the other side of the Imperial Boulevard, six major ministries, three prime ministers' offices and a few houses. On the southern corners of the boulevard, there were the embassies of foreign envoies.

All the zichengs have been preserved except the southern one, which has to be destroyed for the enlargment of the Imperial City.



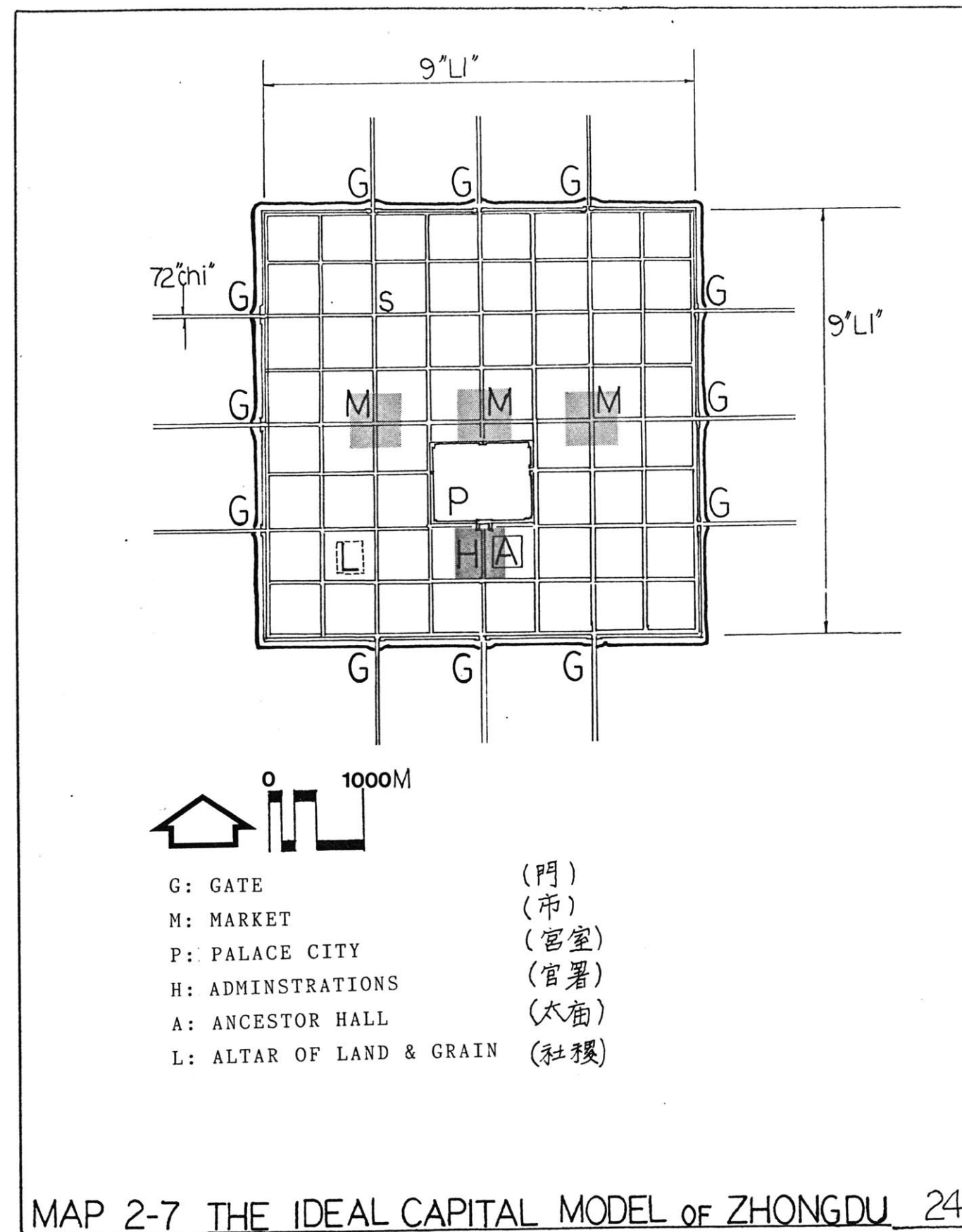
The city is divided by major streets into 62 wards, including those in the Imperial City. Three places were allocated as official markets locating north to the Imperial City. Unlike earlier Chinese cities, the wards of Zhongdu were not enclosed by walls. The houses, shops and temples ran alongside the major streets (MAP 2-5).

The city is, thus, constructed to conform with every detail of the ideal capital city form according to descriptions in early ritual books (MAP 2-7). Furthermore, the ritual building complexes were always arranged according to the ying yang (陰陽) and the five elements (五行) theories (MAP 2-6).

The construction of a new canal - "Za He" (開河) - is part of the plan. The canal starts

from Tongzhou, twenty-eight KM east to Zhongdu and ended at the northeastern moat of Zhongdu's outer city. One of the branches of Za He enters into the northeastern corner of the outer city. Benefiting from the accessibility brought about by the canal, the northeastern corner was the most affluent commercial area of the city.

About 1,200,000 workers including 400,000 soldiers and 800,000 labors were employed in this reconstruction project. Despite this large work force, the construction took three years. At 1153 AD, the reconstruction of Zhongdu was completed. The Emperor Hai Ling issued an edict to move the capital. Thousands of people were forced to immigrate to Zhongdu. From this time on, Zhongdu remained the largest and most populated city in northern China.



DADU OF YUAN 1285 - 1368

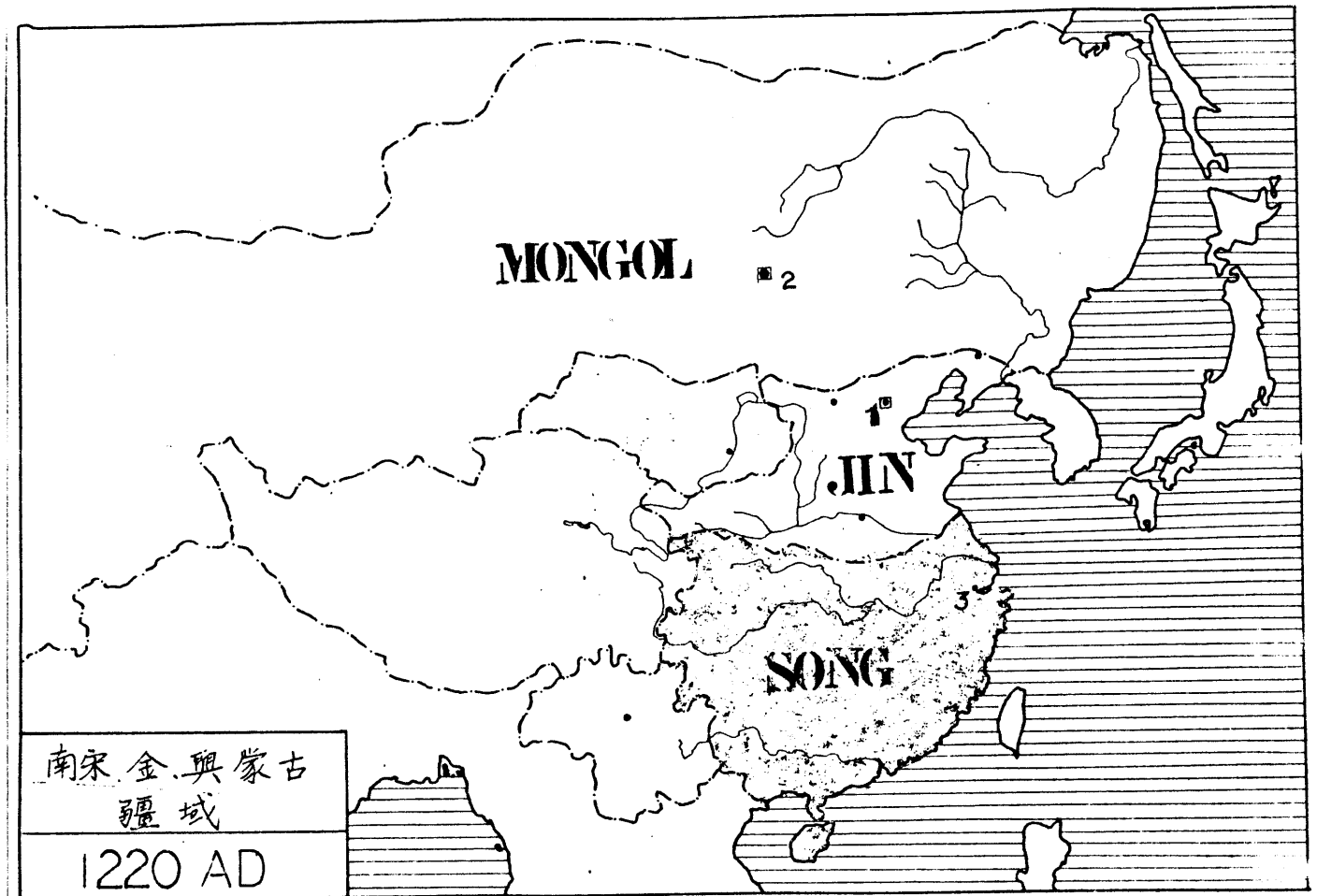
SECTION 4

It was at the end of the 12th century that Mongolian tribes rose from the North Asian Desert. Before long, they conflicted with the Jin Dynasty. The history between the Jurcher and the Kitan is now replayed, only this time between the Mongols and the Jurchens (MAP 2-8).

In 1215 AD, the Mongolian troops captured Zhongdu and changed the name of the city back to Yenging. From then on, Yenjing became headquarters for their southward movements. However, very little progress in the southward campaigns was made in the twenties of 13th century, because the major forces of the Mongol were in West Asia and East Europe. Very few troops were now left for the southward

campaigns. At the same time, the Jin Dynasty had the chance to replenish their troops, thus they were able to halt the Mongol's southward movement. This situation persisted until the beginning of the thirties. Finally, the Great Khan of the Mongol led the troops personally to war against the Jin Dynasty. At 1233 AD, the Mongolians brought down the Jin Dynasty and gained control over North China (MAP 2-10).

At 1211 AD, before the Mongolian raided Zhongdu in 1215 AD, a great fire destroyed the most prosperous area - the northeastern corner - of Zhongdu. From 1211 to 1215 AD, Zhongdu was beleaguered by Mongolian troops. Once the Mongolians broke through the



1. Zhongdu (Jin Dynasty) < 金中都 >
2. Helin (Mongol) < 蒙古和林 >
3. Linan (Song Dynasty) < 宋臨安 >

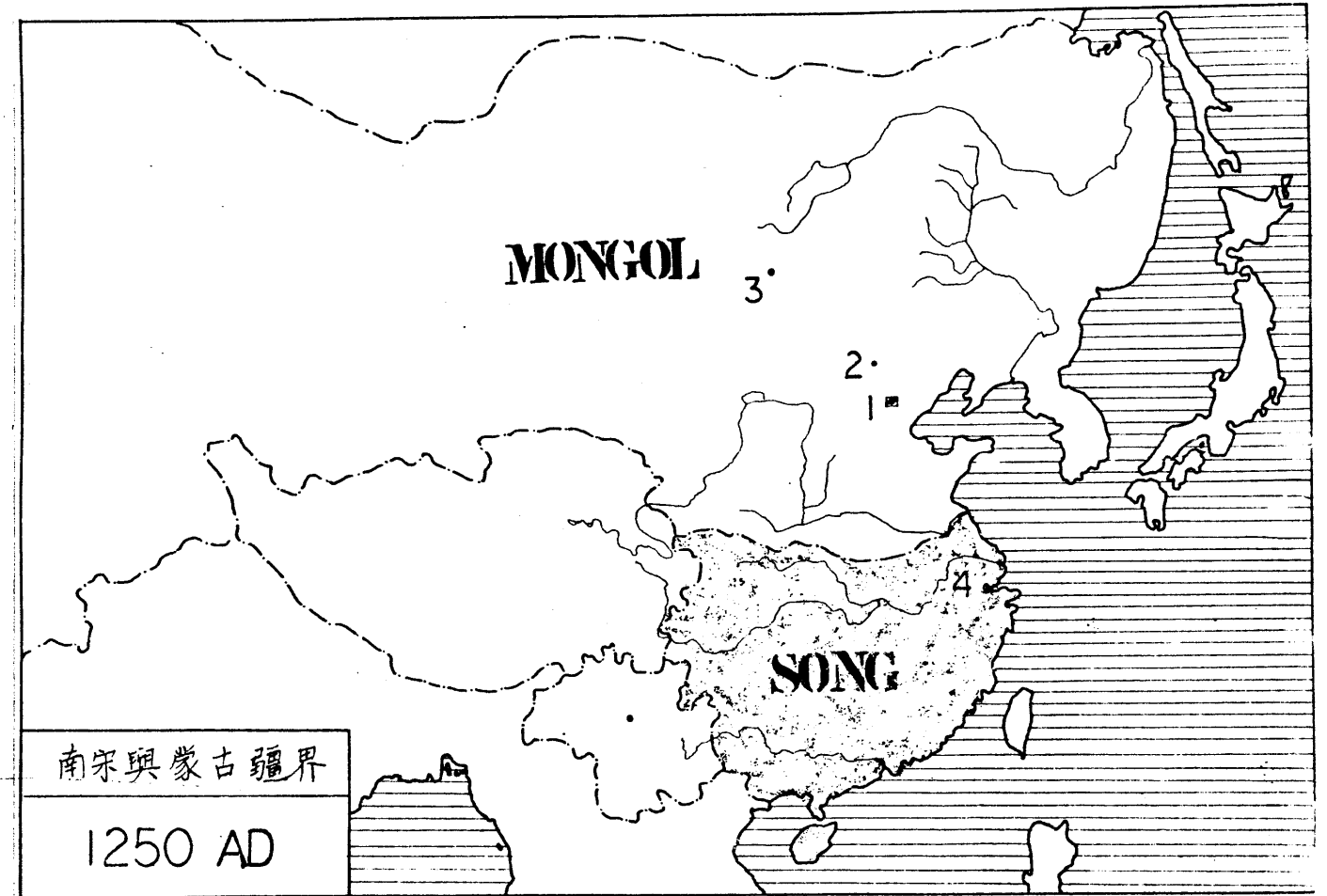
MAP 2-8 TERRITORIES OF SONG, JIN, AND MONGOL

southern gate of the Outer City, the troops of the Jin Dynasty set fire to burn the front row of houses on streets in order to stop the Mongolians. The disaster continued: not long after the Mongolians controlled the city, the Palace City caught fire and burned seriously. Furthermore, during this early period of Mongolian reign, the Mongolians did not change their custom of suppressing the people under their control. Many of these people fled to the south or to the countryside. The population of Zhongdu was reduced drastically during that period.

In 1260 AD, Kubilai Khan won the position of the Great Khan of the Mongolian Empire. His "Hanization" advisors (漢化幕僚集團) urged him to choose Yenjing for his capital because it was where the nomadic and

agricultural tribes met.

In 1263 AD, Kubilai Khan decided to choose Yenjing as his capital, but the physical condition of the city was inadequate to be his capital for three reasons. First, the well water was seriously polluted because the site of Yenjing had been used for more than a thousand years. Secondly, a large portion of the city had been burnt before and during the transitional period of the two dynasties but only very few of them were reconstructed. Thirdly and the key factor, the Palace City was in very poor condition. Besides, there was no place in the city where Kubilai Khan could practice equitation. These factors forced him to make the decision to build another city. Daning Gong (大寧宮) and the surrounding area were chosen as new Palace City (where was the



- | | | | |
|---------------------|--------|-------------------------|----|
| 1. Dadu (Mongol) | 大都 | 4. Linan (Song Dynasty) | 臨安 |
| 2. Shangdu (Mongol) | 上都(開平) | | |
| 3. Helin (Mongol) | 和林 | | |

MAP 2-9 TERRITORIES OF MONGOL AND SONG

center of the new Dadu) for it was where he was living at that time.

The building of the new city - Dadu (大都) - followed a very careful planning of both physical plan and construction management. Pieces of historical records are organized in chronological order to serve as reference for the construction of Dadu (TABLE 2-1).

During the construction of this new capital, a series of temporary facilities were built in the temporary capital - old Yenjing. The works included the repair of Yenjing's outer city wall, rebuilding the Ancestor Hall and the repair of the palace city wall. These works spanned from 1261 to 1268 AD.

Also, a few preparative projects had to be completed before the real construction of the new

city. Guangtai Men (光泰门), the thirteenth gate of Zhongdu, was built on the northern wall as a shortcut from new city to old city before the construction was started.

In order to gather construction materials and the necessary specialized craftsmen, officials were sent out to all parts of the territories of the Yuan Dynasty.

It was not until 1273 AD that the construction started on the first major wood structure complex. It took more than eight years to complete the complexes on the major axis of the palace city in Dadu. After the construction of the Palace City came to an end, the workers began to work on other important projects such as Ancestor's Hall (18 in MAP 2-11), and the city's infrastructure including

CHRONOLOGICAL RECORDS OF
DADU'S CONSTRUCTION

1261	Repair of Yenjing's city wall.
1262	Repair Daning Gong.
1263	Expand the engineering and construction department in the administration.
1263-3	Begin building Ancestor Hall (太庙) in Yenjing.
1264-10	Complete the work on Ancestor Hall, and worship ancestors in the Hall.
1267	Build the outer city wall of Dadu. Set up agent to manage the Imperial and Palace city of Yenjing.
1268	Beginning of water resources collecting projects.
1268-10	Complete rebuilding the wall of Yenjing Palace.
1271-8	Organize twenty-eight thousand people from the surrounding country to build the Palace city wall of Dadu.
1272-3	Complete the city wall of the Palace city of Dadu.
1273-10	Build main hall, rear tower and wings of Yenchun Ge (延春阁) - the rear complex on the major axis.
1274-1	Complete main hall of Yenchun.
1274-4	Begin to build East Palace (东宫).
1274-11	Build the main hall, east and west hall of Daming Dien (大明殿) - the front complex on the major axis of the palace city.
1276	Complete outer city wall construction by using great number of troops. Set up security guard system for outer city wall.
1277	Build ancestor hall of Dadu.
1280	Complete the outer walls of ancestor hall complex of Dadu.
1281	Complete main hall of Daming Dien.
1283	Complete infra structure of Dadu.
1284	Complete main hall of ancestor hall complex. Set up new administration of Dadu.
1285	Set up rules for people to move in.

streets, bridges, and drainage system. In 1284 AD, most of the physical works approached completion. Next, an administration was established to manage the task of moving the capital.

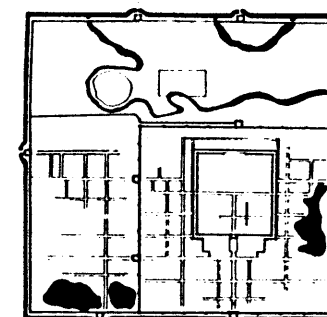
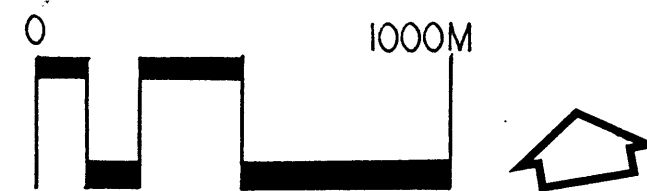
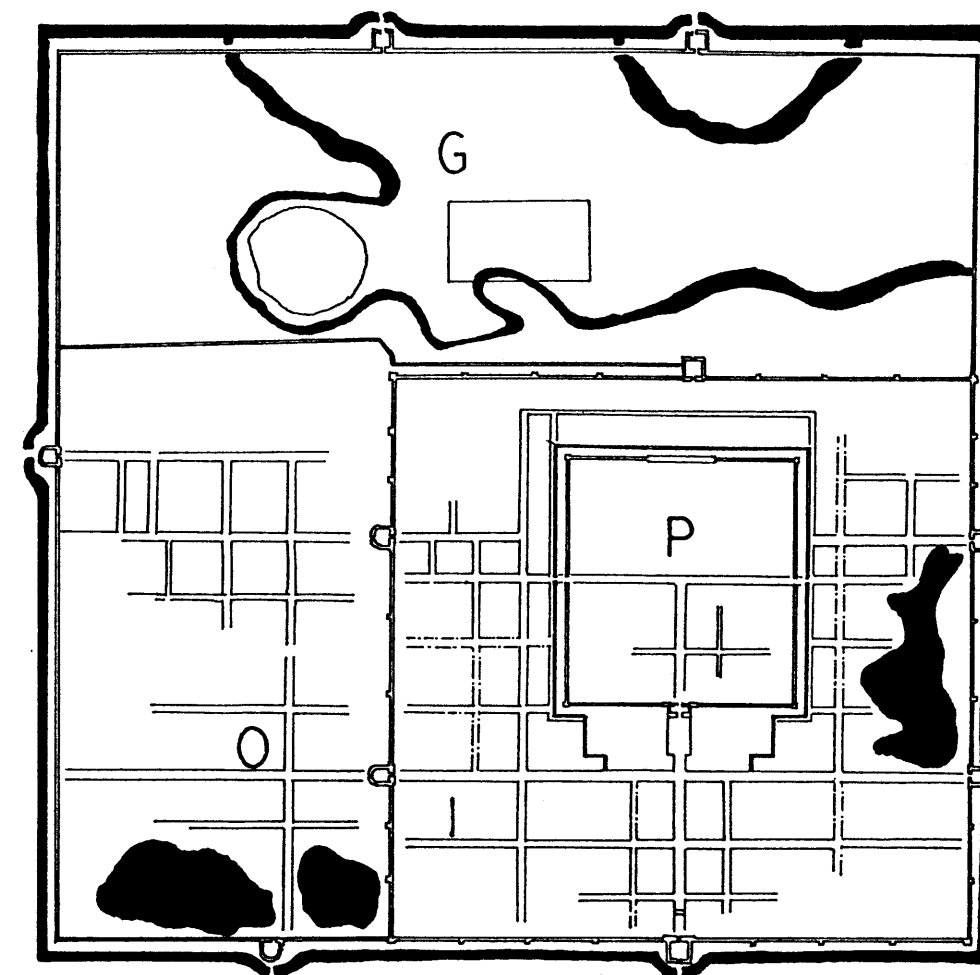
During the construction, the construction workers' housing and the manufactories were placed very close to the construction site. The land on the southern shore of Tonghui He (通惠河, it is Zha He in Jin Dynasty) was chosen. This large construction population brought with it the prosperity of the area for some time.

The newly built Dadu includes two major palace complexes - the Northern Palace (北宮) and the Imperial City (皇城). The Northern Palace was in fact an imperial garden. It contained a huge tract of land where the

royal families practised horsemanship and hunting. There were not many permanent structures on this site. Instead, most shelters were Mongolian style tents. The setting and location of the Northern Palace resembles to that of Shangdu (上都, MAP 2-10).

During the earlier years of the Yuan Dynasty, the Imperial City was contained only two major building complexes - the Palace City and the Eastern Palace (東宮) as well as some minor ones such as imperial gardens, royal workshops and service agents. A third palace - Xingsheng Gong (興聖宮) was not built until sometime after the death of Kubilai Khan.

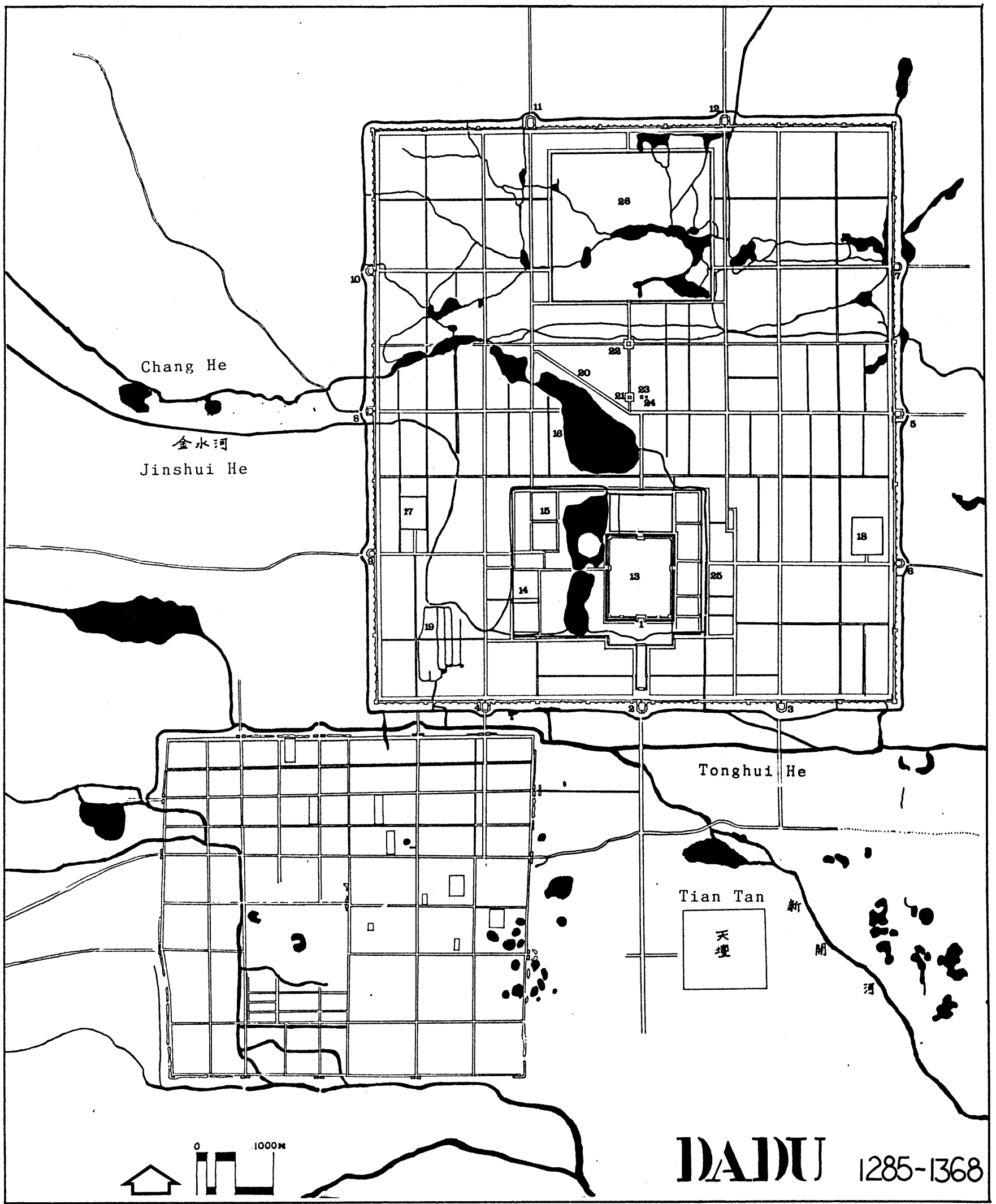
All administrations had their officially reserved land. The location and size of the land



- P PALACE CITY
- G NORTH GARDEN
- I INNER CITY
- O OUTER CITY



MAP 2-10



MAP 2-II

- | | |
|------------------|-----|
| 1. Chongtian Men | 崇天門 |
| 2. Lizheng Men | 麗正門 |
| 3. Wenming Men | 文明門 |
| 4. Shuncheng Men | 順承門 |
| 5. Chongren Men | 崇仁門 |
| 6. Chihua Men | 齊化門 |
| 7. Guangxi Men | 光照門 |
| 8. Heyi Men | 和義門 |
| 9. Pingze Men | 平則門 |
| 10. Suqing Men | 肅清門 |
| 11. Jiande Men | 健德門 |
| 12. Anzhen Men | 安貞門 |

- | | |
|----------------------|-----|
| 13. Palace City | 宮城 |
| 14. Longfu Gong | 隆福宮 |
| 15. Xingsheng Gong | 興聖宮 |
| 16. Jishui Tan | 積水潭 |
| 17. sheji Tan | 社稷壇 |
| 18. Tai Miao | 太廟 |
| 19. West Market | 西市 |
| 20. Xiejie Shi | 斜街市 |
| 21. Drumm Tower | 鼓樓 |
| 22. Bell Tower | 鐘樓 |
| 23. Central Pavilion | 中心閣 |
| 24. Central Platform | 中心臺 |
| 25. East Market | 東市 |
| 26. North Palace | 北宮 |

reserved for a particular institution reflected its importance within the government.

Dadu was planned under judicious considerations. The knowledge of topography and the accuracy of surveying were astonishing. The central concern of planning was, of course, the placement of the Northern Palace and the Imperial City. A central benchmark was set on a platform which was at the same distance from the Northern Palace as from the Imperial City. The other axis of this benchmark was determined by the central axis of the Palace City. The four boundaries of the city were decided by the restrictions of either natural topography or the previous city. The eastern and western wall of the Outer City were the same distance from the central platform, and so were the

southern and the northern wall. A Central Pavilion (中心閣) (23 in MAP 2-11) was located fifteen steps (23 M) east of the Central Platform (中心臺) (24 in MAP 4-11). It signified the center of the city by these two huge monuments.

The northern wall has two gates, while the other three walls have three gates each. The reason for the exception on the northern wall, according to some Yuan Dynasty notes, is that the designers of the city sought to resemble a famous legendary character - Na Zha (哪咤) - who has three heads, three pairs of hands while has only one pair of legs.

The street organization of Dadu was similar to that of Zhongdu. There were nine latitudinal and nine longitudinal streets in the city. The streets along the city

walls are called "shunchengjie" (順城街). Its width was 50 steps (250 "Chi"). The streets leading to city gates were called "dajie" (大街), meaning the wide street. The width of a "dajie" is 24 steps (120 "Chi" or 38 M). Streets which did not lead to gates are called "xiaojie" (小街), meaning the narrow streets, and they were 12 steps (60 "Chi") wide (2-1).

The layout of streets in Dadu was basically a checkerboard pattern. However, there were some exceptions. Some streets were shifted from their alignments and some were disconnected. The most famous irregular street is Xiejie (斜街) (20 in MAP 2-11), meaning diagonal street. It leads to the Central Pavilion along the north bank of Jishui Tan (積水潭, 13 in MAP 2-11).

The main streets divided the city into rectangular wards. In total, there were 51 wards in the city. Unlike in earlier cities, these wards were not enclosed by walls. Certain wards, however, had symbolic gates. Each ward was divided into long and narrow blocks by 6-step alleys. These alleys were always in east-west direction (2-1).

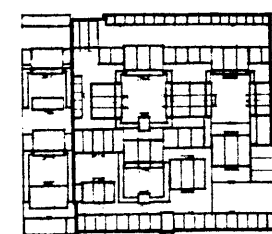
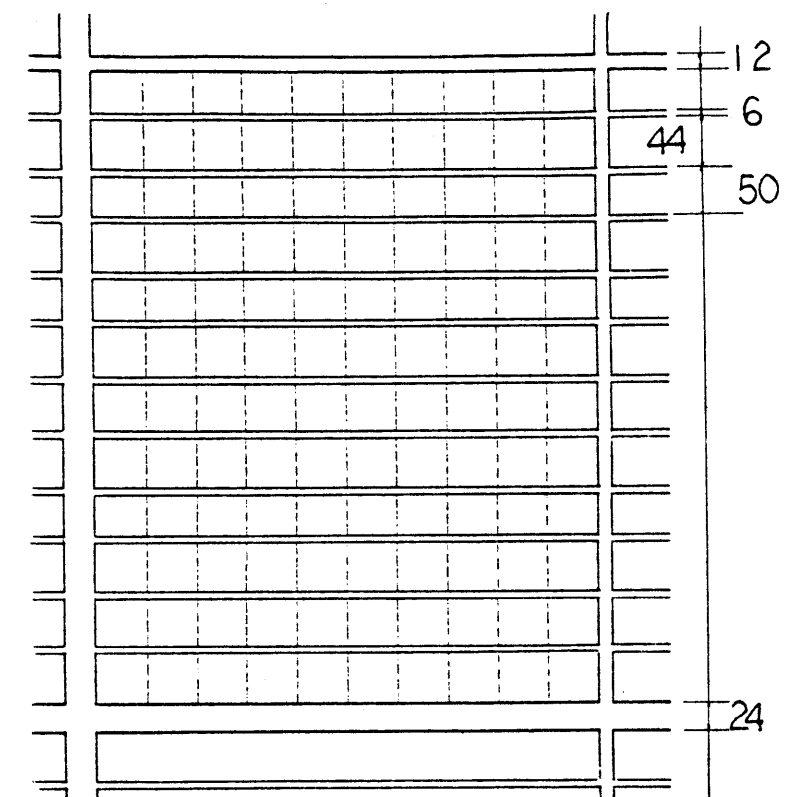
The land on each block was further divided into 44-steps by 44-steps square. The area of the square was 8 Chinese acres, and was considered to be possessed by one owner. However, most people could not afford to own such a large piece of land. Thus, each square was further divided into smaller lots to meet the needs of different residents. We still can identify those squares and sub-divisions from some of the courtyard houses remaining today (2-1).

The streets were built with compacted earth without further pavement. There were open drains on both sides of the streets. The drains were made of stone strips and were covered by stone when they crossed a street. Smaller drains branched from these main ones into every alley. Each alley had one of these branches. These branches were covered and had holes or eyes to collect rain water.

Part of this drainage system was inherited and maintained throughout the Ming and Qing Dynasties. They are later adapted to form part of the drainage system of modern Beijing.

Another characteristic of the water system of the Yuan Dynasty is the separation of the water to the Imperial Gardens and the water to the canal. The water to

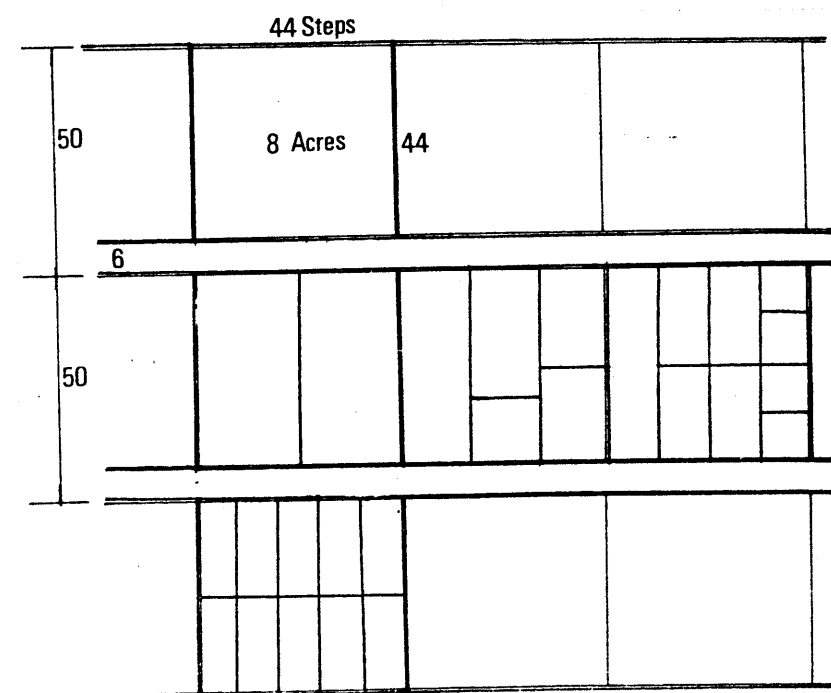
2-1 TYPICAL WARD OF DADU



A QING DYNASTY COURTYARD COMPLEX

SURVEYED IN 1982

LAND DIVISIONS



the Imperial Gardens was not allowed to be used by other people. Whenever canals of these two systems met, a stone channel guided the "imperial water" across from the other canals.

Three official markets were all closely related to the canal system. One was located to the north of the Imperial City, by the north shore of Jishui Tan. The second one was located at the southwest corner of the city (19 in MAP 2-11). The third is on the east of Imperial City (25 in MAP 2-11). They all had docks, warehouses and planned market spaces. These were the city's wholesale markets.

Besides these markets, there are other unplanned markets for retail business through the new city as well as outside the city. These unplanned markets were usually utilized by the lower income population for the

exchange of goods between the city and its hinterlands (MAP 2-12).

Originally, Kubilai Khan wanted Dadu to accommodate the whole population of Zhongdu. However, a great number of people in Zhongdu were too poor to afford a place in the new city. Migration to the new city was strictly regulated by the government. It determined the priority to move and regulated the size of land to be purchased by each family based on their social status and wealth. Consequently, many people were not qualified to move into Dadu. They had to remain in Zhongdu.

After most of the government agencies had moved into the new city, the government destroyed the walls and moats of Zhongdu. It was a precaution to prevent the enemy troops from occupying

Zhongdu, thus threatening the security to Dadu. However, the gates of Zhongdu were preserved and used as customhouses. This indicates that the old city still played an important role in the economy of the metropolis (MAP 2-12).

Part of the workshop area to the south of the new city continued to operate for the construction of less important palaces, offices and houses. They also housed the maintenance groups. Some warehouses and workshops were abandoned later. They were then occupied by the poor. That explains why the "qionghan shi" (窮漢市, market for the poor) are located in front of the three southern gates of Dadu.

BEIJING AND EARLY MING SECTION 5

Around the mid-fourteenth century, outbreaks of unrest occurred everywhere in China. In 1368, the Ming Dynasty troops broke into Dadu and the last Emperor of the Yuan Dynasty with his wives and families escape to the north. When the Ming Dynasty troops entered Dadu, they surveyed both the north city (Dadu) and the remains of south city (Zhongdu). They destroyed the Palace City of Dadu and removed all the usable materials from Dadu to Nanjing (南京, Yingtian Fu 應天府) in south China. For the sake of defence, the Ming government abandoned eighteen wards and the Northern Palace in the north part of the city where only very few people lived. They built a new north

BEIJING OF

wall a little north of the Drum Tower of Dadu. The remaining city had only thirty-three wards. At the same time, a great number of the population emigrated to other areas for agricultural reasons (MAP 2-13).

After the internal security was stabilized in the Ming Government, the First Emperor of the Ming Dynasty installed his sons to different parts of the country. Beiping (the official name of Beijing during the early Ming Dynasty) was granted to Zhu Li (朱棣, Yan Wang 燕王, the King of Yen), who was the most ambitious son of the First Emperor. Zhu Li was assigned to Beiping in order to prevent the return of Mongolians, thus he?



controlled a great many troops.

After Zhu Li arrived at Beiping, he started to gather people with talents to reconstruct the city and rebuild the palaces. His own palace was built on the foundation of the palace city of Yuan Dynasty. The basic organization of his palace is the same as Yuan's palace city. The major difference is the color of the roof and decorations. They are green instead of yellow because yellow colored roofs are only to be used for emperor's palace. In the same period, the city wall was covered with bricks and stones for the first time.

In 1399, very shortly after the death of the first Emperor, Zhu Li seized the throne from his nephew. After stabilizing the political situation in the country, he started

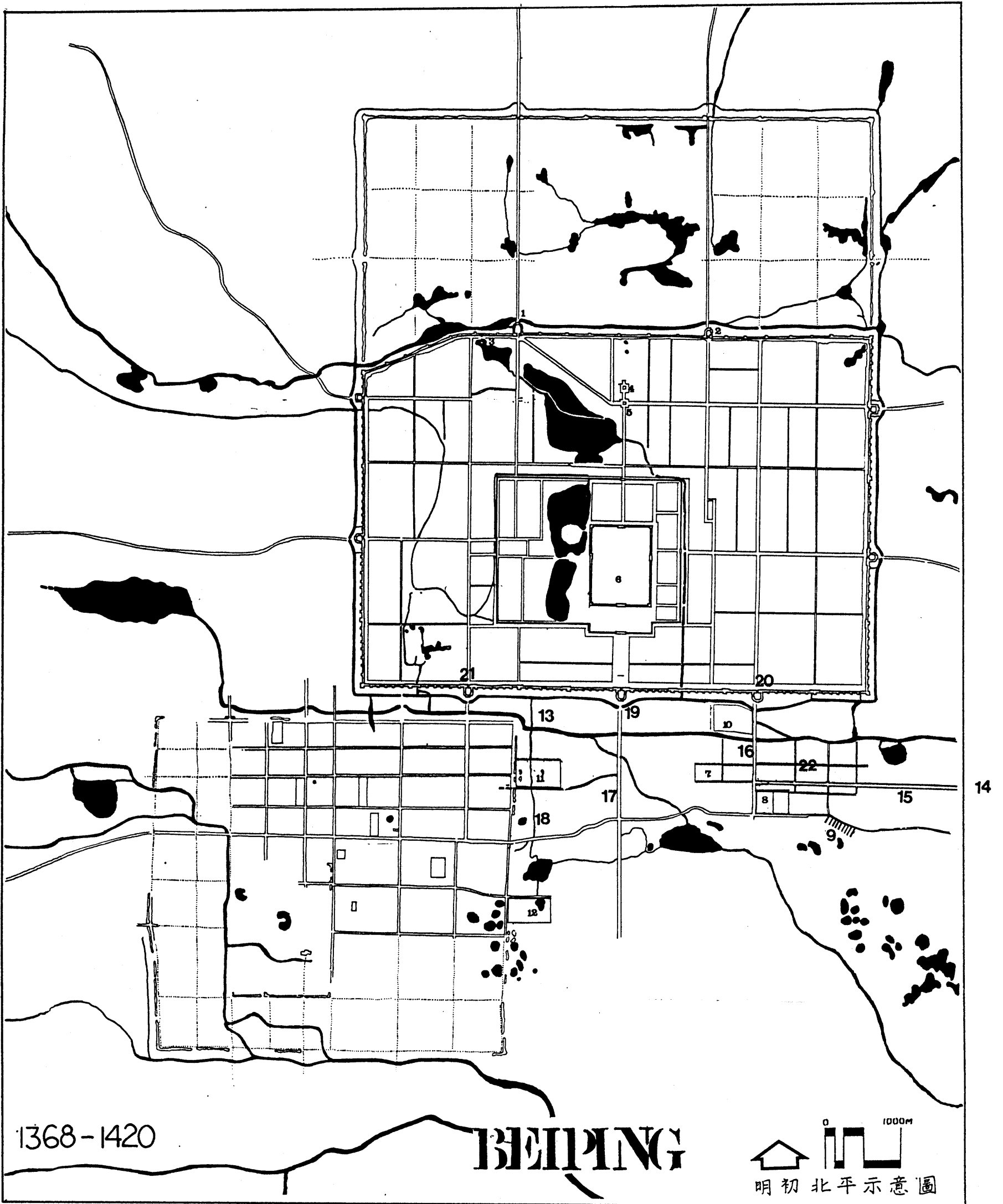
reconstruction of Beijing.

From 1402 on, for four consecutive years, more than twenty thousand families are forced to immigrate to Beijing and its surrounding areas. This movement increased drastically the population of the city. It also provided the labor force for the coming reconstruction. In 1406, Zhu Li gave an order to the Engineering Department of the Government to enlist the best craftsmen from all the provinces and gather them in Beijing before May of the next year. In the meantime, administrations of every province started collecting and transporting materials, such as wood, bricks, tiles, paints, etc., for the construction of Beijing.

These preparatory works bore a direct influence on the future

development of Beijing's urban structure. The most prominent event was the rebuilding of the workshop area to the south of Tonghui He. This workshop area had been used during the construction of Dadu in the Yuan Dynasty. The workshops were used not only in the reconstruction during the Ming Dynasty but also were continuously used in the subsequent hundreds of years.

A wood workshop area was arranged to the east of Lizheng Men (麗正門) (19 in MAP 2-13). The planning of this area was based on the procedure of wood processing. Shenmu Chang (神木廠) (14 in MAP 2-13) is located on the east end of this area for storage and as a primary processing place for wood structural elements. From its westgate, a street of 25 steps wide called Shenmu Chang Dajie (神木廠大街) was built to



MAP 2-13

- 1. Jiande Men (new location)
- 2. Anzhen Men (new location)
- 3. Shui Guan (water Gate)
- 4. Bell Tower (new location)
- 5. Drum tower (new location)
- 6. Yanwang Fu
- 7. Damo Chang
- 8. Choufen Chang
- 9. Ximu Chang
- 10. Taiji Chang
- 11. Liuli Chang
- 12. Heiwa Chang

- 健德門
- 安貞門
- (德勝門)水關
- 鐘樓
- 鼓樓
- 燕王府
- 打磨廠
- 抽分廠
- 細木廠
- 臺基廠
- 琉璃廠
- 黑瓦廠

- 13. Xiwa Chang
- 14. Shengmu Chang
- 15. Shengmu Chang
- 16. Wenming Men Wai Dajie
- 17. Lizheng Men Dajie
- 18. canal
- 19. Lizheng Men
- 20. Wenming Men
- 21. Shunzhi Men
- 22. Residential Area

- 細瓦廠
- 神木廠
- 神木廠大街
- 文明門外大街
- 麗正門大街
- 水渠
- 麗正門
- 文明門
- 順治門
- 居住區

transport wooden structural elements. The street leads to Wenming Men Wai Dajie (文明門外大街)(16 in MAP 2-13) where the processed wooden elements were transported north into the city.

Before they reached Wenming Men Wai Dajie, another factory - Choufen Chang (抽分廠)(8 in MAP 2-13) - was constructed for shaping the wooden elements. After this process, wood elements were sent to the other side of Wenming Men Wai Dajie (16 in MAP 2-13), where Damo Cheng (打磨廠)(7 in MAP 2-13) was located. Damo Chang took care of the polishing work in the final stage. After finishing the whole process, the wooden structural elements were stored until they were needed at the site.

In addition, to the South of Coufen Chong, there is a Ximu

Chang (細木廠)(9 in MAP 2-13) - a factory for the processing of partitions and minor wooden components. To the north of this wooden structure processing area, between the moat of Beiping and Tonghui He, was another factory called Taiji Chang (臺基廠)(10 in MAP 2-13) where the workers processed stone parts of the foundations for buildings and the processed materials were stored.

On the other side of Lizheng Men, there was a glazed tile factory - Liuli Chang (琉璃廠)(11 in MAP 2-13), a black tile factory - Heiwa Chang (黑瓦廠)(12 in MAP 2-13), and a fine tile factory - Xiwa Chang (細瓦廠)(13 in MAP 2-13). A small north-south canal has been built to transport the tiles to the construction site (18 in MAP 3-12).

Other than these factories, a

residential area had been planned to house the workers. We can still identify these areas in "The Complete Map of Beijing. Qienlong Period". They are as regular as the residential areas planned in the Yuan Dynasty. However, these newly planned blocks are narrower.

In 1409 AD, the preparation work was sufficient to start a part of the major construction. The first major project began on May 1409, However, not in the city. It was the tomb for Zhu Li and his wife. The construction of this tomb took about four years, and employed most of the workers in Beijing. After the tomb was completed, the construction team came back to Beijing.

In 1414 AD, the Imperial Garden was expanded southward. A new lake named Nan Hai (南海)

the South Sea)(23 in MAP 2-14) was built. Then in 1416, the West Palace complex (西宮) (2 in MAP 2-14) was constructed as a temporary palace for the emperor's ceremony. Thus, the major construction in the Palace City could begin.

On February of 1417, the Emperor Zhu Li gave the official order to the Engineering Ministry to begin the reconstruction of Beijing's Palace City. The construction continued for three consecutive years without any delay because there was a sufficient supply of construction materials. On September of 1420 AD the work of Beijing came to its completion and Beijing was announced to be the new capital of the Ming Dynasty.

Unfortunately, in April of 1421, only half a year after the completion of the Palace City,

the Three Main Halls (三大殿) (M in 2-2) which were located on the major axis were burnt. Another fire, in December 1422 AD, destroyed the Three Back Halls (後三殿) (B in 2-2) also located on the major axis. These palaces were not rebuilt until Zhu Li's death (in 1424 AD). Later, the palaces were rebuilt in 1440 AD and completed in 1442 AD.

The reconstruction of Beijing from 1402 to 1420 entailed mainly the rebuilding of the Palace City and extending of the Palace City's major axis southward. In order to contain the new Palace City, the Imperial City needed to be enlarged. Nanjing's Imperial City is chosen as model of design for the new Imperial City. (Nanjing was the capital of Ming Dynasty before 1420 AD) The plans of Nanjing and Beijing almost fulfill all the

principles that express the imperial symbol. The organization of axis and the arrangement of buildings on this axis in Beijing became the most rigorous major axis in Chinese history (2-2).

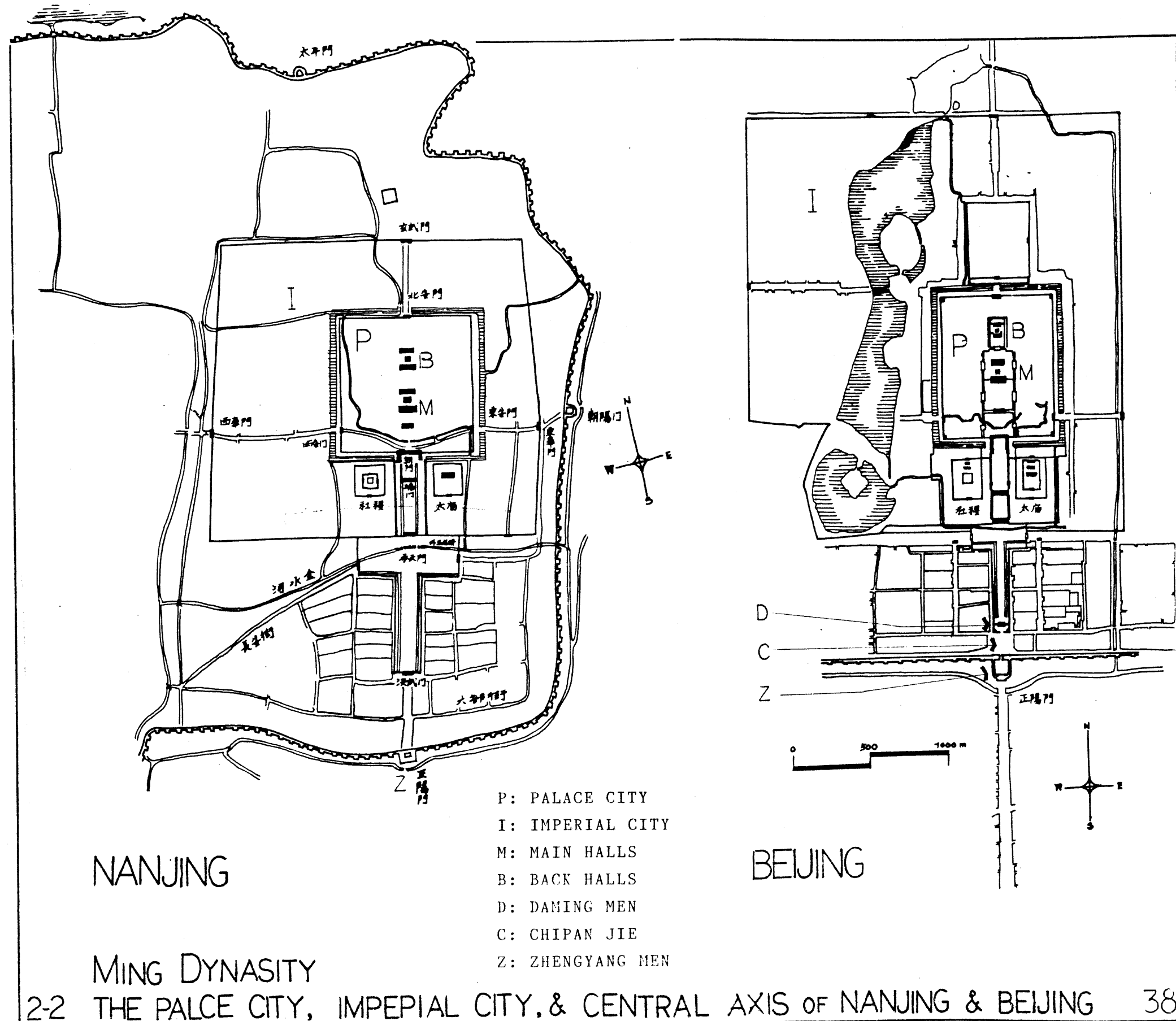
The extension of the major axis and the enlargement of the Imperial City caused immense changes to the city. First, the extension of the major axis forced the south city wall to move southward. This measure subsequently blocked up part of Tonghui He. Consequently, the west market lost its advantage of water transportation from the canal. Thus the west market had to be relocated to the adjacent major street.

The enlarged Imperial City enclosed part of the canal in the city and blocked its way up to Jishui Tan (積水潭) (25 in MAP 2-14). Both the east and north

market were greatly affected owing to the loss of water transportational advantage caused by this change. The north market became a secondary market and the east market moved to Xisi Pailou (西四牌樓), where the land transportation was more accessible.

Chipan Jie (棋盤街) (C in MAP 2-2), a square between Daming Men (大明門) and Zhengyang Men, (D & Z in 2-2) became the most prosperous market in the city. It was the only place to the south of the Imperial City that connected the east and west parts of the Inner City. The prosperities extended from Daming Men to the Imperial Way outside Zhengyang Men.

Due to the long term construction and maintenance of palaces, the south gates area and the markets flourished. This area gradually merged with



NANJING
MING DYNASTY
2-2 THE PALCE CITY, IMPEIAL CITY, & CENTRAL AXIS OF NANJING & BEIJING

BEIJING



MAP. 2-14

- | | | | | | |
|-----------------|-----|------------------|-----|----------------|-----|
| 1. Wu Men | 午門 | 12. Chang | 倉 | 23. Nan Hai | 南海 |
| 2. Xi Gong | 西宮 | 13. Chang | 倉 | 24. Tonghui He | 通惠河 |
| 3. Nan Gong | 南宮 | 14. Lumi Chang | 祿米倉 | 25. Jishui Tan | 積水潭 |
| 4. Tai Miao | 太廟 | 15. Kuijia Chang | 盔甲廠 | | |
| 5. Sheji Tan | 社稷壇 | 16. Drum Tower | 鼓樓 | | |
| 6. Xi Yuan | 西苑 | 17. Bell Tower | 鐘樓 | | |
| 7. Tai Chang | 太倉 | 18. Tian Tan | 天壇 | | |
| 8. Wuguan Fu | 武官府 | 19. Xiennong Tan | 先農壇 | | |
| 9. Wenguan Fu | 文官府 | 20. Di Tan | 地壇 | | |
| 10. Gongyong Ku | 公用庫 | 21. Ri Tan | 日壇 | | |
| 11. Chang | 倉 | 22. Yue Tan | 月壇 | | |

the northeastern corner of Zhongdu where the remaining part of the original settlement was. This area included public and private workshops, different kinds of service businesses, and a few barracks for the imperial army. The whole area was as populated as that inside the city. It was characterized as the service and production sector of the city. The walled area of the city, on the other hand, was the consumption sector. Most of the buildings in the city were houses and shops.

BELJING AFTER 1553

SECTION 6

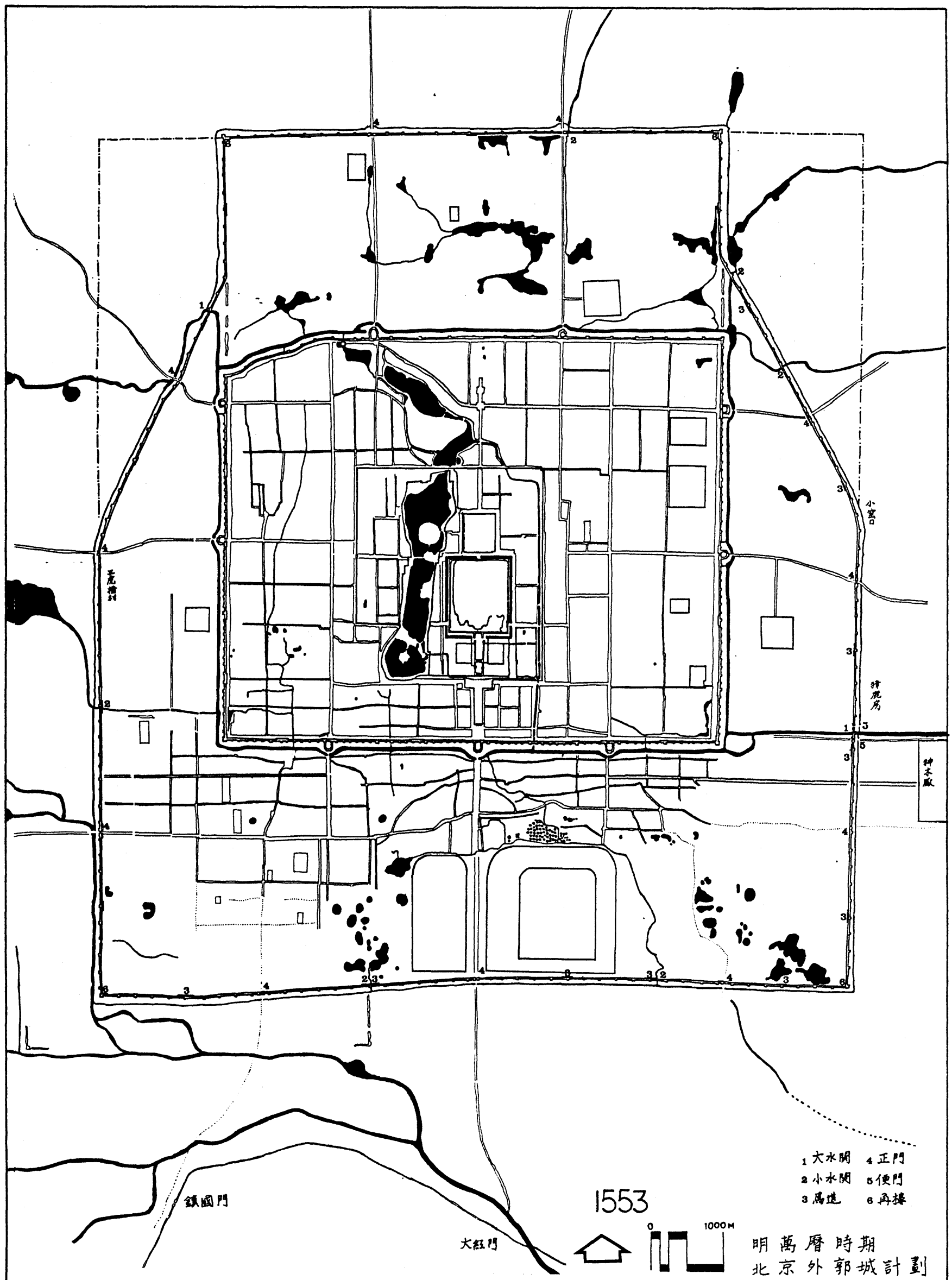
Because the area south of the city prospered in a short period of time, and because the Mongolian troops invaded from the north several times, plans for an outer wall were proposed by ranking officials. Among them, the plan proposed in 1554 is recorded in details. The implemented plan is an adjustment based on this plan.

The basic concept is to build a square outer ring wall. However, this plan was altered to utilize most of the remains of Zhongdu's Imperial City walls and Dadu's outer walls in order to save on construction costs. Thus the new east and west walls would turn diagonally inside to Yuan Dynasty walls (MAP 2-15).

The plan was approved.

Unfortunately, the budget did not allow for the completion of this project. The prime minister decided to build the south wall first and to implement the other parts of the project later. Even so, the southern wall was still too costly. It was then decided to shorten the southern wall to 13 "Li" as oppose to the original proposal of 18 to 20 "Li." It turns northward to link with the existing Inner City wall. The economic conditions of the Ming Dynasty never improved, thus, the first outer wall plan of 1554 was never completely executed (MAP 2-16).

After the construction of this outer wall, for about three hundred years, there was no



MAP 2-15 THE OUTER WALL PROPOSAL IN 1553

- | | |
|-------------------------------|-----|
| 1. Water Gates | 大水關 |
| 2. Small Water Gates | 小水關 |
| 3. Ramps | 馬道 |
| 4. Zheng Men (gates) | 正門 |
| 5. Bian Men | 便門 |
| 6. Jiaolou (Corner Pavilions) | 再樓 |

major change in the physical structure of the city. A few political and social changes led to small scale alterations to the streets of the Inner City. For example, Manchurians were allowed to reside in the Imperial City during the Qing Dynasty (1664 AD to 1910 AD). This policy resulted in the change of atmosphere and in part of the street organization of the Imperial City.

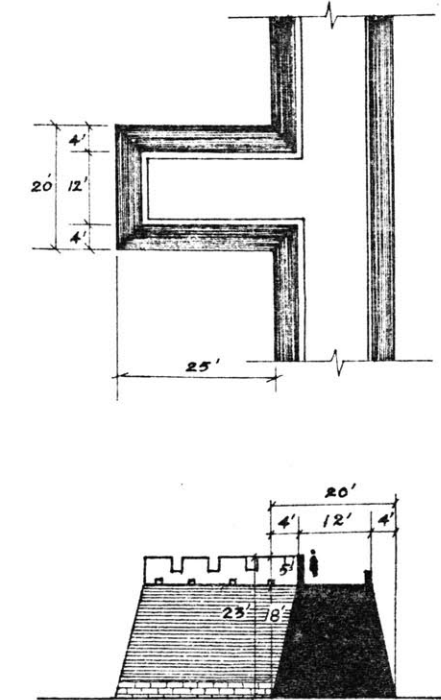
Also, some institutions which occupied large pieces of land were eliminated and these areas were then taken by other residents. Organic patterns grew within these areas, replacing the regular rectilinear layout.

Furthermore, in 1649, in order to prevent racial conflicts, all the Chinese were driven out of the Inner City. This policy of segregation led to the ? neutralization and integration

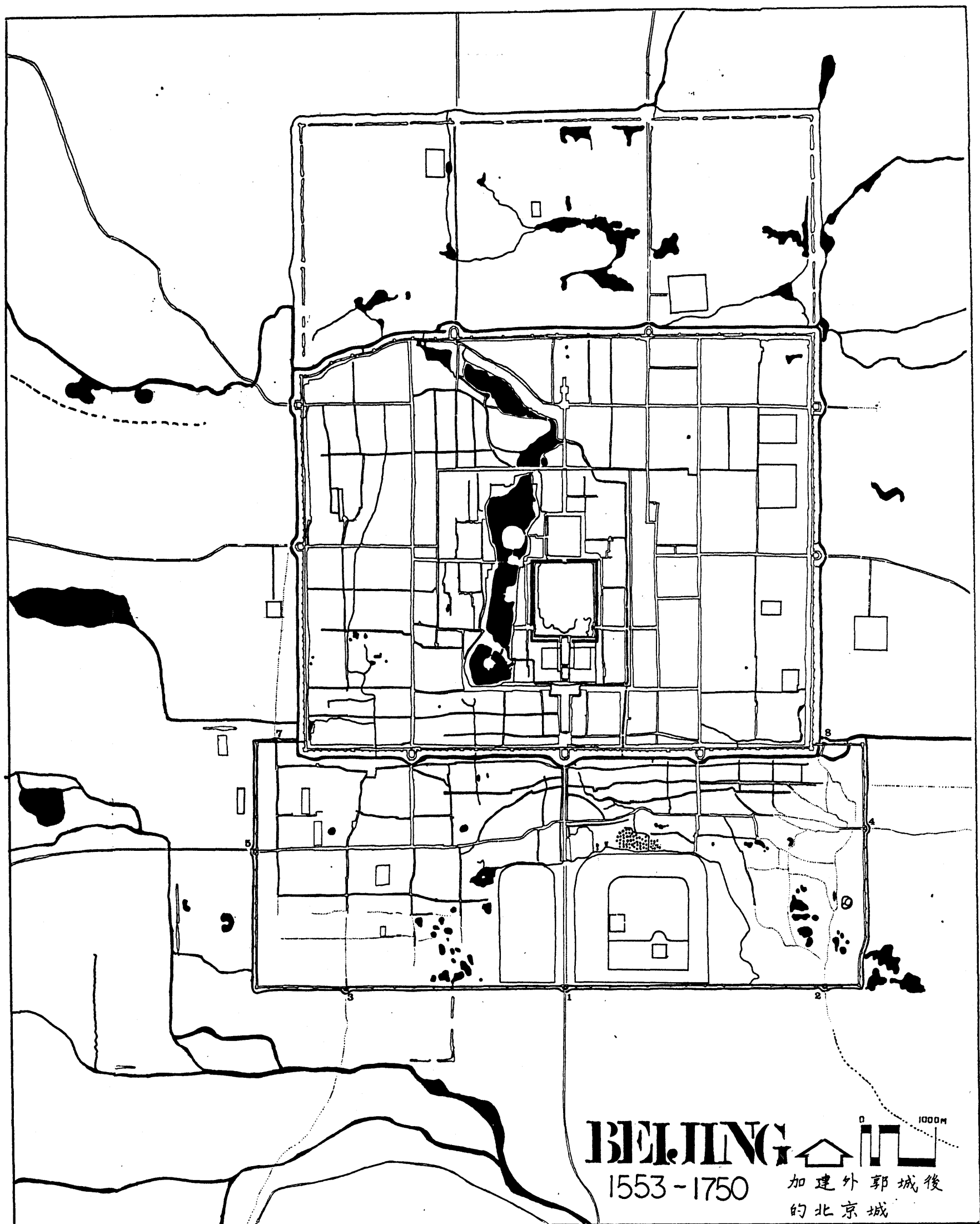
of the former spatial system which was based on the natural segregation of various social classes. The Manchurians had a different social structure from that of the Chinese. In their society, different classes of people lived together to form a community. People were not segregated by economic status. Thus, the physical tissue of the whole city became more homogeneous.

Also, the Manchurians had the obligation of military service, therefore they did not need to earn a living. The government paid their salaries based on their ranks in the army. As a result, the commercial activities in the Inner City were minimum. As the population of Manchurians increased and the mixture of different races became popular, the homogeneity of the city changed gradually. "The Complete Map of Beijing"

was produced at this transitional period when the social and economical structure of the early Qing Dynasty began to break down.



2-3 PROPOSED WALL SECTION OF OUTER CITY (1553)



MAP 2-16 THE IMPLEMENTED OUTER CITY WALL

- | | |
|------------------|-----|
| 1. Yongding Men | 永定門 |
| 2. Zuoan Men | 左安門 |
| 3. Youan Men | 右安門 |
| 4. Guangqu Men | 廣渠門 |
| 5. Guangning Men | 廣寧門 |
| 7. Xibian Men | 西便門 |
| 8. Dongbian Men | 東便門 |

CHAPTER 3

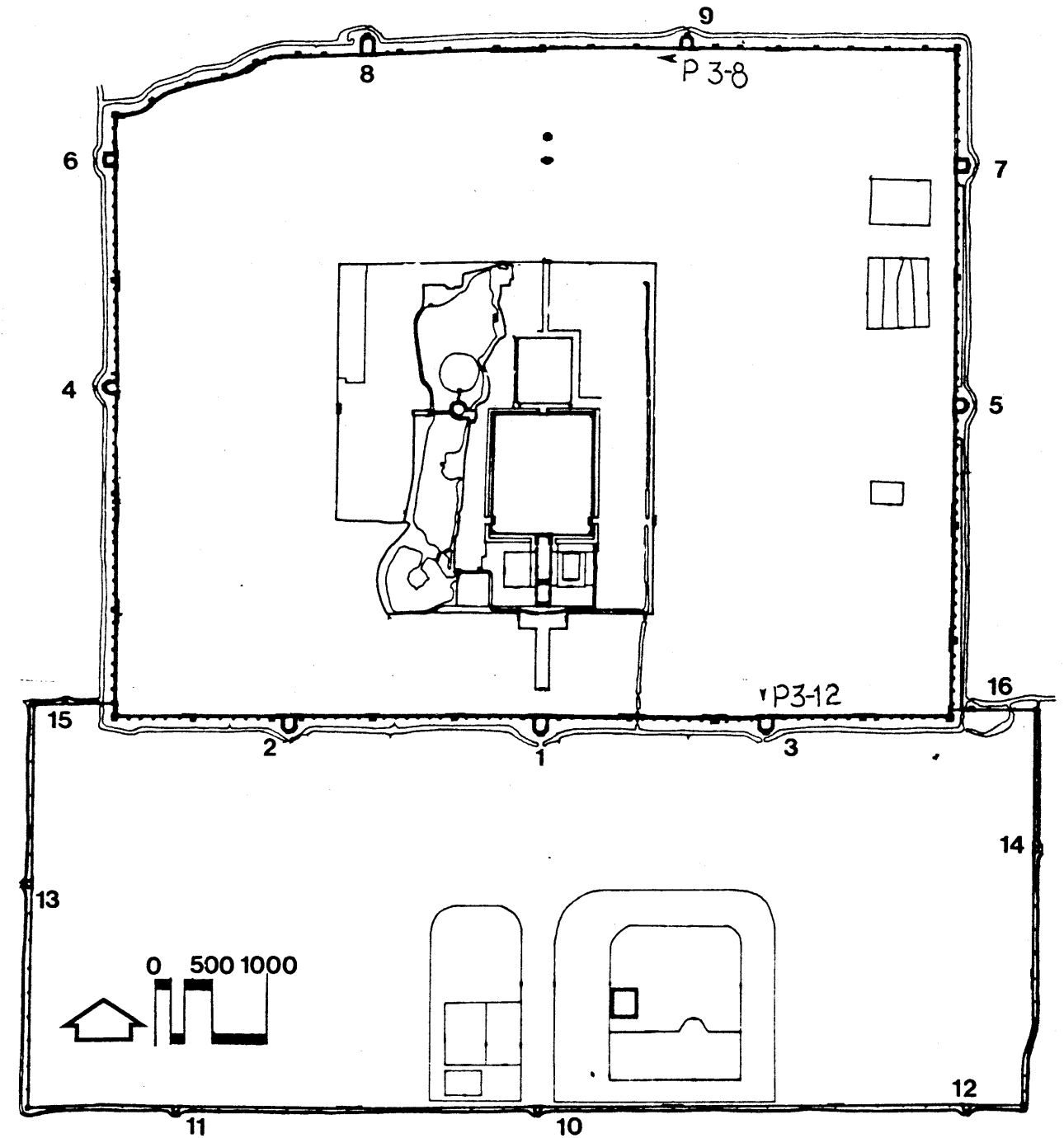
ENCLOSURE SYSTEM

- WALLS AND GATES OF BEIJING

In Chinese, the character "cheng" (城) means "wall of a city" and "Shi" (市) means "market." The combination of cheng and shi - "chengshi" (城市) then is "city" in English. It represents the physical characteristics of a city - a place of walled enclosure and markets. Looking for the distinctive features of "cheng," we can also trace back to an early definition of the character "cheng." Cheng is built to contain people (城以盛民). This means that a city wall in China usually extends wide enough to contain not only the daily activities of people in the city, but also to protect people who live in the surrounding hinterland in case

they are threatened by enemies or natural disasters such as flood. Thus, it becomes a tradition to build city walls wider than what was needed for the city's population. These large walled cities spread extensively and comprise a major characteristic of Chinese human landscape.

Beijing was used as capital for most of the time in late imperial China. Through a long-term refinement and transformation, the walls of Beijing developed to be a huge and complex multi-enclosure system. It is the best illustration of the idea of "cheng" (MAP 3-1).

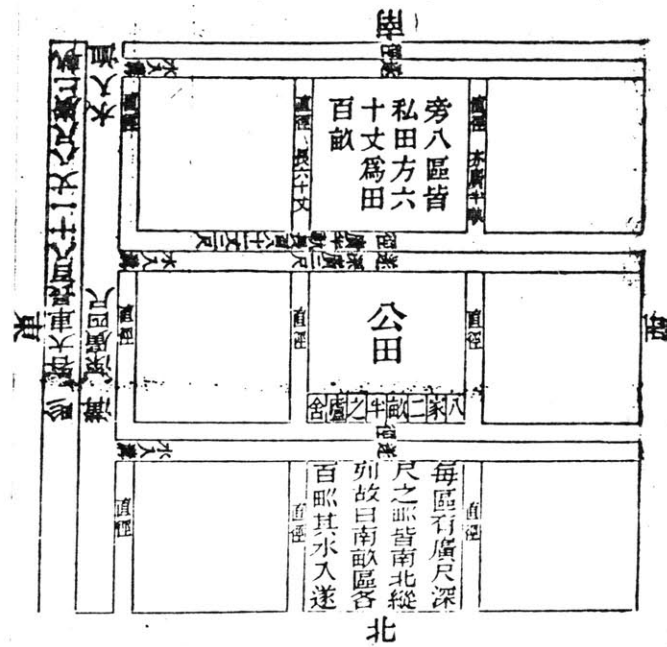


- | | | |
|----------------------|----------------------|-----------------------|
| 1. Zhengyang Men 正陽門 | 6. Xizhi Men 西直門 | 11. Youan Men 右安門 |
| 2. Xuanwu Men 宣武門 | 7. Dongzhi Men 東直門 | 12. Zhuoan Men 左安門 |
| 3. Chongwen Men 崇文門 | 8. Desheng Men 德勝門 | 13. Guangning Men 廣寧門 |
| 4. Fucheng Men 阜成門 | 9. Anding Men 安定門 | 14. Guangqu Men 廣渠門 |
| 5. Chaoyang Men 朝陽門 | 10. Yongding Men 永定門 | 15. Xibian Men 西便門 |
| | | 16. Dongbian Men 東便門 |

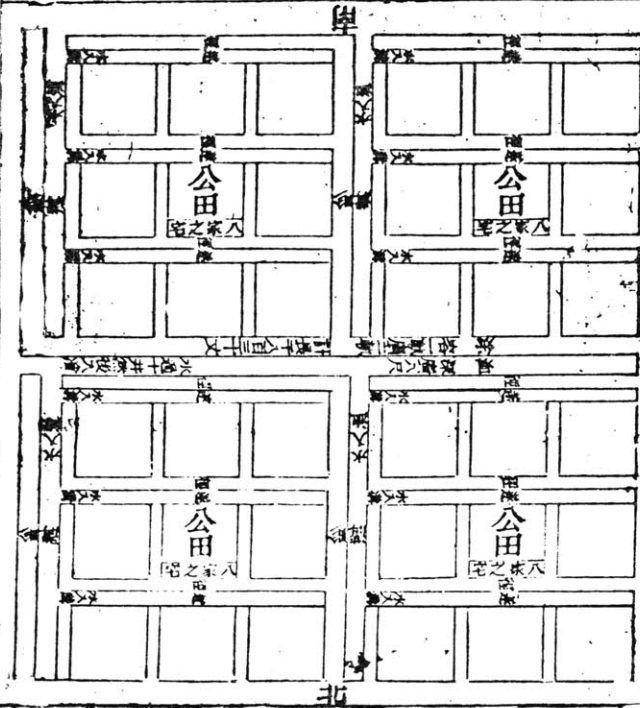
MAP 3-1 WALLS & GATES OF BEIJING

The arrangement of these four layers of walls, conceptually, is a concentric square, or - Chinese Box as westerns called. It is the form of the ideal world developed in the early stage of the feudal era. This ideal form was intended to coordinate social, economic and political issues in the ideal country. Basically, a country is divided by irrigation canals and road systems into square grids of equal size, which are further divided into nine lots by smaller ditches and paths. The grids are assigned to people to be used for agriculture. The rulers were placed at the center of the country, and the country was sectioned by concentric squares, all sections assigned to different classes of citizens who carried out different functions. This ideal form was not entirely a utopia. It was partially accomplished during

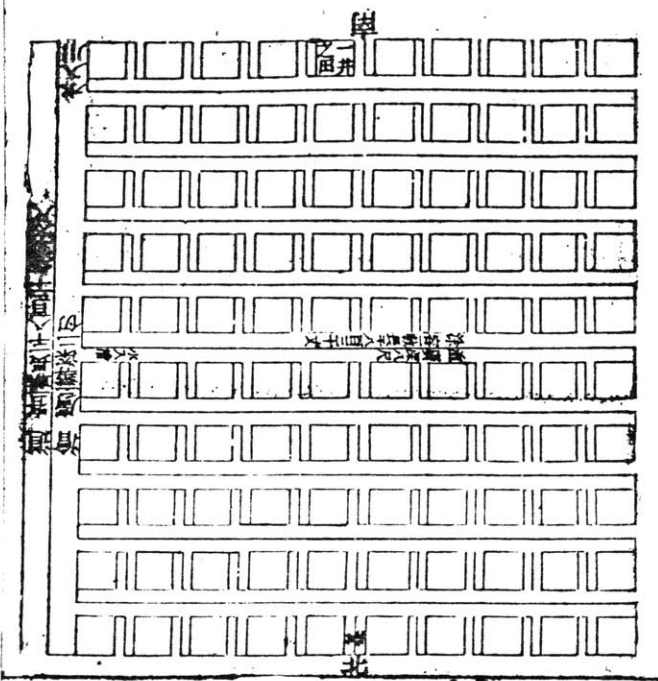
圖之井一1



圖之邑為井四2



圖之成一3

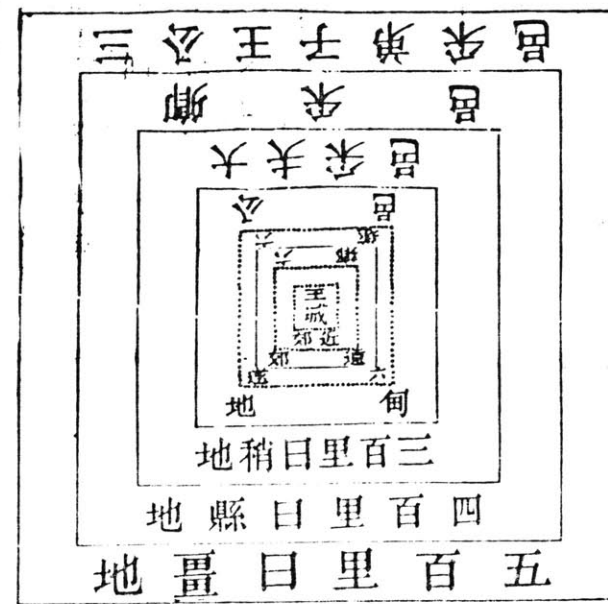


3-1

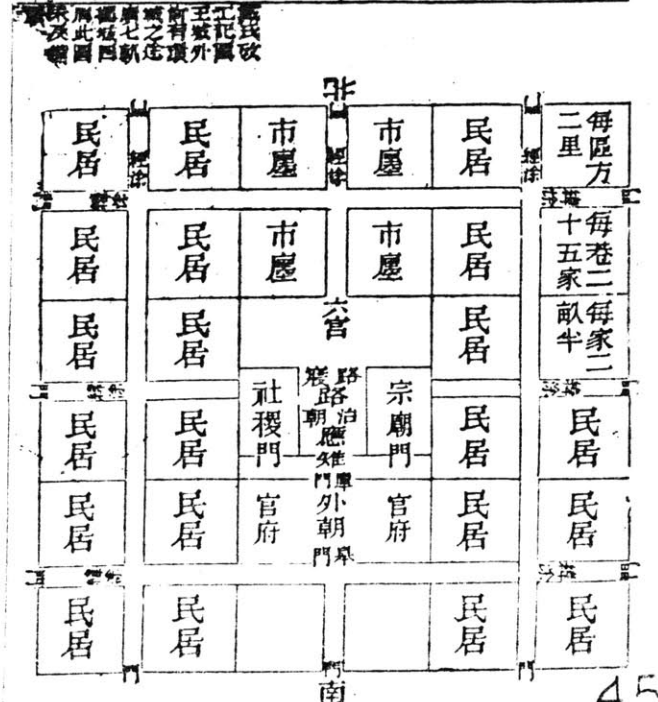
- 1 BASIC LAND UNIT FOR EIGHT FAMILIES (JING 井)
- 2, FOUR BASIC UNITS -- A COMMUNITY (YI 邑)
3. A HUNDRED UNITS -- CHENG (成)
4. THE DIRECT CONTROL LAND FOR KING IN THE FEUDAL SYSTEM
5. CAPITAL OF KING

One of the interpretations of the ideal country and capital described in the early Zhou Dynasty text. It is in the book--Jing Tian Tu Kao by Zhu Keji in late Qing Dynasty.

圖之里千畿王4



圖城王5



the early stage of feudal era. After some time, society became more and more complex so that the system was no longer useful to the rulers as a tool to rule the country. Thus the system as a totality to coordinate all the issues in the country was abandoned. The texts about this ideal form of country, however, are preserved and later are interpreted by scholars and are used as models in capital design. (3-1).

One of the major concepts preserved in designing the capital is the concentric enclosure as a land-use model, which is clearly illustrated in the previous chapter. The contents of different sections vary from one dynasty to another. They all follow the rule that those people who are allowed to live closer to the Emperor are those who are more

intimate to the emperor. This situation is more obvious in the Qing Dynasty.

The Forbidden City is the core of Beijing. It is a castle for the Emperor. He rules the country in the main halls of the front part of Forbidden City where only very few high-ranking officials are allowed entrance. And only the Emperor, his wives, and the crown prince are allowed to live in the Forbidden City along with thousands of servants.

The second layer of Beijing is the Imperial City. In the Ming Dynasty, the Imperial City had no residents. Here are imperial workshops, institutions, temples, warehouses, barracks, imperial gardens, and other minor palaces. It was not until the beginning of Qing Dynasty that the Emperor assigned part

of the Imperial City to Manchurian Chiren (旗人, Flag People, those who joined the Eight Flag Army during the establishment of the Qing Dynasty). These people filled their houses in the open land in the Imperial City with no comprehensive planning. Allowing people to live in the Imperial City created security problems, thus curfew was held at night. During curfew hours, the gates of the Imperial City were opened only on emergency occasions, such as finding doctors for the birth of babies and for serious illness, or sending emergency official business.

The third layer - Inner City - was controlled under a law legislated in 1648 AD. The law required all the original Chinese residents to move from the Inner City to the Outer City with very low compensation. It

also regulated that Chinese who are not Flag People (Chren) or nonresidents could not stay overnight in Inner City. Chiren, based on their original tribes (such as Manchurian, Mongolian, and Chinese), were assigned to live in specific areas of the Inner City. According to the old documents, the Manchurians lived the nearest to the Emperor, the ? Mongolians lived next to the Manchurians and the Chinese flag people next to the Mongolians. This arrangement was not accompanied by a physical barrier; however, it further stressed the concentric square idea.

The outer city was not controlled under any zoning regulation or any race segregation policy. Still, all the people who intended to enter the Outer City were required to show their identification. From

old documents, we can identify three major groups of people who lived in the Outer City: businessmen, chinese scholars and students, and service staffs.

With this general introduction to the characters of each layer, it is time for us to return to our main interest in this chapter - the physical city wall. The following texts in this chapter systematically describes the four layers of city walls of Beijing, and are structured in order of different layers from the inside to the outside.

FORBIDDEN CITY

SECTION 1

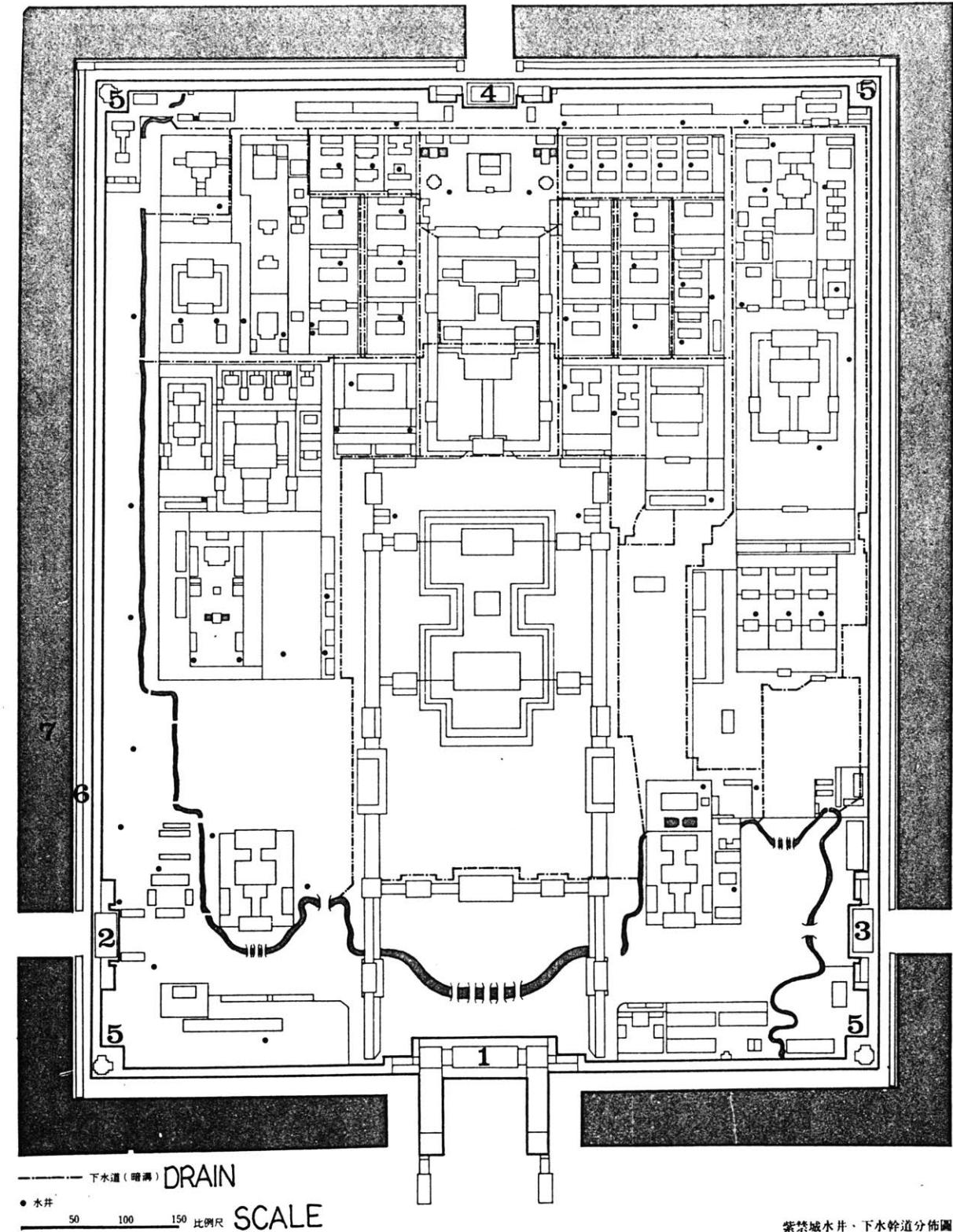
GENERAL FEATURES

The Forbidden City is a city wall of rectangular shape with longer north-south direction. The length of its eastern and western walls is 961 M and of its southern and northern walls is 753 M. The perimeter counted by the Chinese "Li" system is exactly 6 "Li" (里 , 1 "Li" = 1800 "Chi" 尺 , 6 "Li" = 10800 "Chi", 1 "Chi"=0.318 M). There are four gates on each side of Forbidden City. The southern and northern gates are placed on the center of the wall, while the eastern and western gates are south of the center of the wall in order to face an earlier-built road leading to a gate of the Imperial City. Each gate has ramps on both sides. They

TABLE 3-1 FORBIDDEN CITY

	METRIC	CHI
EAST/WEST	961 M	3029.5 Chi
SOU./NOR.	753 M	2362.0 Chi
PERIMETER	3428 M	10783.0 Chi

Note: Both figures are based on surveying. The figure in metric system is from "Palaces of the Forbidden City" in 1982, and the other is from "Da Qing Hui Dian" (大清會典) in early Qing Dynasty.



MAP 3-2 FORBIDDEN CITY

provide the only access to the top of the city wall. Four pavilions - "jiaolou" (角楼) are built at the four corners respectively with the platform protruding inward, and there are no bastions on the walls. Therefore, looking from outside, the wall has a completely flat elevation.

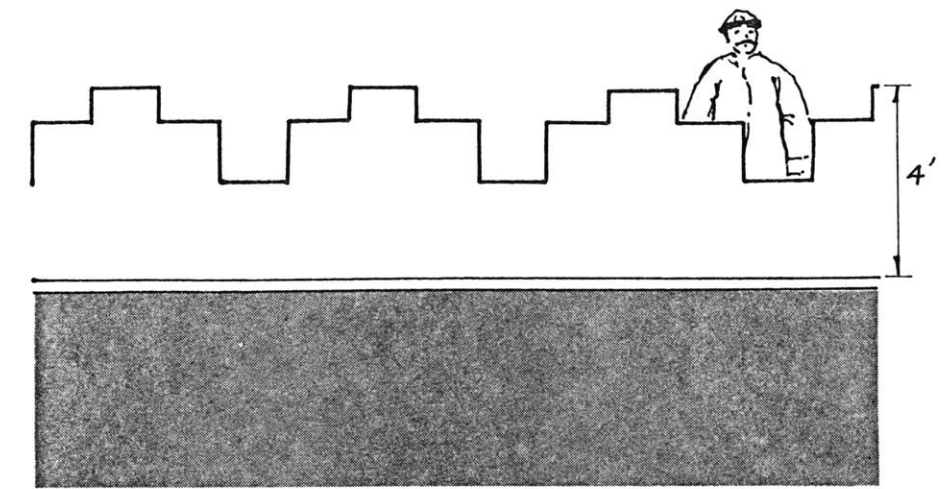
Outside the wall, a fifteen-foot gap away, there are three rows of security guards' dormitory on the east, west and north sides. Further out, a moat surrounds the entire Forbidden City. It is a stone-built, 6-meters-deep and 52-meters-wide canal. There are culverts used as a bridge when the moat meets the four gates (MAP 3-2).

The height of the city wall is 25 "Chi" (7.95 M), the width of the base is 27 "Chi" (8.59 M), and the width of the top of city

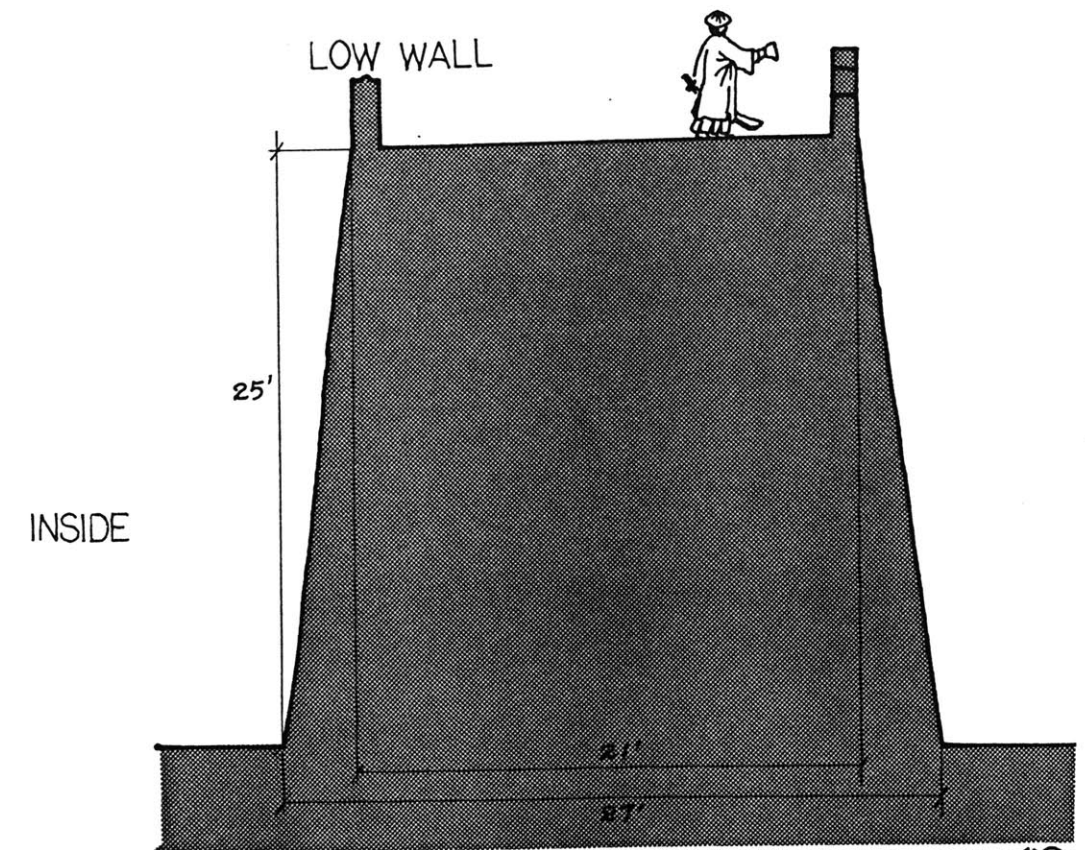
wall is 21 "Chi" (6.68 M). Compared with other layers of city wall in Beijing, the Forbidden City wall is very steep. It has parapets of 4 "Chi" (1.27 M) high that runs on the outer edge to protect the defender when they are shooting out, and on the inner side there is a course of low wall to prevent accidental falling (3-2).

The physical settings and other security measures ensure the impossibility of entering the Forbidden City without permission. This symbolic function is in fact more important than the defensive function. In time of emergency, most often the Emperor simply retreats from the Forbidden City.

3-2 PARAPETS & SECTION OF IMPERIAL CITY WALL



PARAPETS



SECTION

THE GATES AND CORNER PAVILIONS

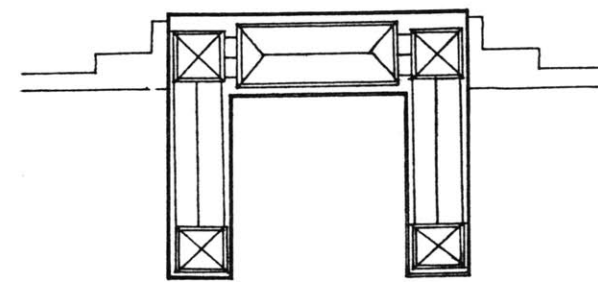
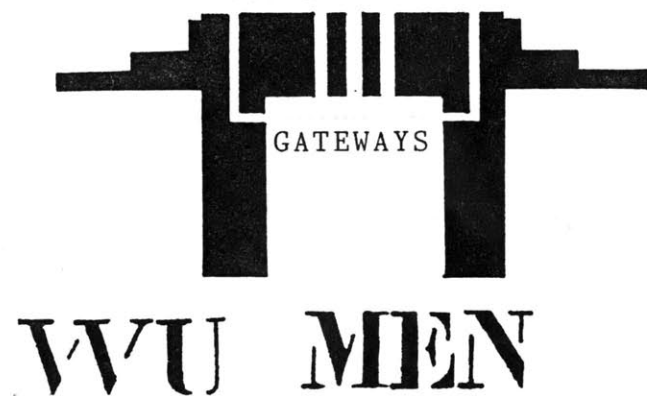
1. THE SOUTH GATE - WU MEN

Wu Men (午門) is the front gate of Forbidden City. Symbolically, it is the center of the whole country. The most important ceremonies took place in front of it. Therefore, Wu Men is the most distinctive and elaborate gate among all the gates of Beijing. It follows the conception of an ancient building type "que" (闕), which is a gate with two towers on both sides. However, the appearance of Wu Men is quite different from its ancient predecessors. It is a "U" shape in plan with five gateways. Three of them lead straightly to Forbidden City, and the other two enter from two sides and turn ninety degrees to enter the Forbidden City (3-3).

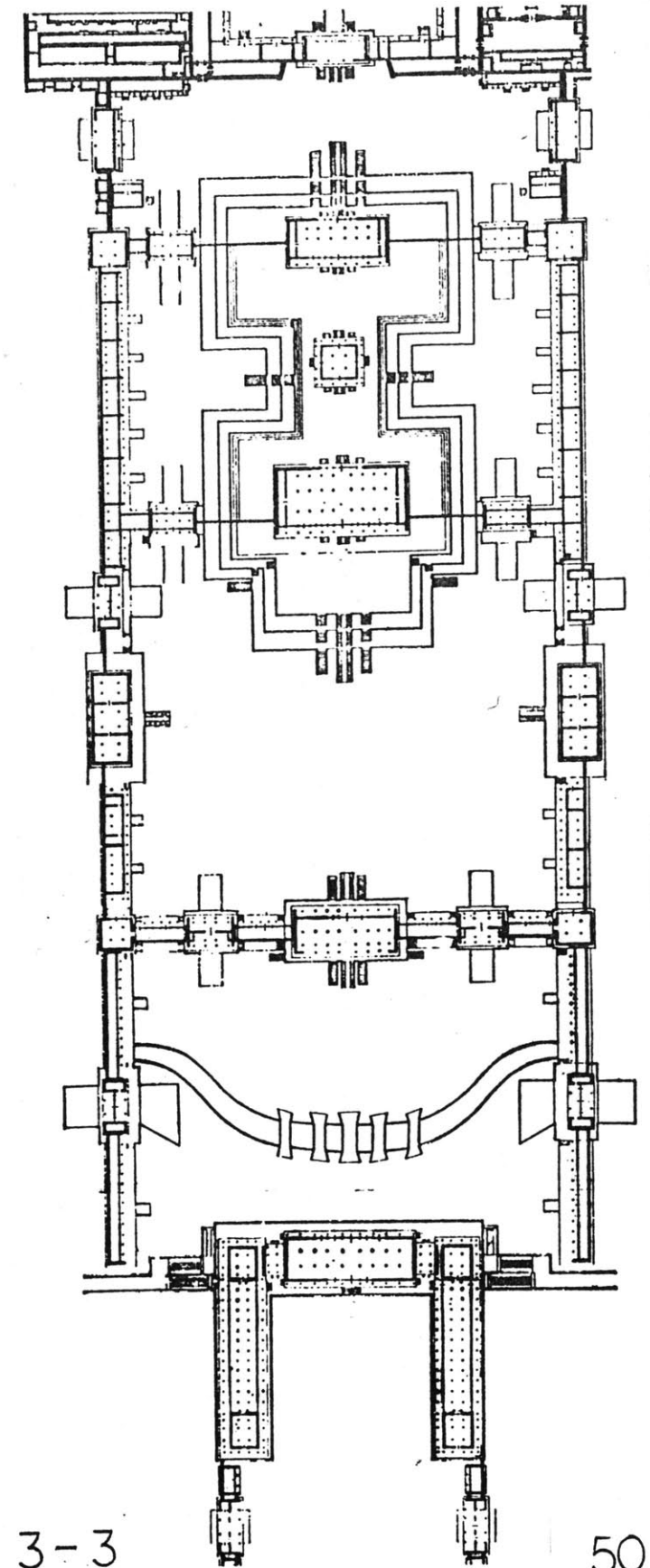
The buildings on top of these gateways are spectacular. The



P 3-1 The westerners was marching towards Wu Men of Palace City to meet Chinese Emperor after a military victory over China.



FIVE PHOENIX PAVILION
(TOP PLAN OF WU MEN)

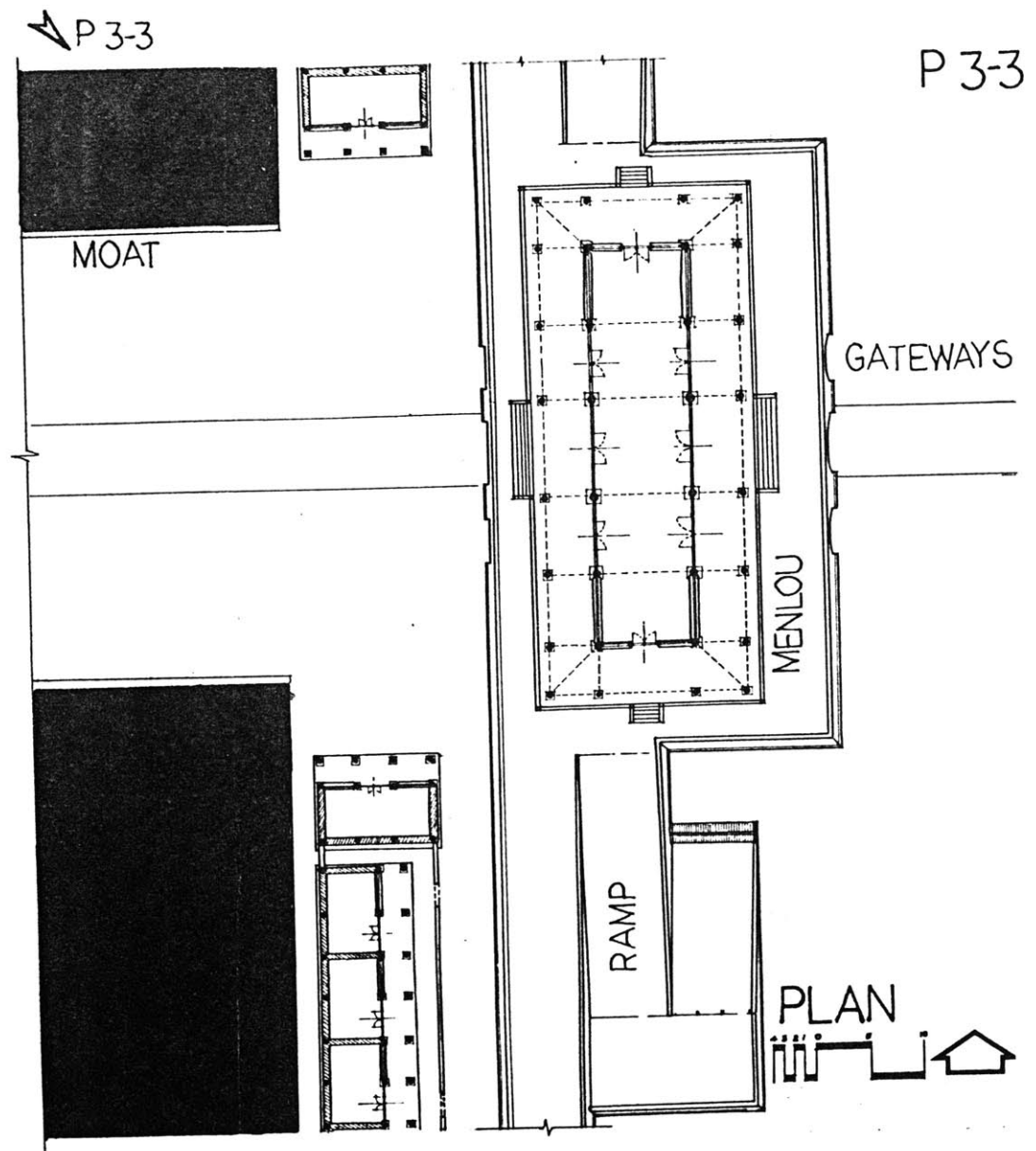


3-3

main building is placed on the top of the three straight gateways. It is a nine-bay building with yellow colour double-eaved and five-ridged roof (重簷無敵), which is designated as the highest ranked building type among the Qing Dynasty building standards. The main building is connected by short verandas with both the Drum Tower and the Bell Tower on its two sides. Turn ninety degree, and on the end of the protruded platform there are two identical "Guan" (觀) connecting with the Drum Tower or Bell Tower by verandas (P 3-1, P 3-2). The whole composition is named as the Five Phoenix Pavilion (五鳳樓) which is considered as the latest form of "que."



P 3-2 WU MEN (BACK)



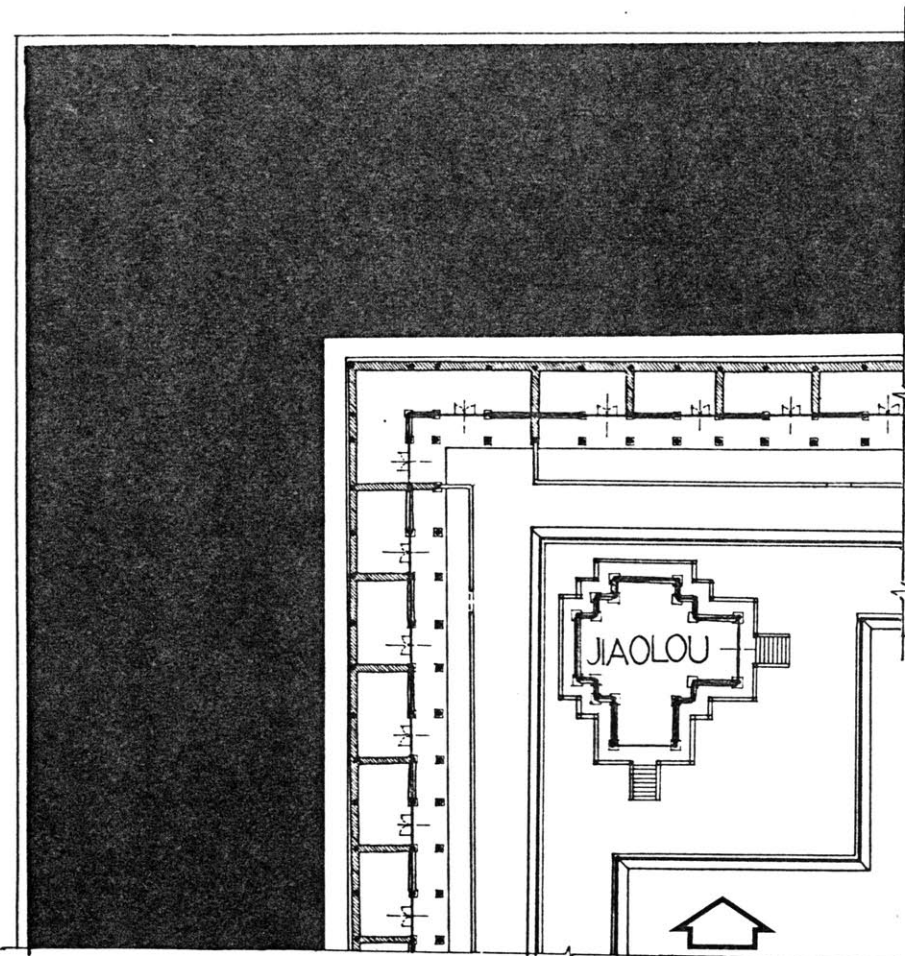
XIHUA MEN 3-4

- 2. DONGHUA MEN (東華門),
- XIHUA MEN (西華門),
- SHENWU MEN (神武門)

The other three gates of the Forbidden City are identical to one another. They all have three

straight gateways and a seven-bay main building with a yellow roof of five ridges and double eaves. On both sides of the gate there are two ramps which go up to and down from the top of city

wall. Outside the gate, on both sides, there are three-bay guard houses for the security guards who check the permission for entrance to the Forbidden City (3-4).



JIAOLOU

4 0 10 3-5

P3-4

3. CORNER PAVILLIONS - JIAOLOUS

(角樓)

On every corner of the Forbidden City, there are corner pavilions set on an enlarged platform. These pavilions are not constructed for military purposes. Instead, they were transformed into places for the Emperor to overlook the city.

The plan of the pavilion is an overlap of a cross shape and a square shape. With this complex plan, the roofs of these corner pavilions are probably the most complex structures in Chinese ancient architecture (P 3-4, 3-5). Legends said that they have nine beams, eighteen columns and



Seventy-two roof ridges.

IMPERIAL CITY

SECTION 2

GENERAL FEATURES

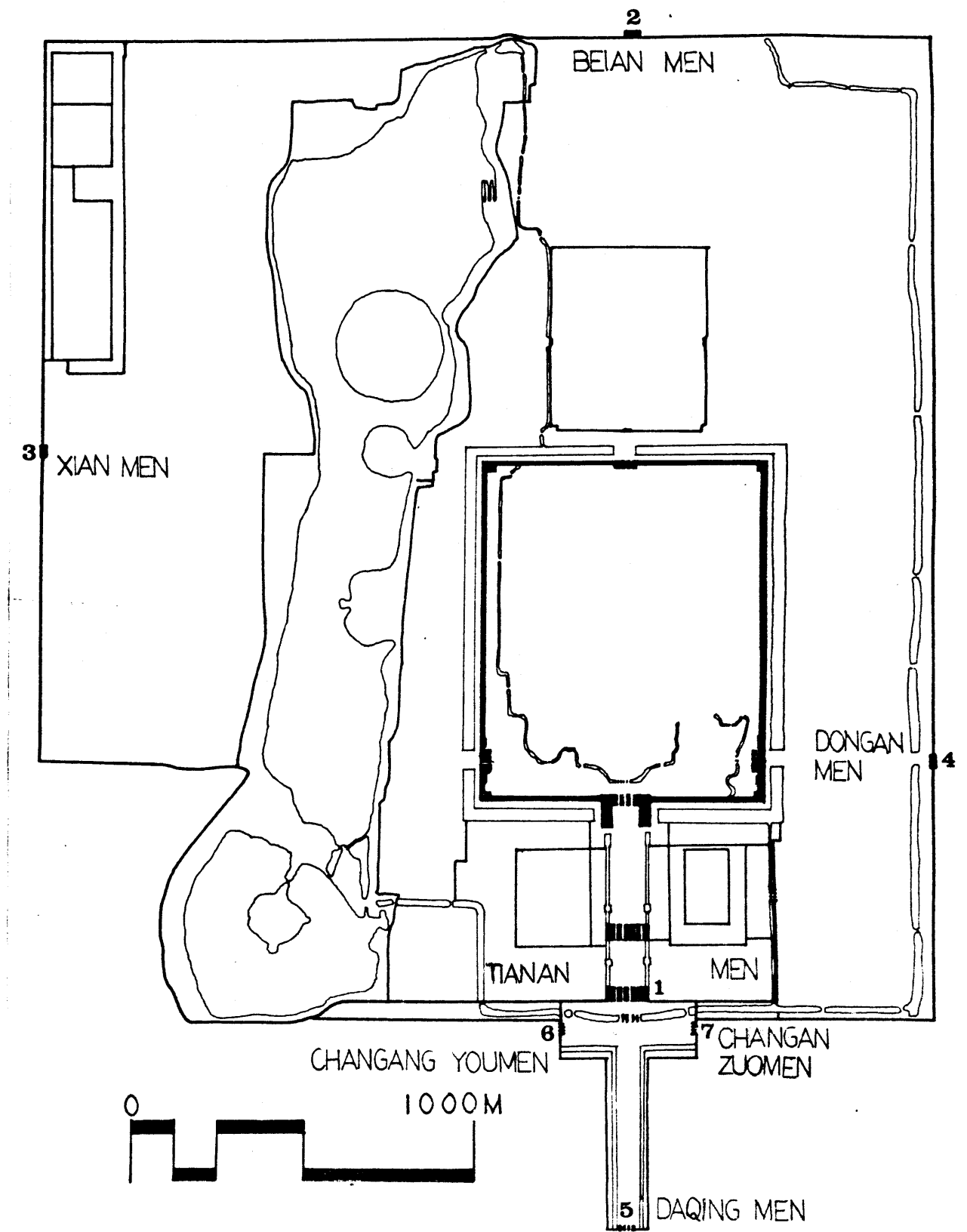
There are two different ways to count the boundary of Imperial City. One is to consider the "T" shape area in front of Tienan Men (天安门) as part of the Imperial City, the other is to exclude this area (MAP 3-3).

If we exclude the "T" shaped area, the shape of Imperial City may be seen as a rectangle with a longer north-south direction. The shape has a defection on the southwestern corner. The defection has been there since the reconstruction of the Imperial City in the early Ming Dynasty, partly because this area was occupied by civilians' houses preventing the Emperor from expanding his palaces, and partly because the defection in

the southwest corner is considered as good spirit in the Fang Sui (風水, geomancy) principles.

Counting without the "T" area, the perimeter of the Imperial City is 36,565 "chi" (11,627.7 M), and the height of the wall is 18 "chi" (5.72 M). The bottom of the wall is 6.5 "chi" (2.07 M) in width, while the top is 5.2 "chi" (1.65 M). The lower part is made of stone, and the upper part of bricks. The brick parts are coated with plaster and painted in red colour. The top of the wall is covered by the glazed yellow tiles.

There are four gates on the Imperial City wall. All the gates have names relating to



MAP 3-3 IMPERIAL CITY

peace - Tienan Men (天安門, The Heavenly Peace Gate, south),
 Beian Men or Dian Men (地安門, The northern Peace Gate, north),
 Xian Men (西安門, The western Peace Gate, west),
 Dongan Men (東安門, The Eastern Peace Gate, east).

Considering the count including the "T" shaped square, three more gates are added. The three additional gates are Daqing Men (大清門) in the front, Changan Youmen (長安右門) on the west and Changan Zuomen (長安左門) on the east. Meanwhile, Tienan Men will be enclosed in the "T" shaped area. Counting in this way, there will be six gates on the Imperial City wall.

GATES

The seven gates of Imperial City can be categorized into three types based on their differentiation of form.

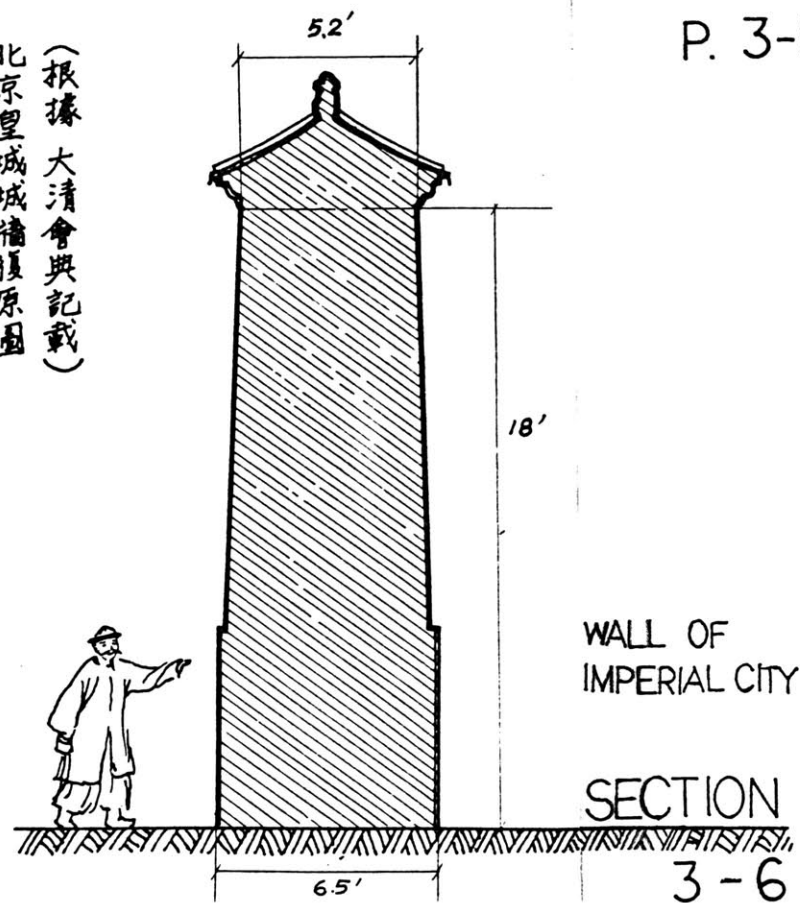
1. DAQING MEN, CHANGAN YOU MEN, CHANGAN ZUOMEN

The three gates in front of Tienan Men - Daqing Men, Changan Youmen, and Changan Zuomen are the same type of gates. They are brick gates (磚門) as Qing Dynasty Building Standard prescribed. There are three brick arches covered by roofs of nine ridges and a single eaves. The brick part is

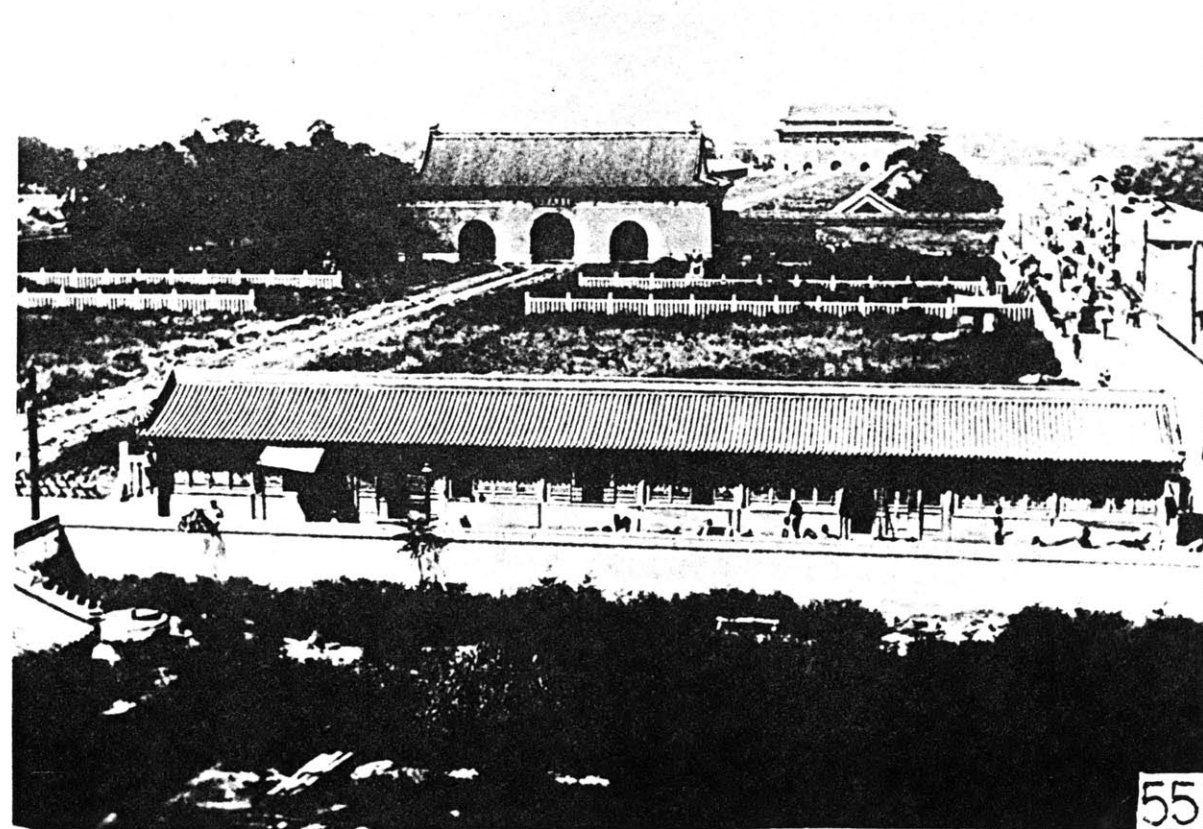
DAQING MEN

covered with red plaster and the tiles are yellow (P 3-5).

(根據大清會典記載)
 北京皇城城牆復原圖



P. 3-5



2. DONGAN MEN, XIAN MEN, BEIAN MEN

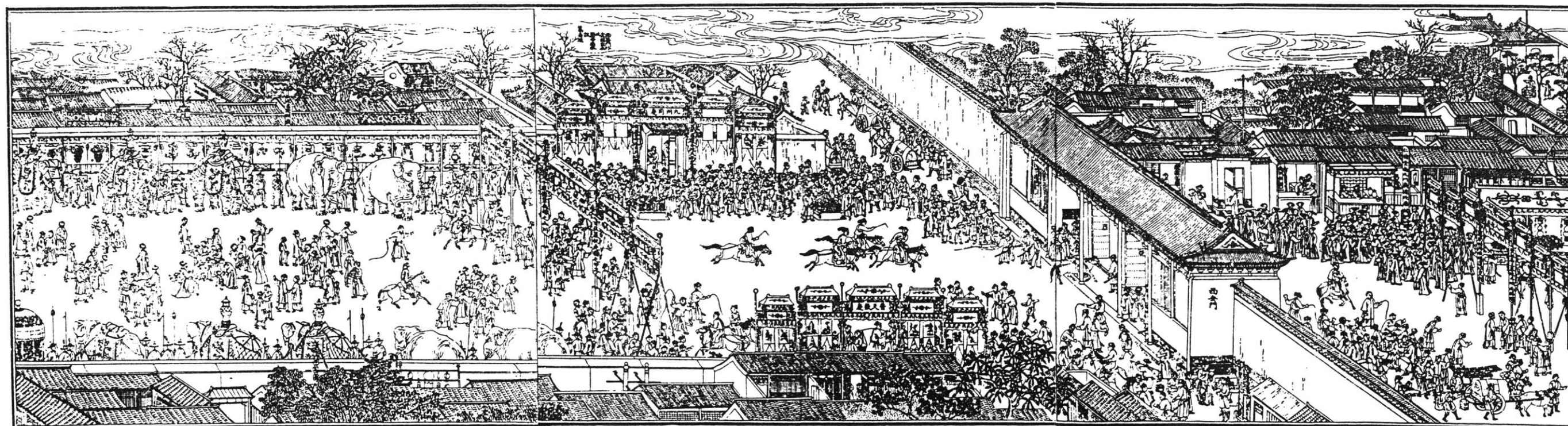
The other three gates - Dongan Men (東安門), Xian Men (西安門) and Beian Men (北安門) are the same kind of gates. They are similar to typical gates on ordinary large building complexes. They are built on the ground level instead of standing on a high platform. Each is constructed of a five-bay wooden structure,

with a single roof-eaves and nine roof ridges. The middle three bays are access ways and the other two are windows (P 3-6).

P3-6 shows an isometric drawing about the Emperor Kangxi (康熙) returning from Yuanming Yuan (圓明園) at his sixtieth birthday. The ranking officials are dressed up and waiting out of Xian Men. The

facade of buildings on the street are decorated by temporary facades for the celebration of the Emperor's birthday. Also, some temporary "pailous" (牌樓) are built at the center of the street.

XIAN MEN P 3-6 WAN SHOU SHENG DIAN TU (PARTIAL)



3. TIANAN MEN

Tianan Men is the place where the orders of the Emperor are announced to the public. Whenever there is an edict, it is held by a gold phoenix which descends from the gate tower. A ranking official at the ground level takes the edict and announces it to the public (P 3-7). The "T" shaped square, although enclosed by walls, is considered as public zone where the Emperor contacts with civilians. The "T" square in front of Tienan Men is defined by verandas called Qianbu Lang (千步廊, The Thousand Steps Veranda). On the edge of the flange of the "T" shape, Changan Zuomen and Changan Youmen are located. Both of them face to a wide street. In addition, a canal is arranged in bow shape and five bridges are built on the canal directly in front of Tianan Men. These arrangements

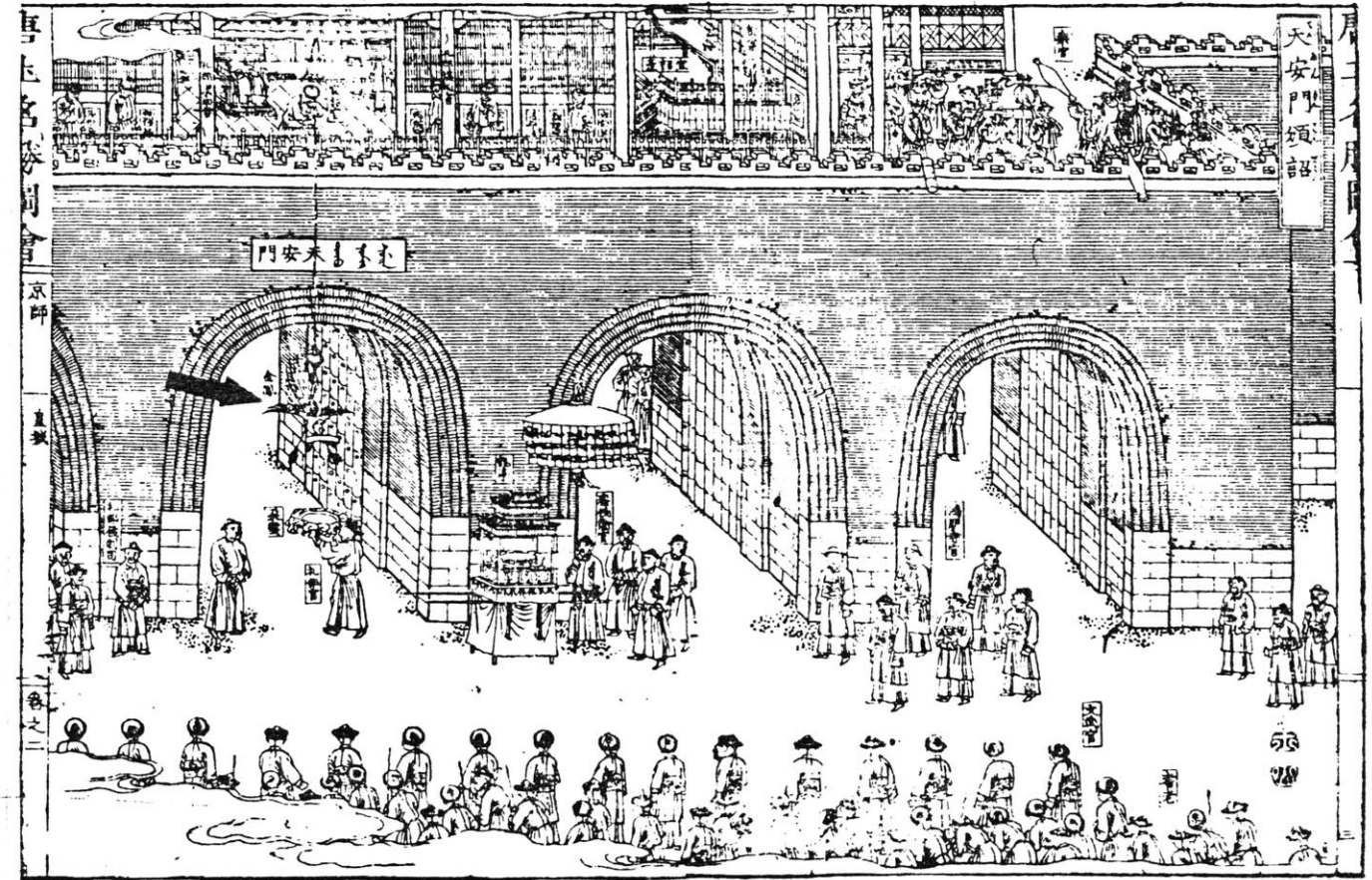
signify the importance of the classic Tianan Men Square.

Unlike the other gates of the Imperial City, Tianan Men's gate tower is not on the ground level; instead it sits on a five-arch gateway. Contrasting with the low Imperial City wall, Tianan Men is overwhelming in the surrounding landscape.

THE FIVE GATE SYSTEM

(五門之制)

According to a description in an ancient text, the Emperor should have five layers of gates in the front of his palace. All capital designers of different dynasties in Chinese history tried to accomplish this criterion through their own interpretations. The reconstruction of Beijing in Yungle period (1402-1424) is the most successful example of incorporating such ideology into



P3-7 A golden phoenix carrying the emperor's edict is descended from the gate tower. Meanwhile, a ranking official at the ground level is receiving the phoenix.

TIANAN MEN

FIVE GATE SYSTEM

physical form.

From the central gate of Inner City to Wu Men, a few extra gates are built to accomplish this idea, and the spaces between them are well designed to exaggerate the dignity of the Emperor.

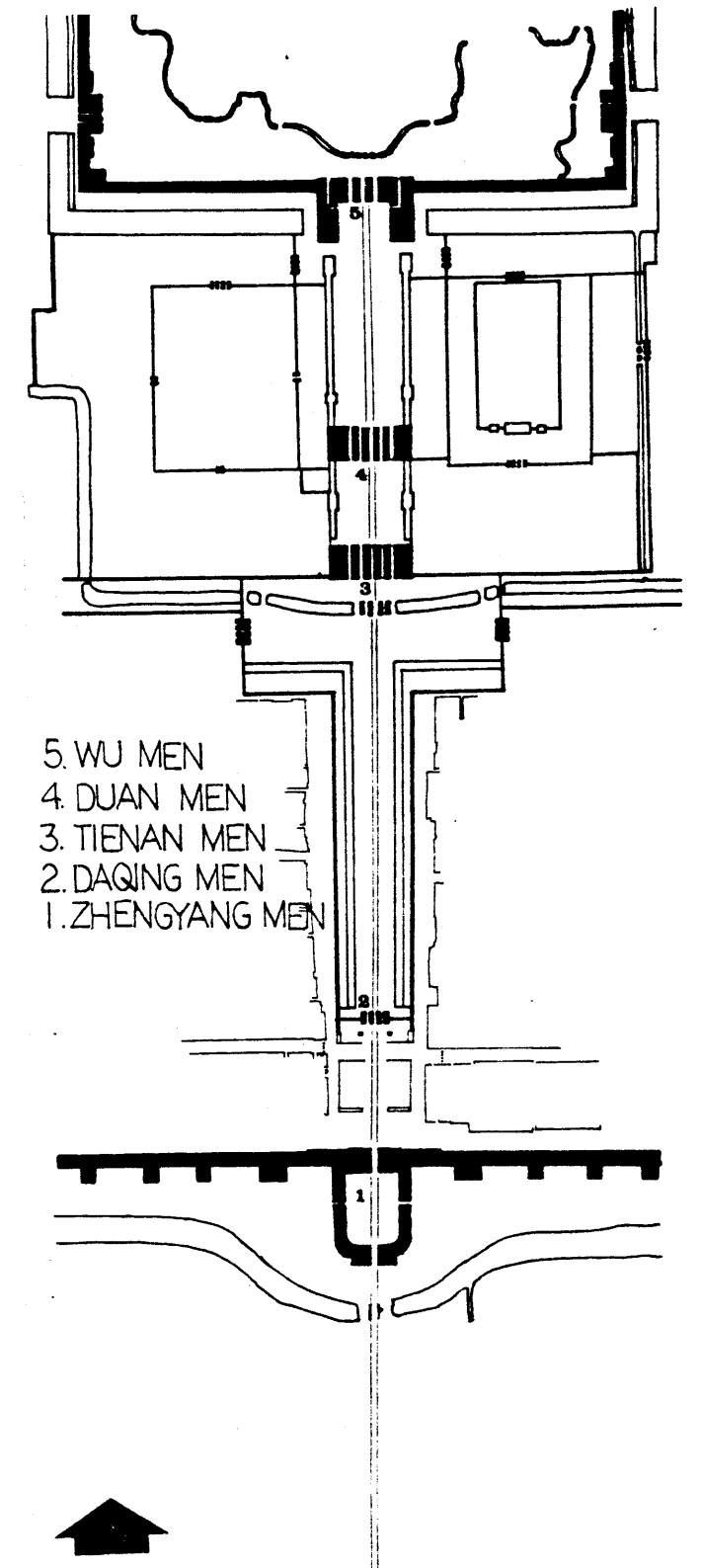
The five-gate series begins at the front gate of Inner City - Zhengyang Men (正陽門). Entering Zhengyang Men, we are facing a square called Chipan Jie (棋盤街, Chessboard Street), which is open to the public. This square is the most flourishing area in the whole city because it is the only connection from west to east in the southern part of Inner City. The central area of this square is surrounded by a stone screen and is reserved for the

Inspection Tour of the Emperor : (P 3-5).

Beyond Daqing Men is the Emperor's territory. After entering Daqing Men, the space is narrowed into a long corridor with verandas on both sides. This long corridor leads to Tianan Men. In the front of Tianan Men, the space opens up again for the ceremonies such as the announcement of the Emperor's edict.

The sense of confinement increases along the way after we enter Tianan Men. We are looking at Duan Men (端門) at this moment. Duan Men is one of the extra gates mentioned previously. It is identical to Tianan Men, and the space between these two gates is completely enclosed. The

repetition and the sense of enclosure creates confusion, thus increasing the mystique of Imperial power. We have a little release as we enter into Duan Men; there is another narrow corridor, then the final gate of the series - Wu Men. Among the five gates in the series, Wu Men is the one of the greatest monumentality. It is a strong epilogue for the five-gate series and is also a beginning of another series leading to the mythical Forbidden City (3-7).



3-7 FIVE GATES SYSTEM 58

INNER CITY

SECTION 3

GENERAL FEATURES

Among the walls of Beijing, the Inner City wall has the most distinctive features, because its elements such as gates, corner towers, bastions, ramps and others are huge. These large elements, in contrast with the flat cityscape, become the most important landmark in the city.

The Inner City wall of Beijing is a rectangle with a longer east-west direction. There is a declination on the northwestern corner caused by the existing lakes outside that corner. This declination makes the northern wall longer than the southern wall and the eastern wall longer than the western. (The length of every wall and the perimeter of the Inner City is recorded in

table 3-2) Outside this wall, a moat surrounds the whole city. The moat is 80 "chi" wide in average and 10 "chi" deep.

According to "Da Qing Hui Dian" (大清會典), the standard cross section is :

height 35.5 "chi" (11.3 M)
base width 62.0 "chi" (19.7 M)
top width 50.0 "chi" (15.9 M)

The walls were constructed in different periods so that the cross sections differ from one location to another, as Osvald Siren recorded in 1920 (3-8). The top of the wall is wide enough to carry horses and carriages. On the other side of the wall top are parapets of 5.8 "chi" (1.84 M) in height (3-9). On

TABLE 3-2 MEASUREMENTS OF INNER CITY WALL

	METRIC	CHI	LI	Bastions	G. H.*	Year*
East	5680 M	17869.3	/	47	47	1276
West	4980 M	15645.2	/	44	44	1276
South	7100 M	22324.5	/	62	62	1402-20
North	7300 M	22959.3	/	19	64	1368-69
	25060 M	78398.3	43 Li 180 S*	172	231	/

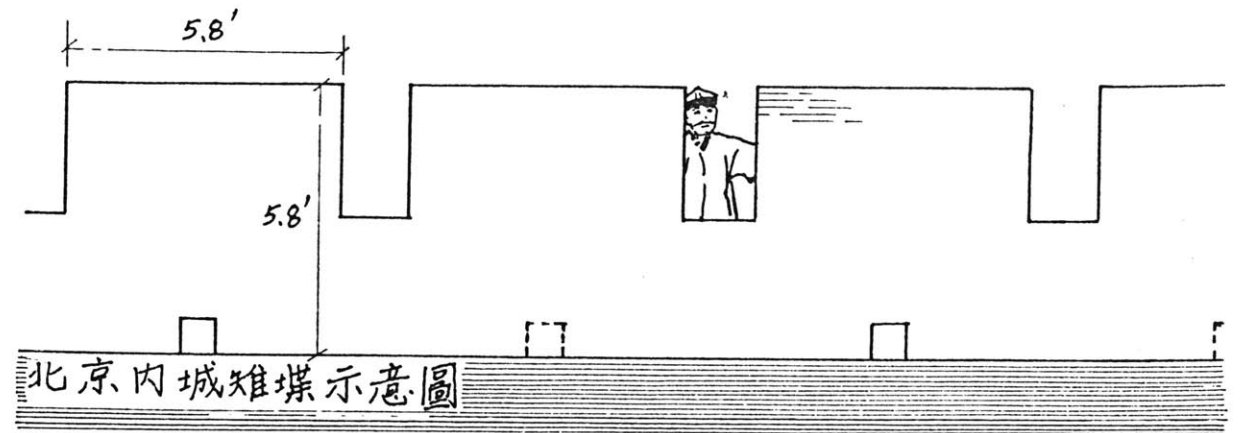
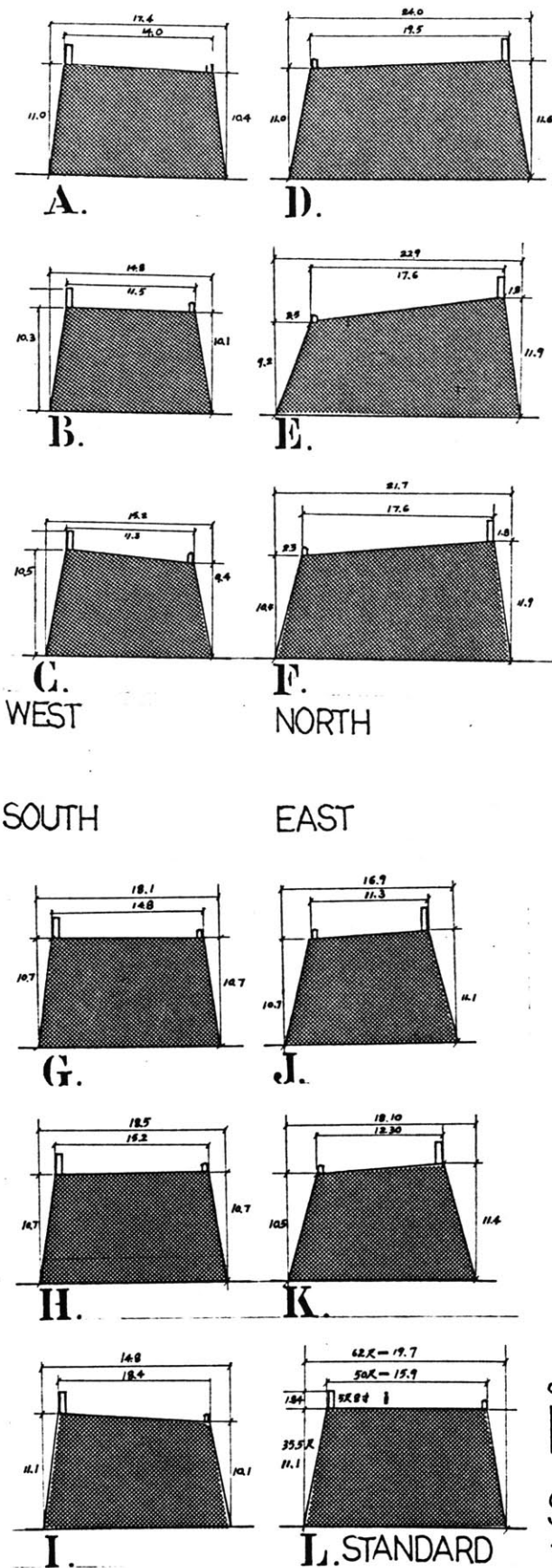
* G. H. Guard Houses

* Years The Earliest Year of Construction

* S Step (1 Step = 5 Chi = 1.58 M)

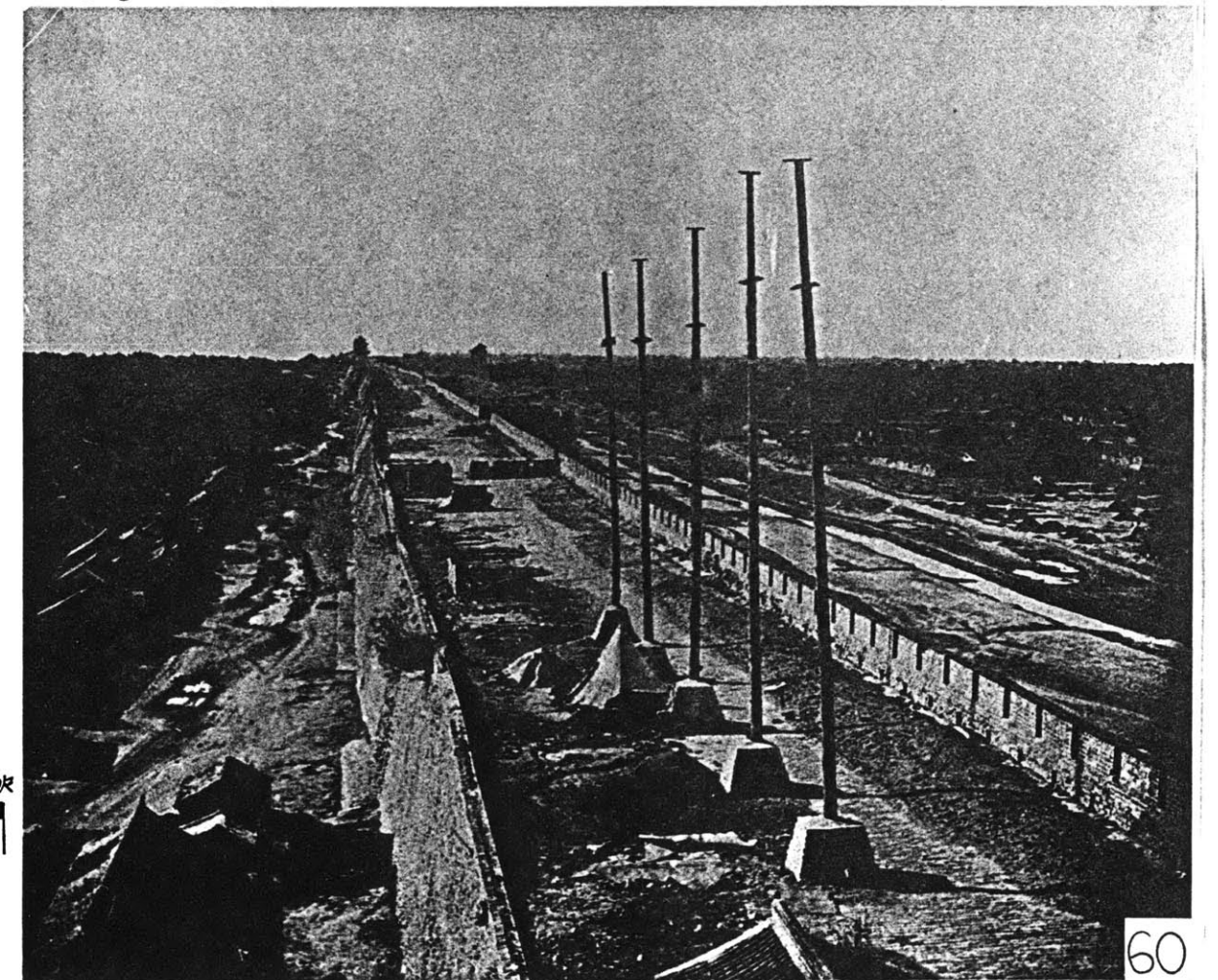
the inner side is a course of 3 "chi" tall continuous wall (P 3-8). As described in the Ming and Qing Dynasty documents, there are 11,038 parapets on the edge of Inner City wall.

Totally, there are nine gates on the Inner City wall. The southern wall has three gates, and the other three walls have two on each (Map 3-1) Every gate has a castle called yuecheng (月城) or Wengcheng (甕城) to reinforce the gates. On the corners of Inner City wall, there are corner fortresses - Jiaolou (角楼) to reinforce the corner. On the east, west and south side of the wall, respectively an average, every hundred meters apart there is a bastion protruding 50 "chi" (15.9 M) in depth from the wall. At the back of each bastion, on the top of city wall, there is a three-bay



PARAPETS OF INNER CITY WALL 3-9

P. 3-8 NORTHERN WALL OF INNER CITY



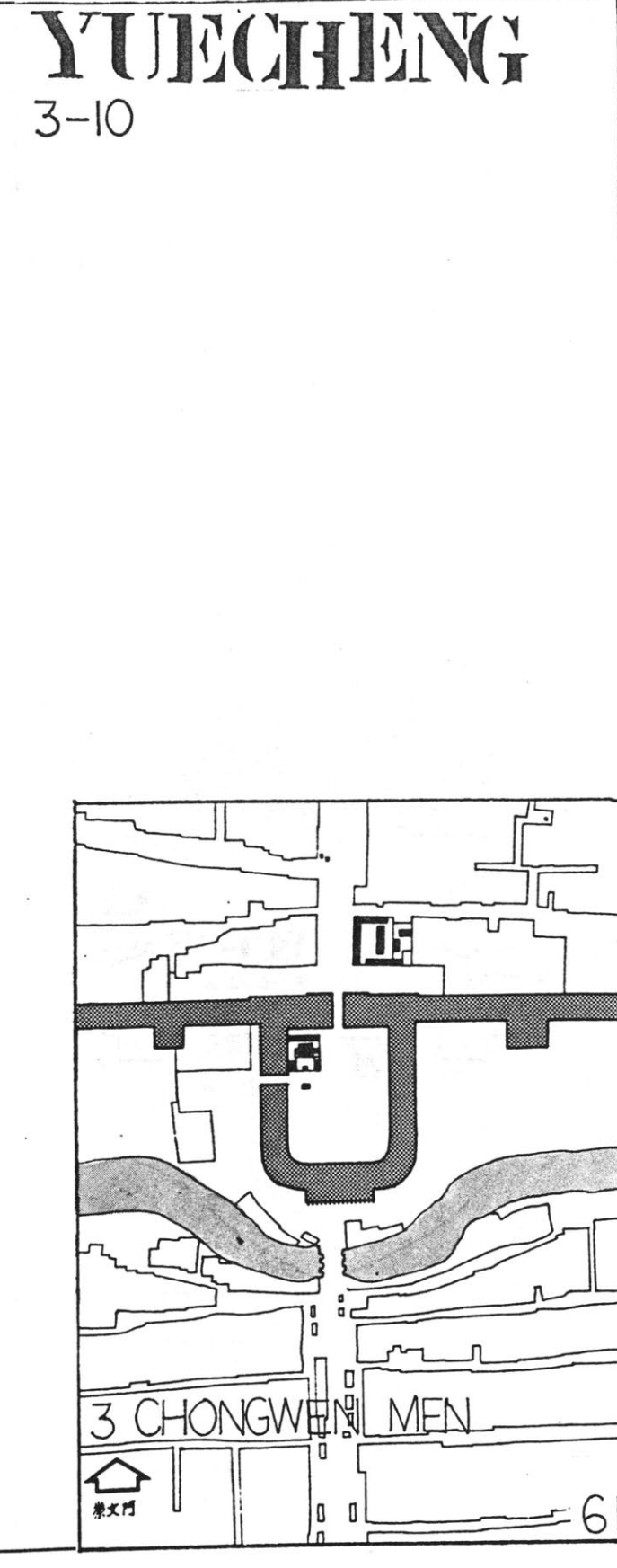
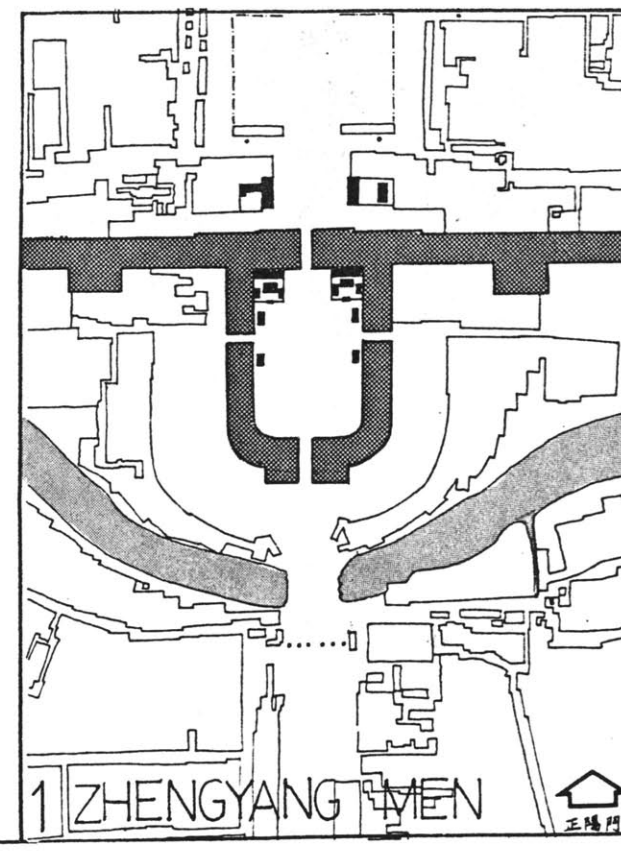
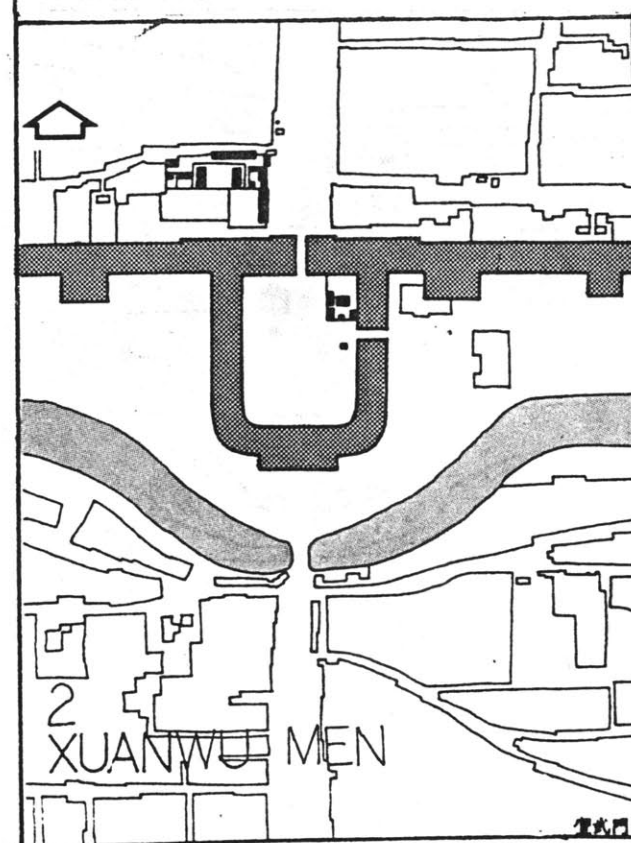
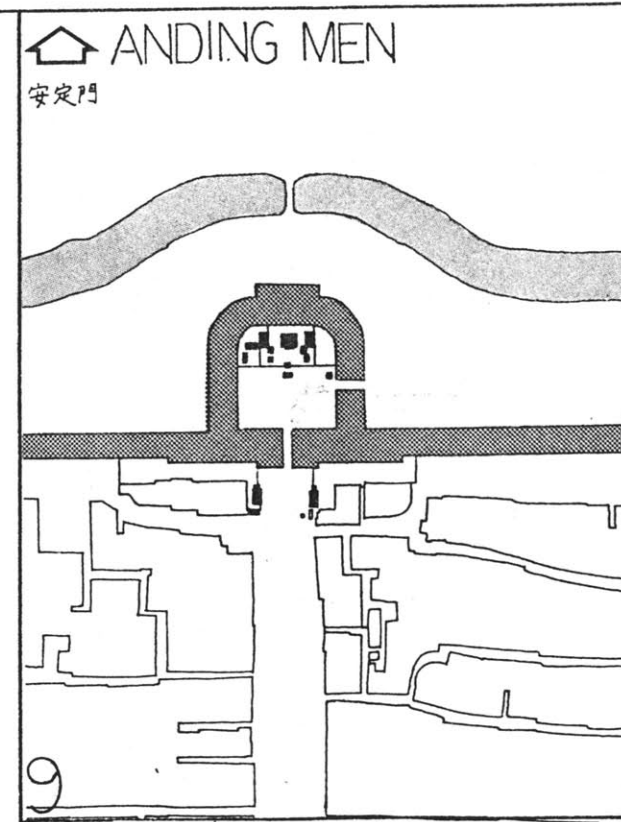
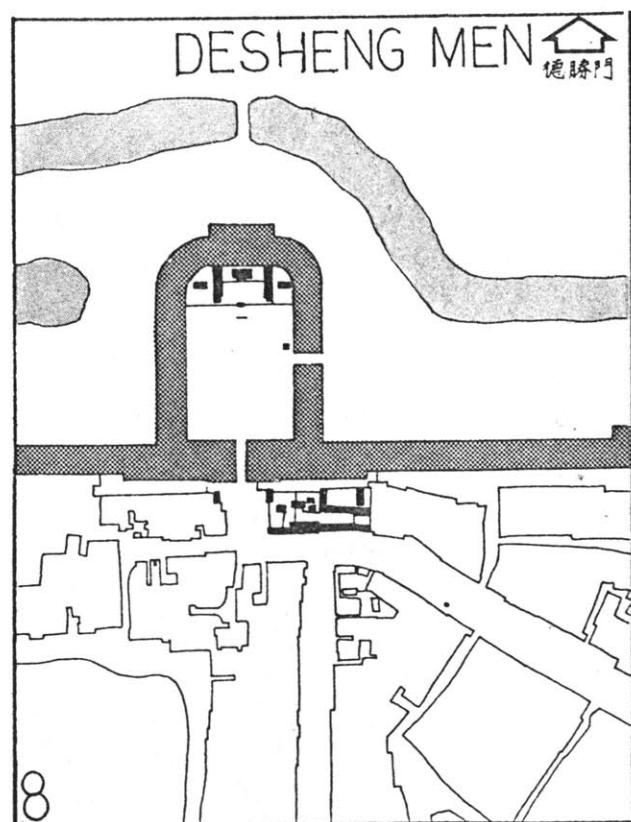
SECTIONS 3-8

building. Some of these buildings are wall guards' dormitories, some are used as magazines. On the northern wall, the number of bastions is only one third of the number of the guards' dorms. Totally, there are one hundred and seventy-two bastions around the Inner City wall and two hundred and thirty one buildings on its top.

GATES OF INNER CITY

1. YUECHENG

At each gate, there is a castle called yuecheng (月城, Moon shaped Wall) to reinforce the gate (3-10). It protrudes from the city wall in order to gain a better vantage for shooting at the enemies approaching the gate. In the case when the enemies break into its outer gate and enter yuecheng, the defenders can attack from the top. There is no



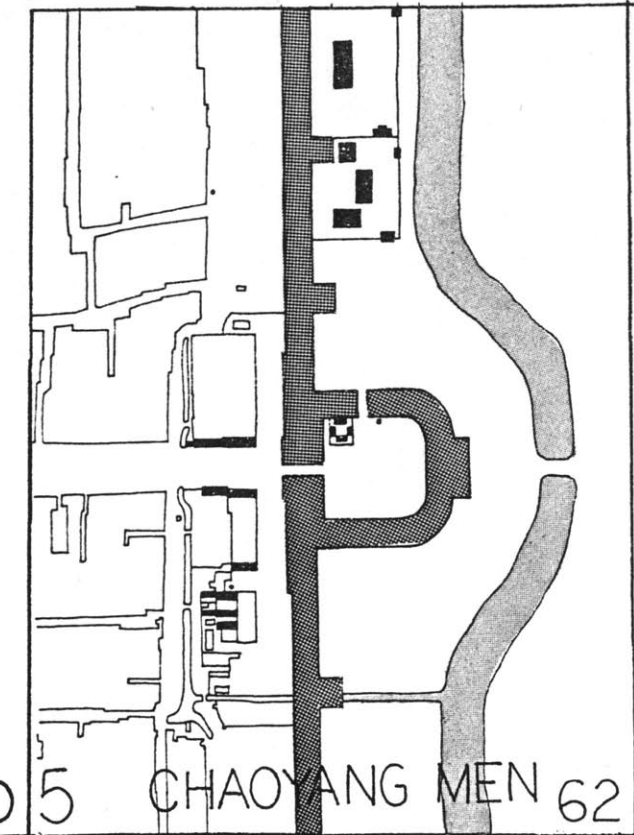
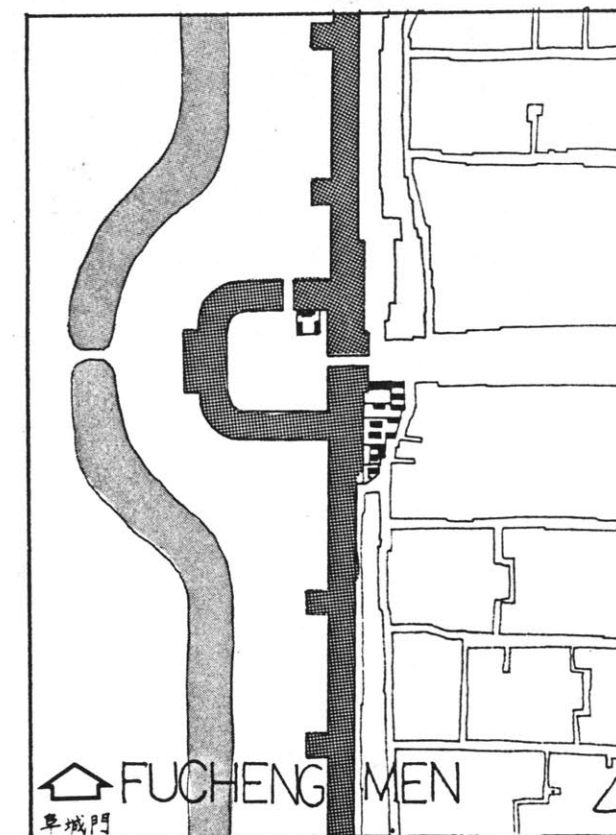
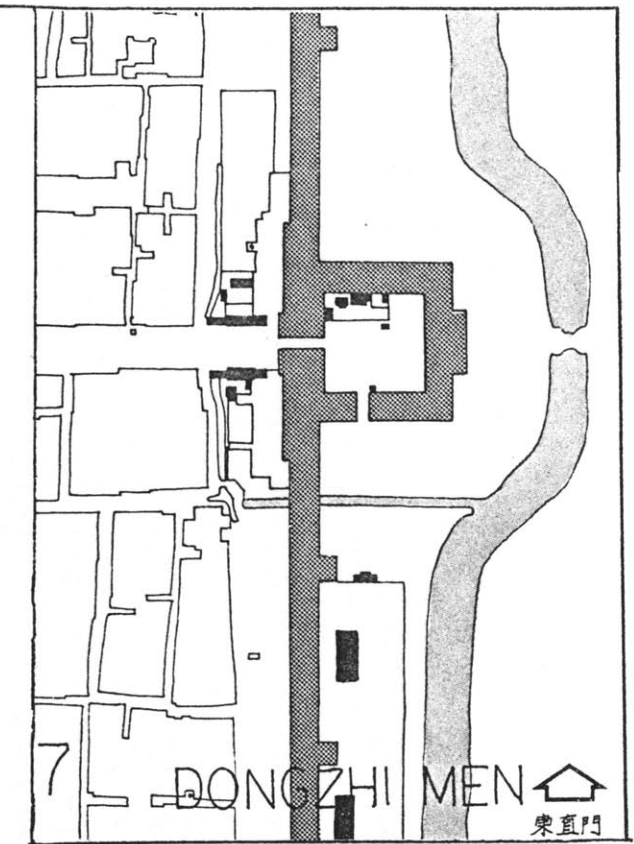
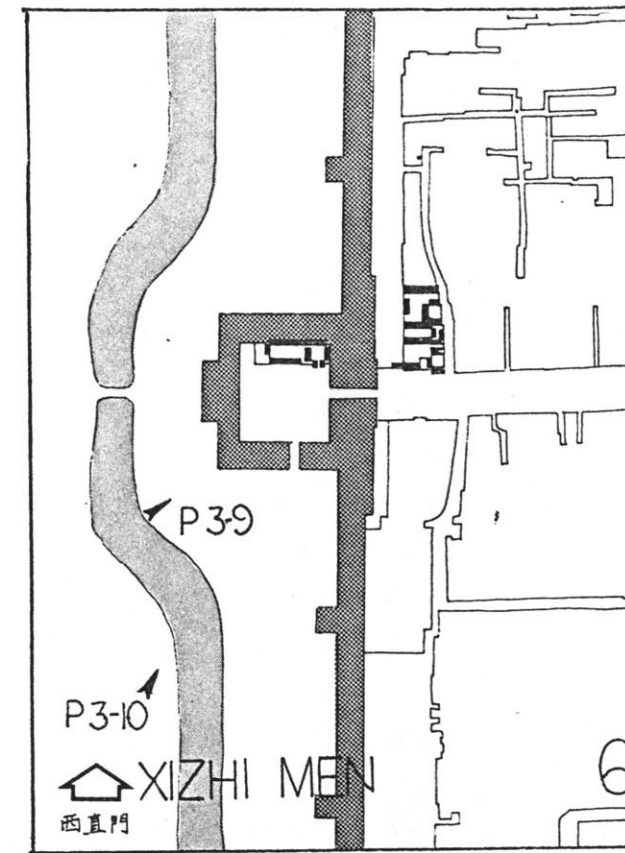
way to climb up to the top of wall in yuecheng, thus the enemies will be destroyed or have to surrender. The situation resembles catching a turtle in a jar (甕中捉鼈). Therefore, yuecheng is also called wengcheng (甕城), which means a jar-like castle.

The basic elements and arrangement are the same in every yuecheng of Inner City. Normally, yuecheng is a U-shaped wall that covers the outside of a gate (P3-9, P3-10). There is always a gateway on one side of the U-shaped wall. In order to enter the city, one has to turn at least twice to pass the city gate. This arrangement prevents direct penetration of the city, thus even should the enemies break into the first gateway, the distance in these yuecheng are not long enough for any equipment to develop power to

break the doors of the second gateway.

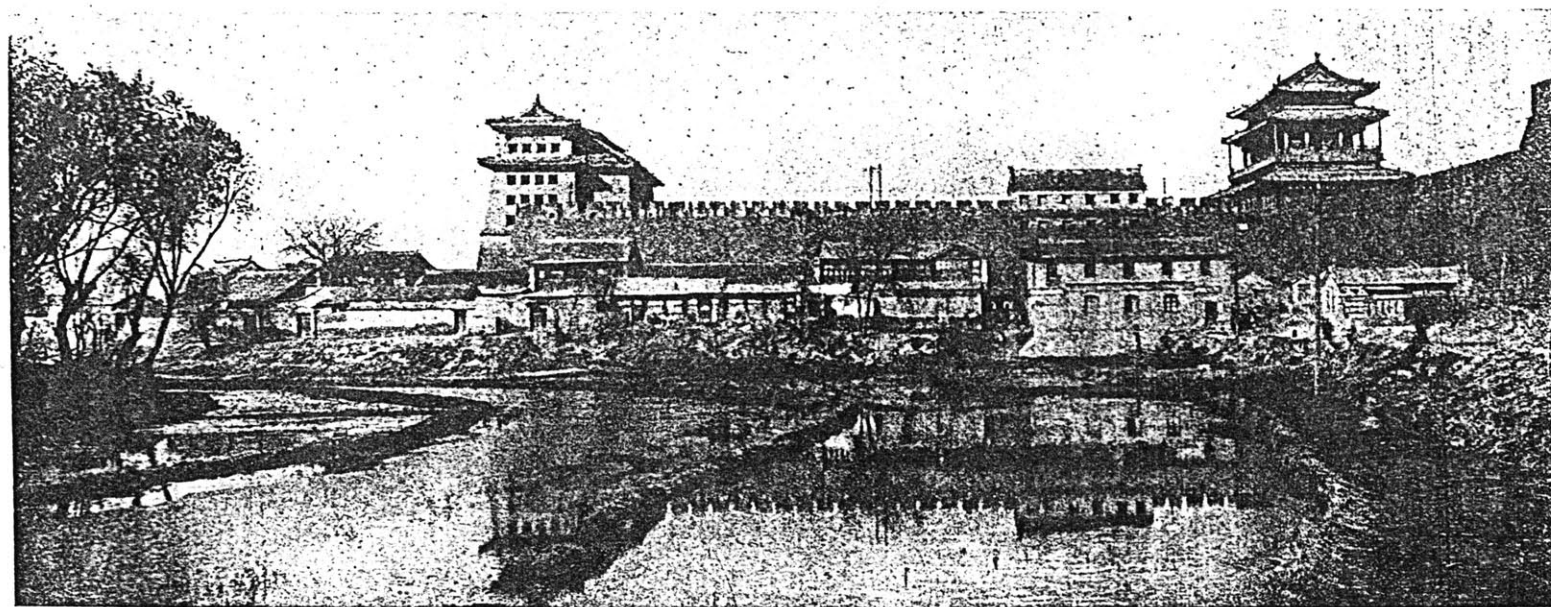
Zhengyang Men, nevertheless, is the only exception; it has three gateways on the U-shaped wall. The center gateway opens only for the emperor's inspection tour; the other two open to the civilians.

Beside these similarities, each yuecheng is different from the others. The yuecheng of Xizhi Men (西直門) and Dongzhi Men (東直門) are square-shaped while the other seven gates are U-shaped. The length of the protrusion of the yuechengs vary from a hundred meters to a hundred and fifty meters. ? Zhengyang Men and Desheng Men (德勝門) are the longest. Chongwen Men (崇文門) and Xuanwu Men (宣武門) are a little bit shorter and the others are the shortest.

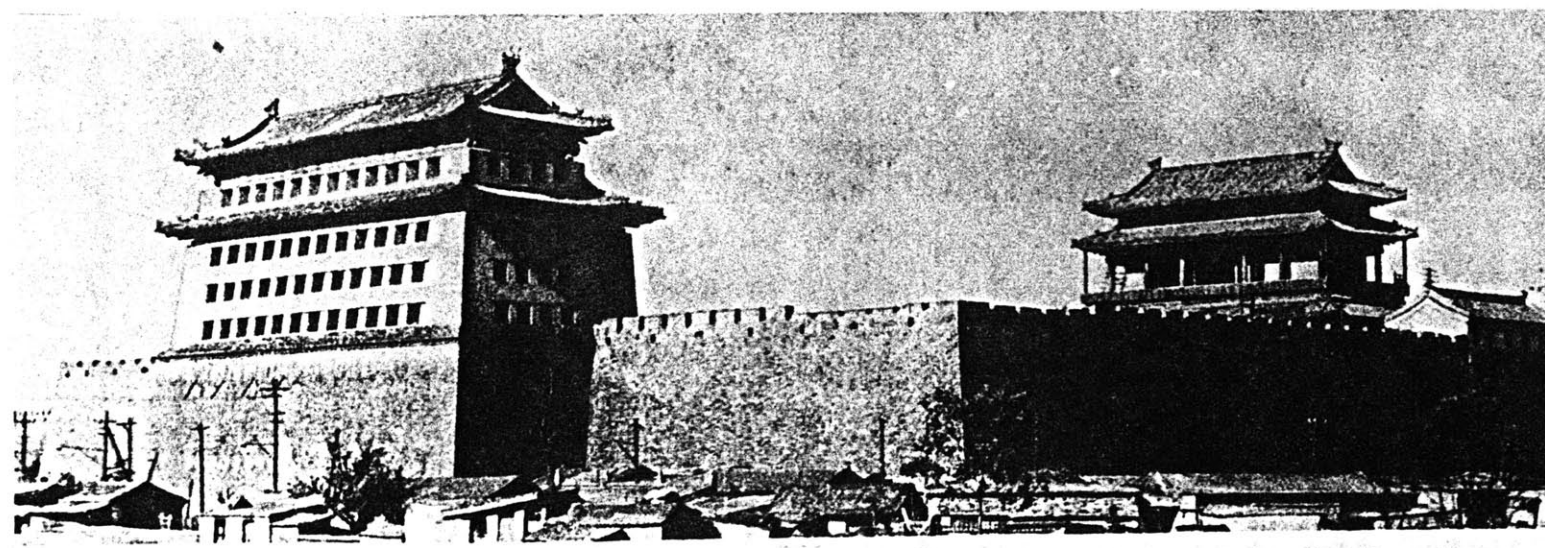


There are three main buildings on the walls of a yuecheng complex: the building on the outside layer of yuecheng is called qiaolou (譙樓), the building or buildings on the left or right side of yuecheng are called falou (闕樓), and one on the inside layer of yuecheng is called menlou (門樓). Qiaolou and falou are built for defensive purposes. Menlou, on the other hand, is a symbolic monument.

Inside yuecheng there is always a Guandi Miao (關帝廟), a kind of temple in memory of Guangong. Guangong is a legendary person who lived in the three Kingdom period (三國時代, 221 AD-279 AD). Because his loyalty to friends and his courage in the battlefields, he becomes the symbol of virtue and patriotism, respected by both Manchurians and Chinese. Placing



P 3-9 XIZHI MEN (西直門甕城全景)



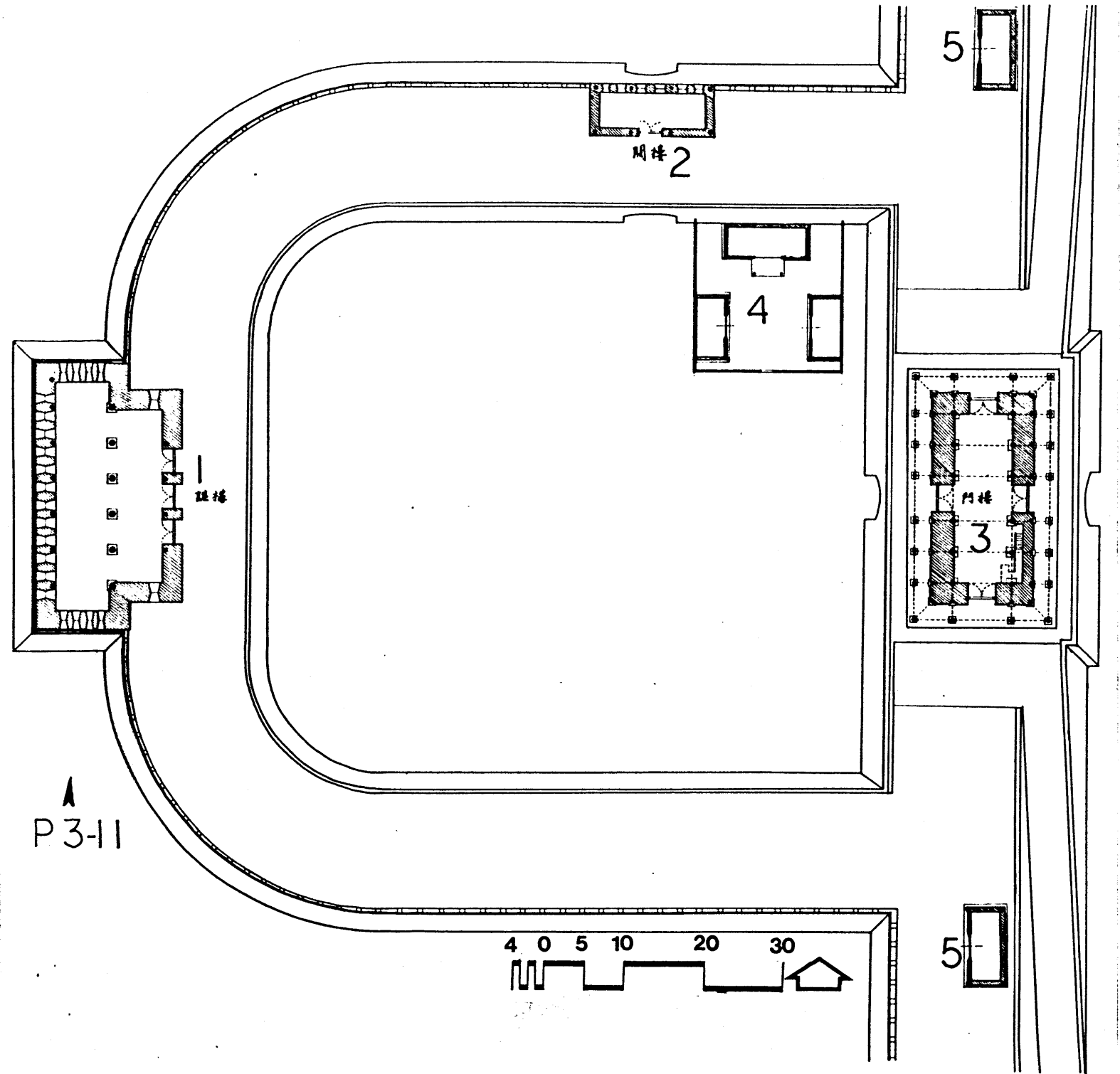
P 3-10 XIZHI MEN (西直門)

Guandi Miao inside every yuecheng, on one hand, and advocating loyalty to the country, on the other hand, implies a reliance on the super power of Guangong to protect the city (3-11, 3-12).

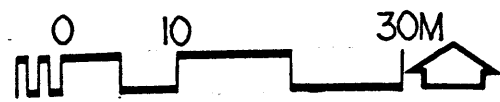
On both sides of a menlou, there are two ramps inside the Inner City for the passage of carriages and horses. Not far away from menlou, five flag poles are set up on the city wall for signaling emergencies. There are also two three-bay houses on both sides of a menlou which used as guards' dorms or magazines.

Considering these facilities, it is worthwhile to talk more about the three main buildings - qiaolou, falou, and menlou.

3-11



1. QIAO LOU
2. FA LOU
3. MEN LOU
4. GUAN DI MIAO
5. GUARD HOUSE



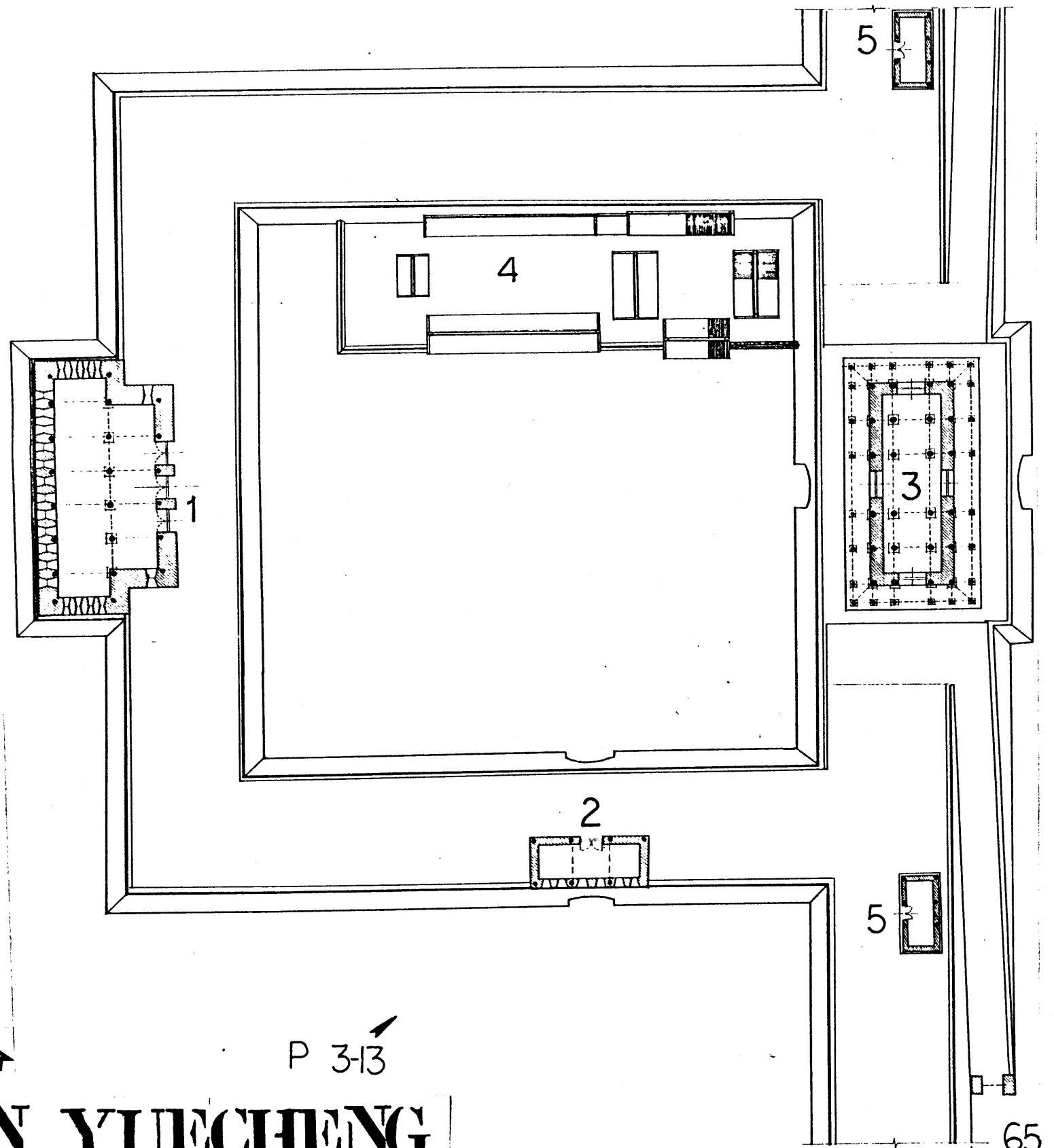
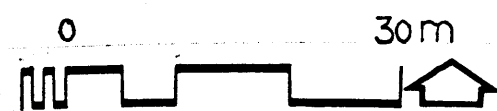
FUCHENG MEN, YUECHENG

1. QIAOLOU

Qiao Lou are four-story fortress further stretching out from the front of the "U" shape wall of yuecheng. The plan of qiaolou is of "T" shape with the flange to the front. On the front and both sides of qiaolou are gun pits on every floor from where to shoot approaching enemies. On the web part there is only one gun pit on the third floor. There are not many openings on the web part because the space in this part is used for storage of gunpower. Thus, openings on the lower level would increase the risk of burning the gunpower and ruining the fortress. The back of the web part has three huge gates. The gates open up to the second floor level. The huge gates allow carriages to get in and out easily and conveniently for military operations (3-13).

3-12

- 1. QIAO LOU
- 2. FA LOU
- 3. MEN LOU
- 4. GUAN DI MIAO
- 5. GUARD HOUSE



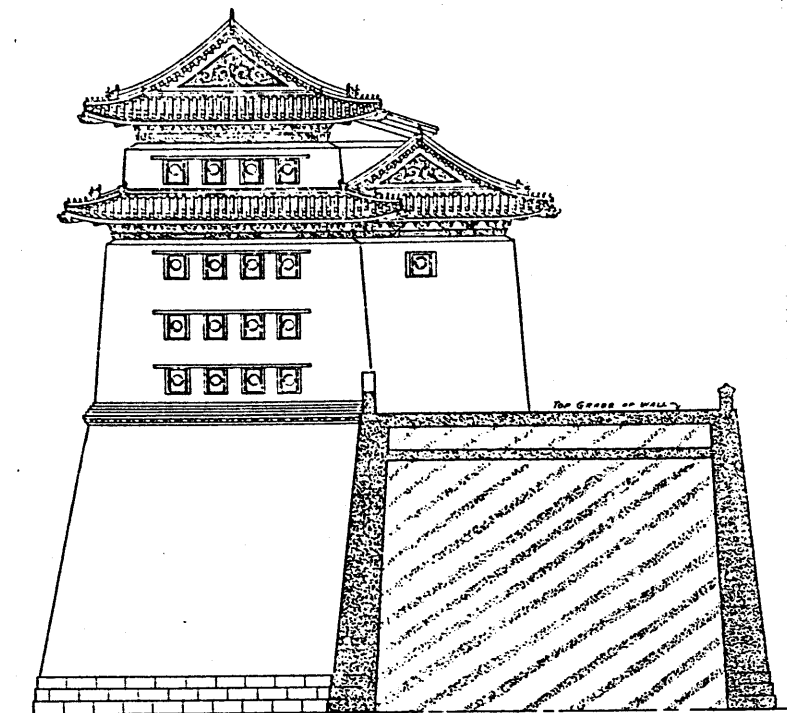
P 3-13

XIZHI MEN YUECHENG

QIAO LOU

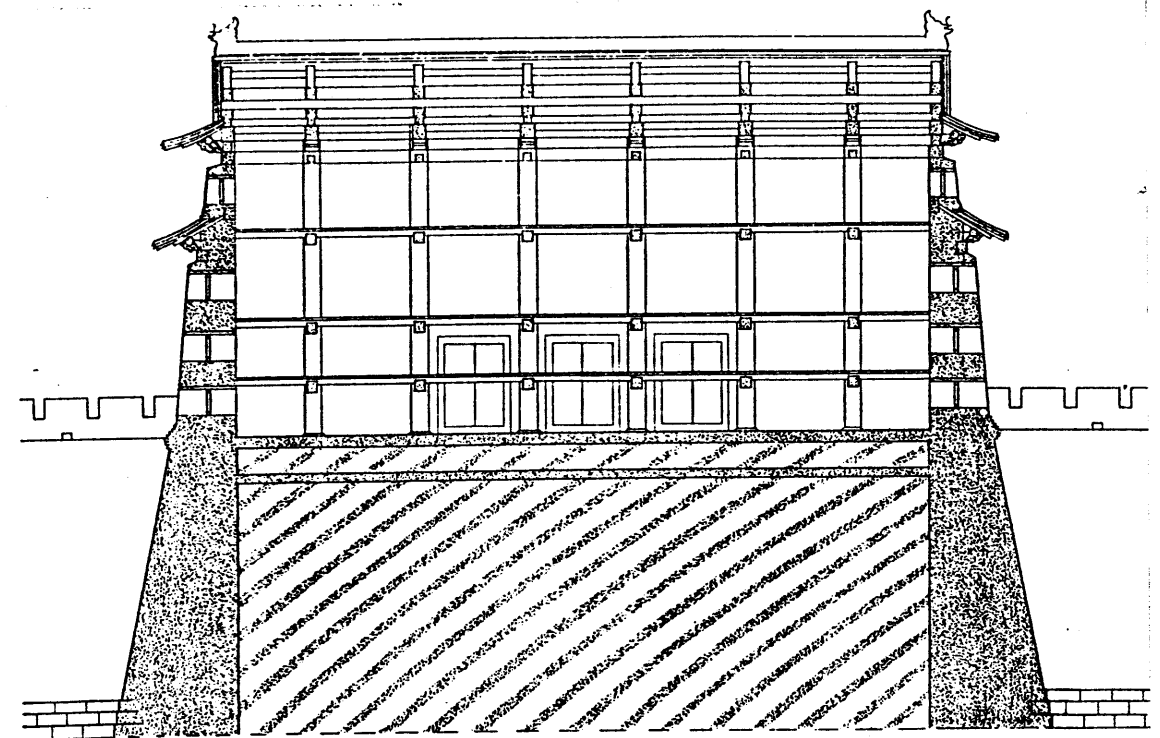
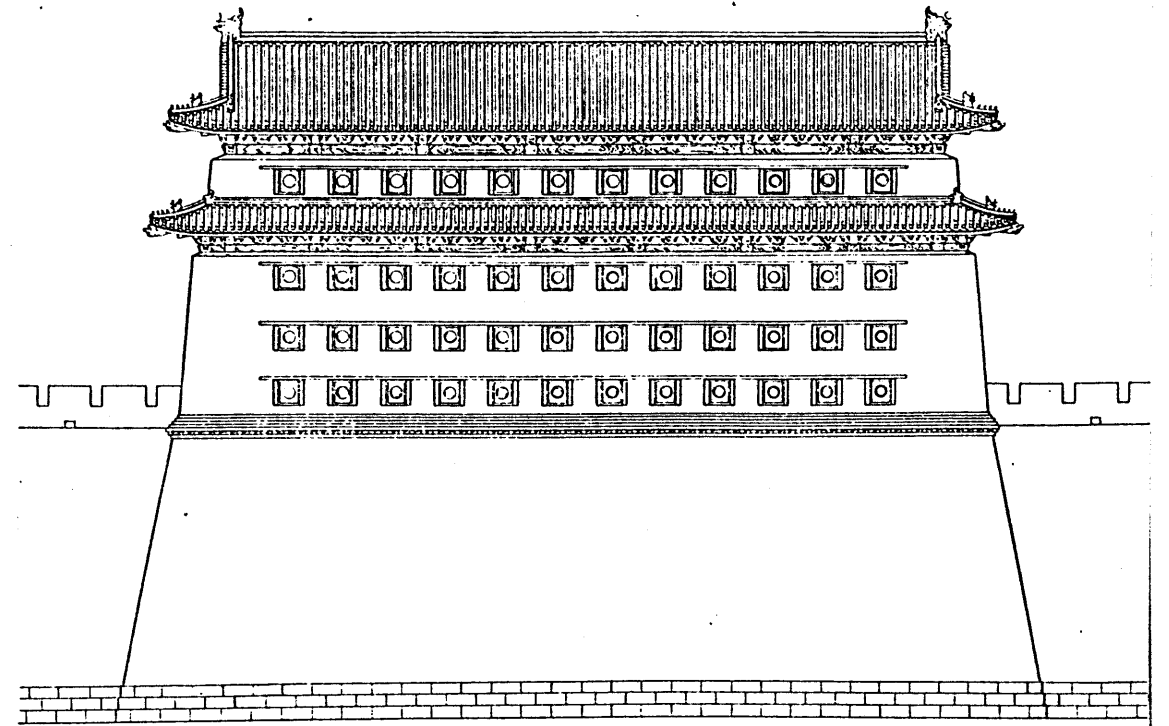
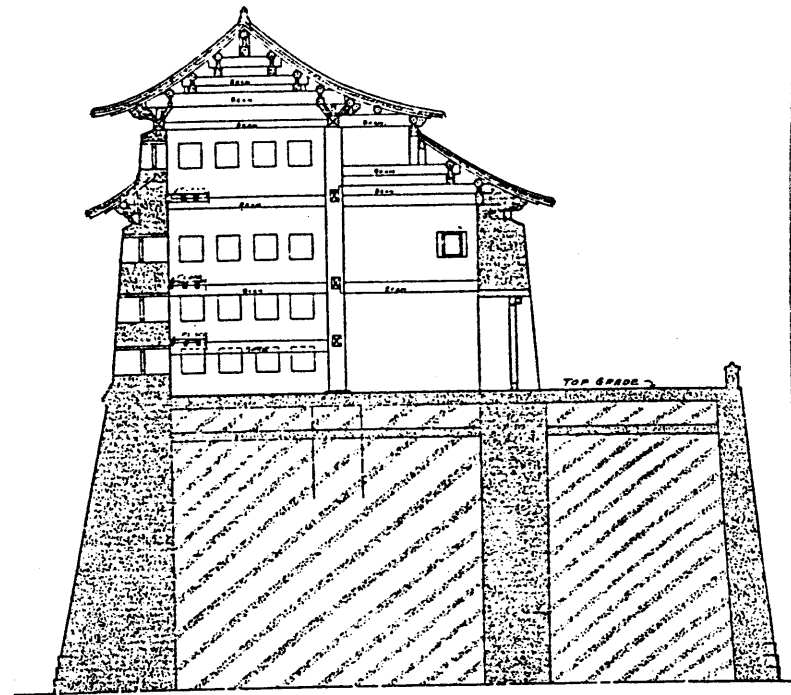
The main frames of qiaolou are wood members. These members are huge compared with normal-sized buildings. Some of the beams are as long as 10 meters—only the beams in the main hall of Imperial City are comparable. The columns of qiaolou penetrate deeply to ground level to ensure the stability of the structure. The whole building is covered by very thick brick walls to resist the attack of enemies. These brick walls make qiaolous appear from the outside to be grand and durable. They appear as the most salient objects as one approaching from outside the city (3-9, 3-10, 3-11).

Although qiaolous look sensational from the outside, they do not function too well as a military reinforcement. The



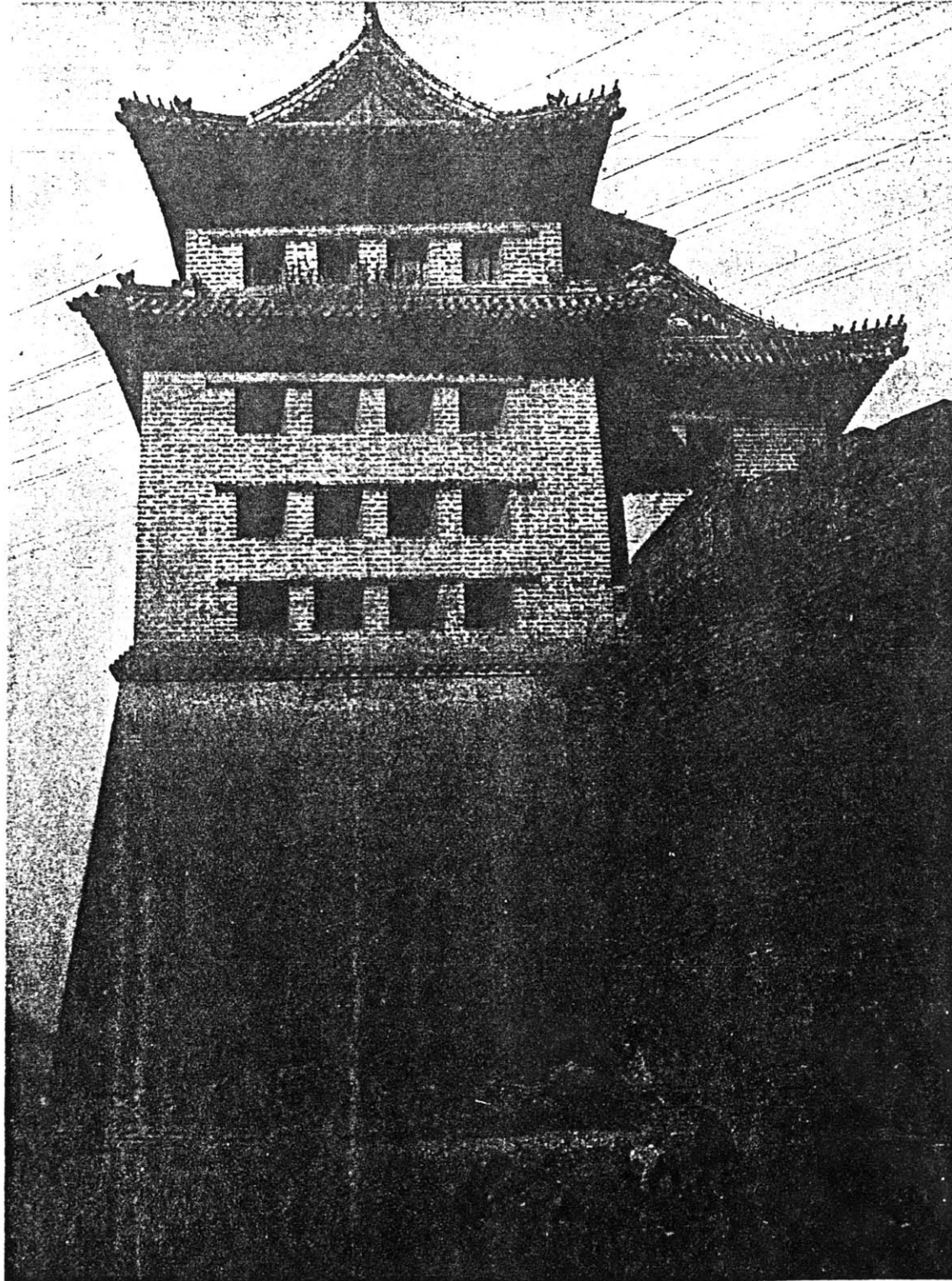
ELEVATIONS 0 2 4 8 16 M

SECTIONS



3-13 FUCHENG MEN QIAO LOU (阜城門譙樓)

P 3-11 FUCHENG MEN QIAOLOU



P 3-12 CHONGWEN MEN MENLOW



main reason is that the floors inside are not deep enough or strong enough to support heavy weapons. The floors are of "U" shape, and are attached on the inside of the flange part. The depth of these floors is 2 meters which is not enough for weapons heavier than guns. The remaining part of the interior space is three or four stories high with the beams penetrating regularly. The arrangement of interior space for these fortresses seems to be unreasonable from the military point of view in Qing Dynasty. However, we have to remember that qiaolous of Inner City were built in the early years of the 15th century, when the weapon system was not highly developed. Also, in the Qing Dynasty the strategy on defence was very different, thus the military function of the qiaolou was unreasonable in the Qing

Dynasty. Therefore, the few renovations of the Qing Dynasty did not alter the original design. They simply kept them as monuments.

2. FALOU

Falou were set upon the top of the outside gateway of yuecheng in order to protect the gateway should the enemy cross the moat and approach the outer gateway. In many ways, they are miniatures of qiaolows - two-story fortresses with only six gunpits on each story, wood structures covered by thick brick walls (P3-13). Although they appear much smaller in size, they provide useful reinforcement for the outer gateway of yuecheng.

3. MENLOU- GATE TOWER

Menlous are buildings situated on top of the gateways of the city wall. Unlike qiaolous or

FALOU

P 3-13 XIZHI MEN FALOU (西直門 閘樓)

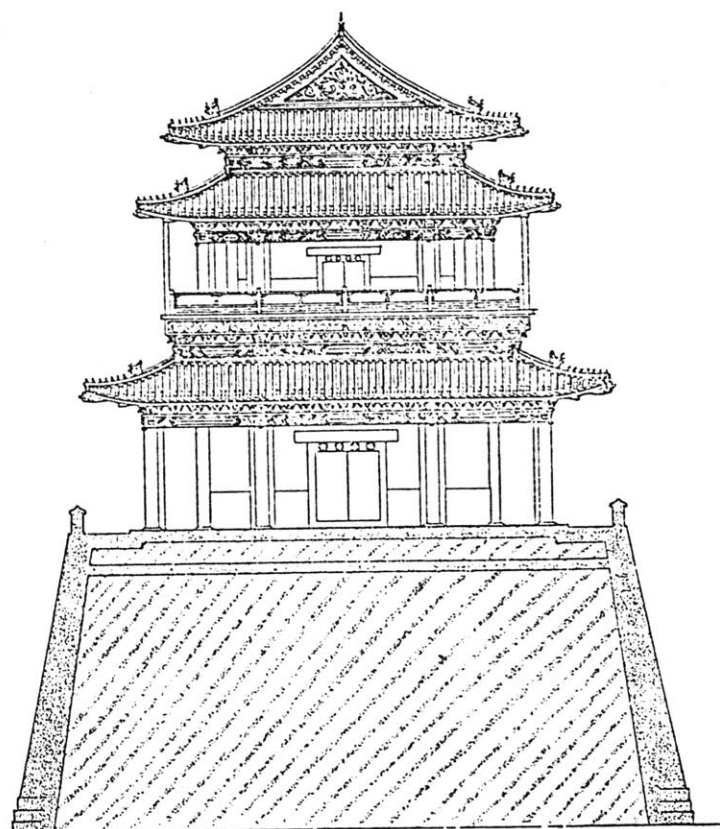


MENLOU

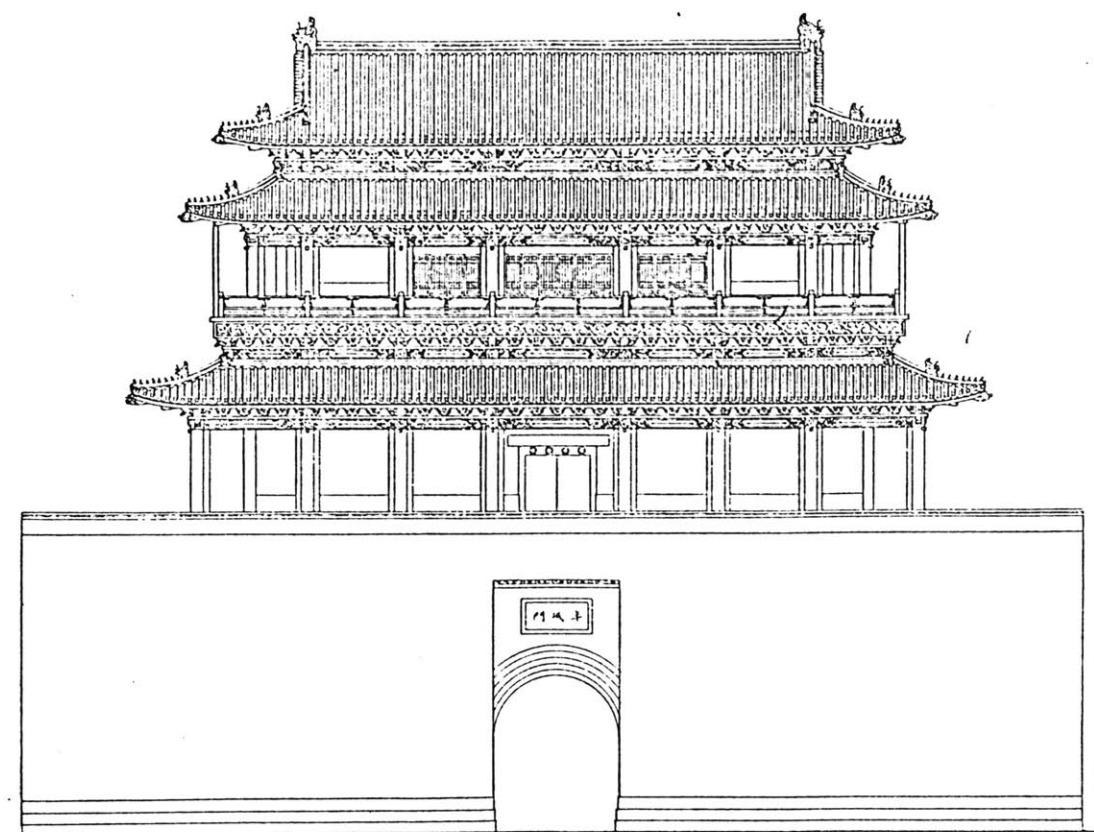
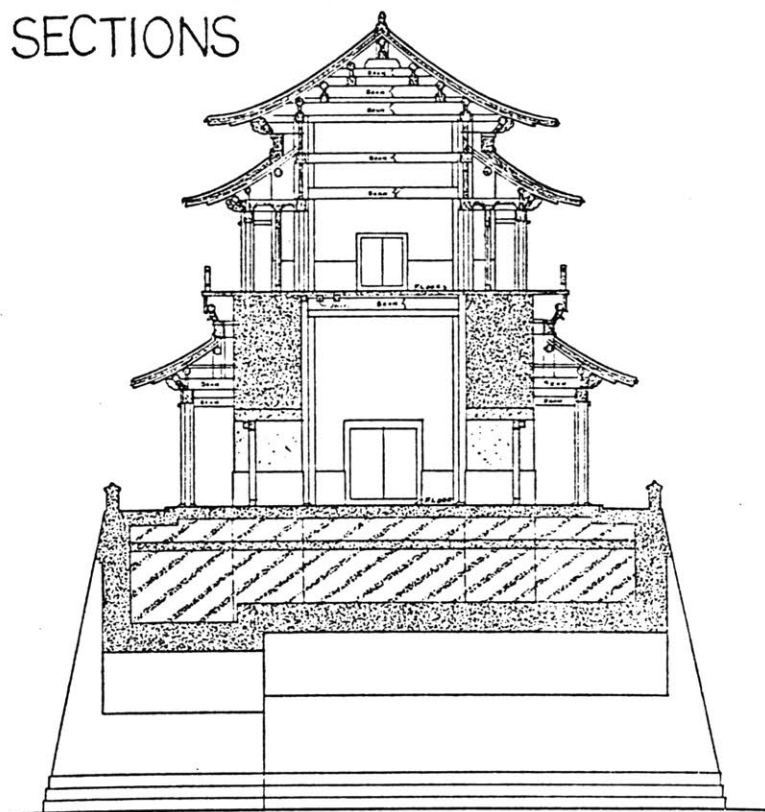
3-14

Menlous, menlous serve no military function. They serve only as monuments marking the importance of a gate and the boundary of a city. This function of monumentality is achieved through the huge building mass, decorative details, colours and other treatment (P3-12).

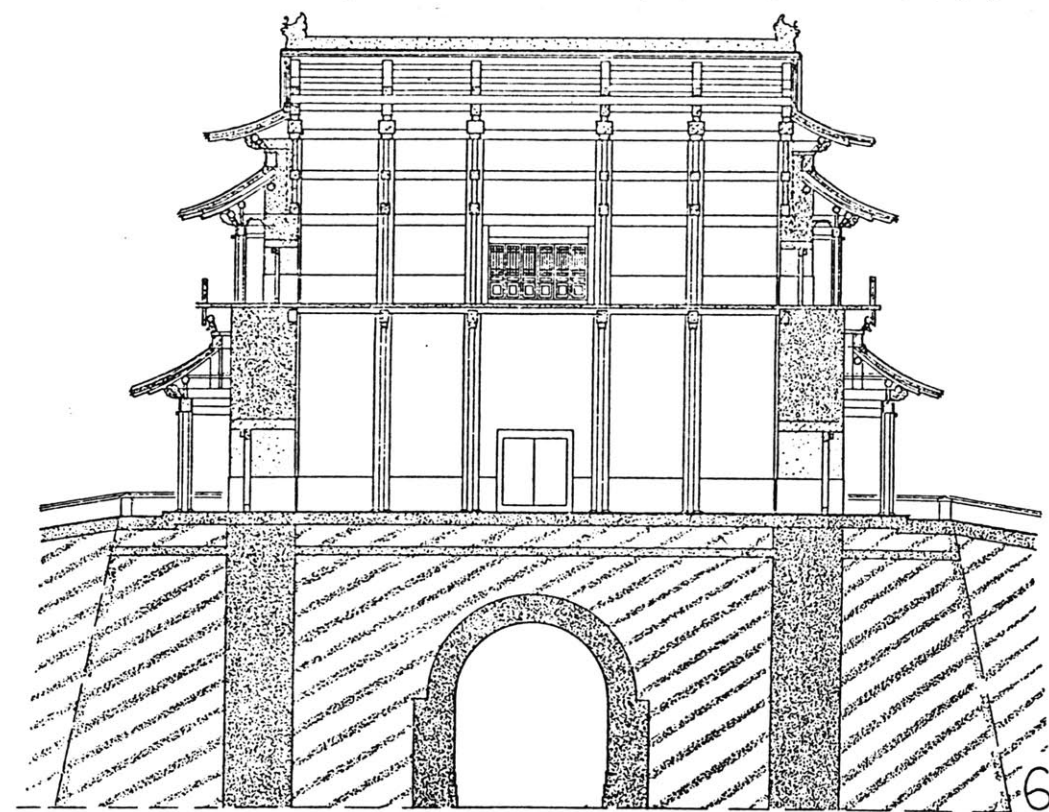
Although the dimensions of each bay and the thickness of walls vary from one menlou to another, the type of all menlous is basically the same (except that the Zhengyang Men has nine instead of seven bays). They are all seven-bays-wide, three-bays-deep, two-story wooden structures with three layers of eaves and nine ridge roofs (3-14).



ELEVATIONS
SECTIONS



FUCHENG MEN, MENLOU (阜城門門樓)



and doors which are not solid. The floor plans are a rectangular concentric arrangement of voids and solids. The first layer is a veranda surrounded by columns, then a layer of thick wall used as the structural core to reinforce the wood framework, then the interior space. The interior space of the first floor is very dark; the only opening are the solid doors. This space is used for storage of weapons and gunpowers. The second floor is of a similar plan arrangement, with more openings and windows

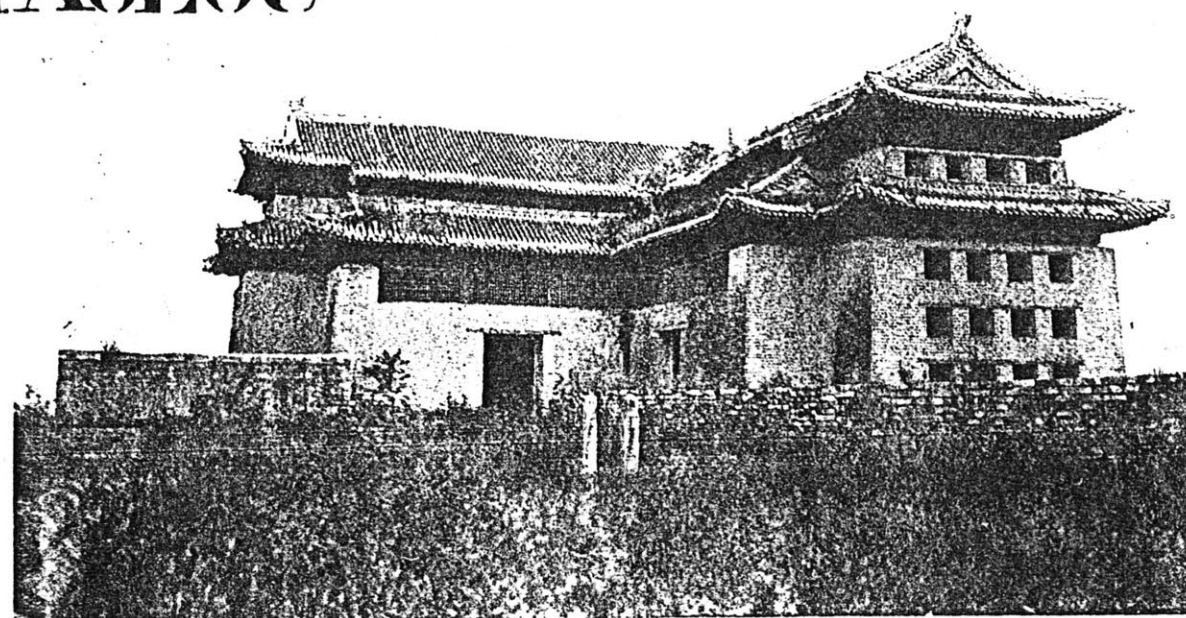
JIAOLOU (角樓) - CORNER TOWERS

There are four jiaolous on the four corners of Inner City. Disregarding the difference in direction, these four jiaolous are identical. The architecture of a jiaolou can be considered

as an overlap of two qiaolous in one corner. The structure and covering materials of jiaolous are the same as those of qiaolous. The two sides facing the outside of the city have fourteen gunpits on each floor. The sides overlooking wall have only four gunpits on each floor. Inside, there are two gates on the inside corner (P3-14, 3-15).

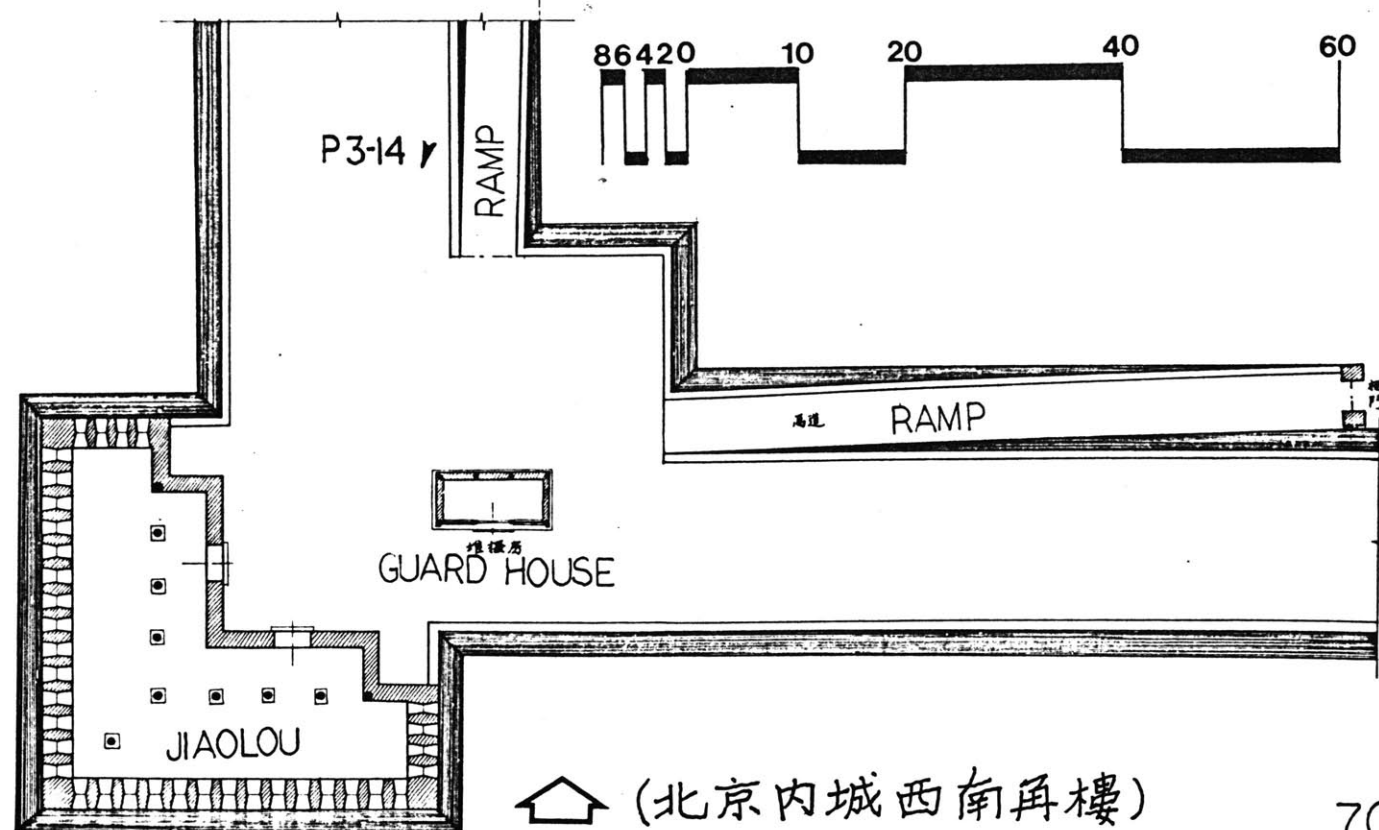
The jiaolou is considered as a point of emphasis in defending Inner City. There are two ramps on both sides of the city wall for the transportation of people and materials.

JIAOLOU

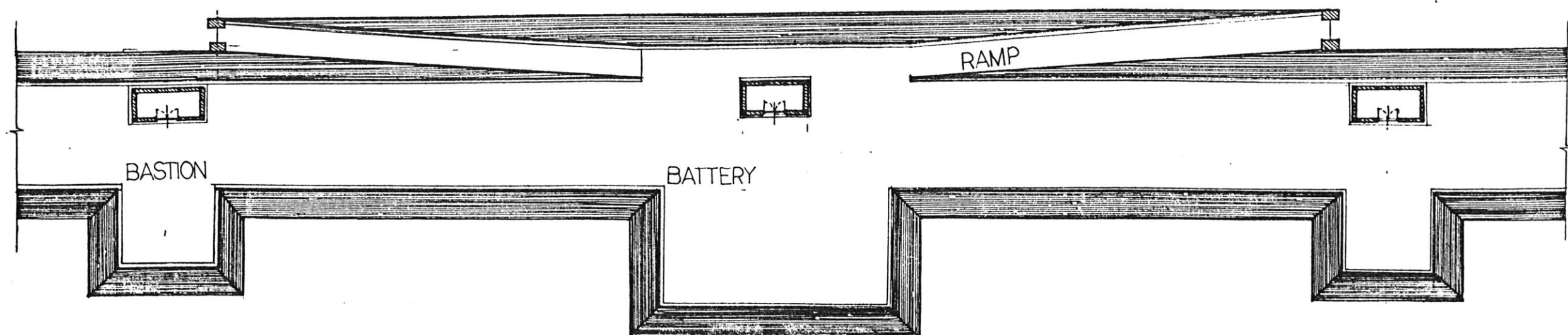


P 3-14 SOUTHEASTERN JIAOLOU OF INNER CITY

3-15 SOUTHEASTERN JIAOLOU



北京内城西南角樓

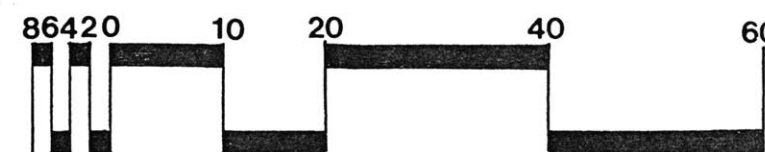


BASTIONS AND BATTERIES

As mentioned before, at certain distances, (80-100 M), bastions are protruding from the city wall. These bastions are platforms connected on the outer side of city wall, with 35 "chi" by 35 "chi" top dimensions. Their function is obvious; they simply protrude from the city wall to gain a better shooting angle to protect the city wall. At the back of the bastion, on the city wall, there is a magazine or guard house to supply materials for the bastion.

Every eight or nine bastions there is an enlarged platform, a battery for the operation of heavier weapons. Also three-bay building are set behind a battery. Behind this building is a pair of ramps to transport the defensive equipment (3-16).

3-16



OUTER CITY

SECTION 4

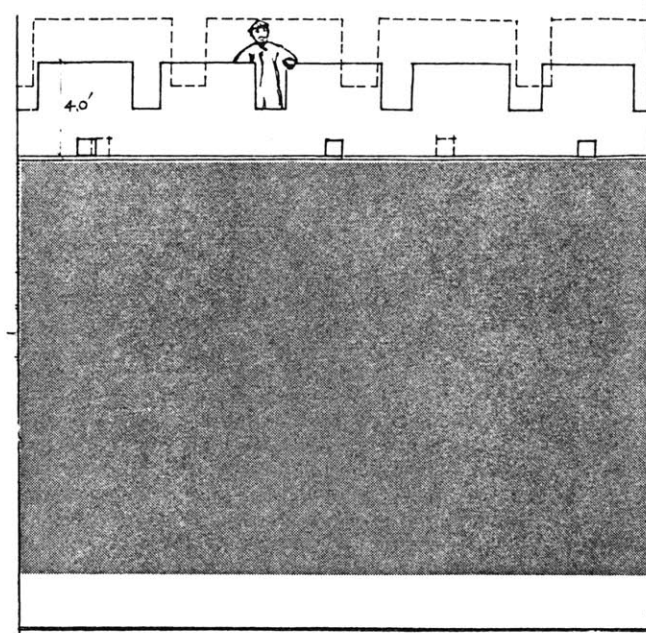
The Outer city was built in Jiajing (嘉靖, 1522-1566 AD) period of the Ming Dynasty. At the time, the cross sections of the wall were recorded as :

height	20 chi (6.36 M)
base width	20 chi
top width	14 chi (4.45 M)
parapet	4 chi (1.27 M)

Either the wall was? broadened during the late Ming Dynasty or early Qing Dynasty, or the above records are wrong. "The Complete Map of Beijing, Qianlong period" shows the dimension of wall cross section to be larger. A survey of Beijing's city wall done by Osvald Siren in the 1920s, agrees the dimension of wall cross section is almost the same

as in "The Complete Map." The dimensions recorded in the Ming Dynasty History are not large enough for military purposes because at the back of the bastion there is usually a one-bay building functioning as guards' dorm or magazine which has the plan of 13 chi by 10 chi and which will block the entire 14 chi wide wall top (3-17, 3-18, 3-19).

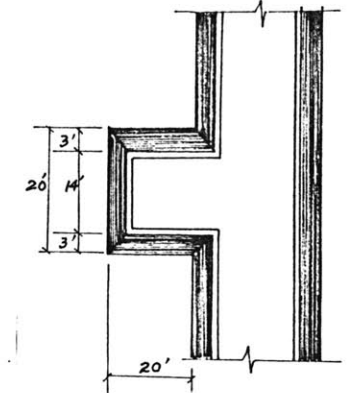
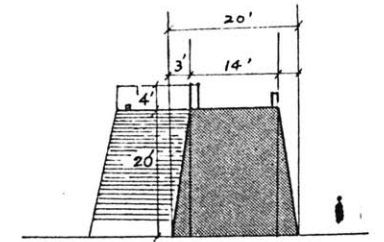
Besides the change in wall thickness, between 1750 and 1920, the gates of Outer City were renovated more than once. The form of yuecheng was changed and qiaolou were added for many gates. There is no information on the exact time of the renovations nor on the scope of alternations. However, it has been recorded that in 1767 (the



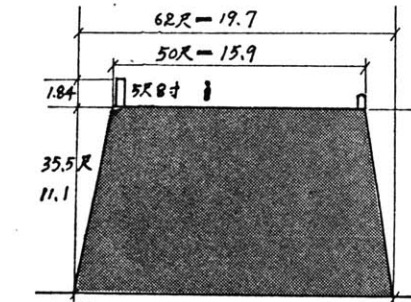
3-17

北京外城城牆立面示意图
(根据 大清會典事例 虛線
為 1924 年之調查)

PARAPETS & ELEVATION



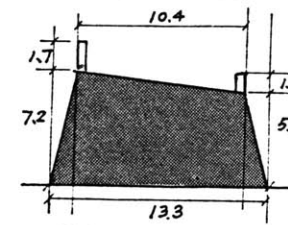
THE OUTER WALL
IN MING DYNASTY
3-19



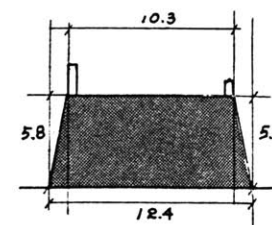
L.

STANDARD SECTION OF INNER CITY

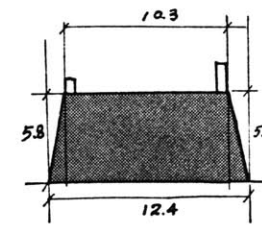
3-18



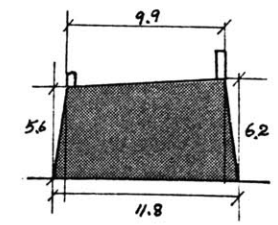
N



W



E



S

SECTIONS OF OUTER CITY WALLS

37th year of Qien Long Emperor), Yungding Men (永定門) and Guangan Men (廣安門) received complete renovation, The renovation including changing the manlou and giaolou and altering the shape of the yuecheng to make them look similar to that of Inner City.

GENERAL FEATURES

The mass of Outer City wall is much smaller than that of Inner City. According to "The Complete Map", the sectional dimensions of Outer City wall are :

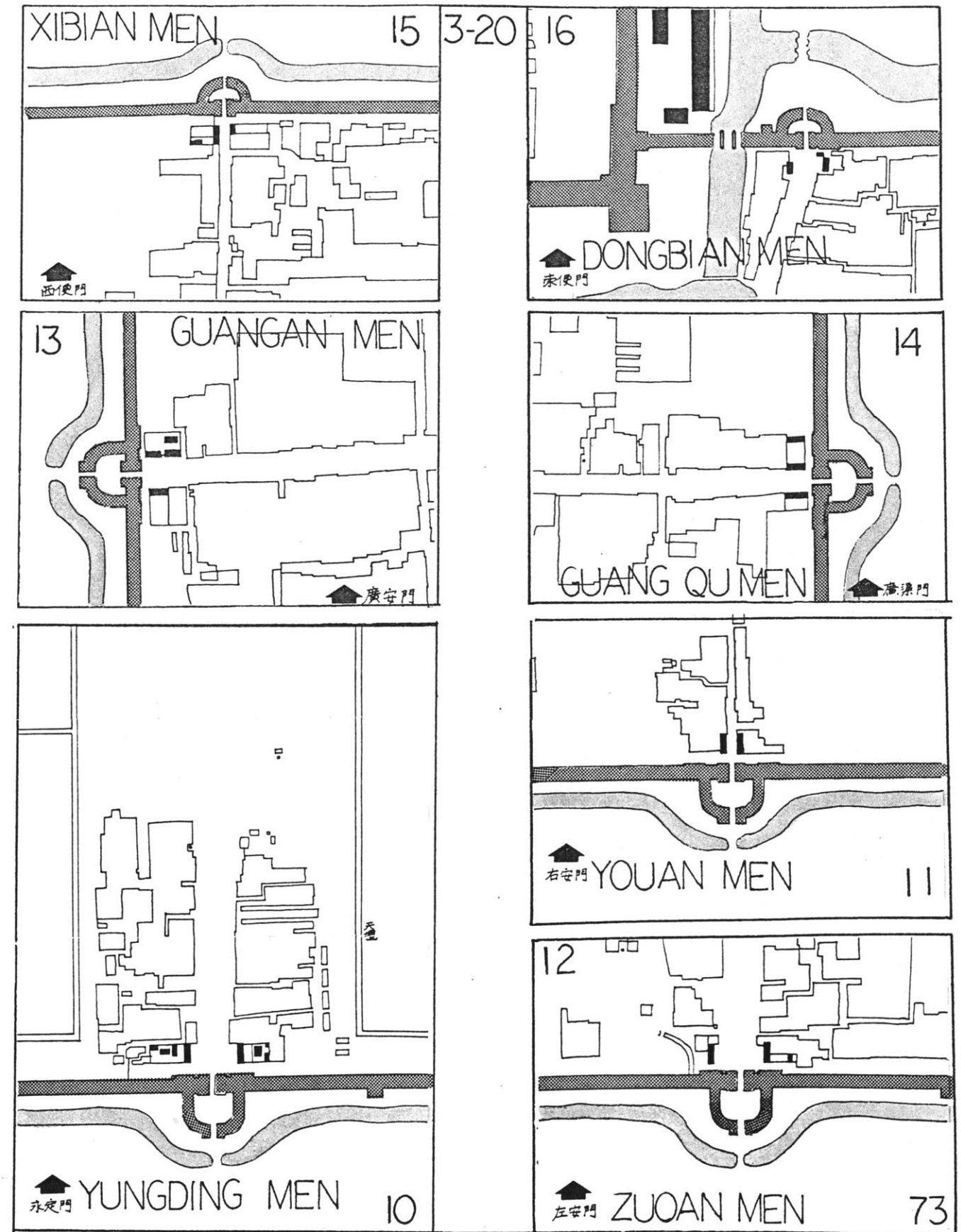
height	20 chi
base width	40 chi
top width	34 chi
parapets	5.8 chi (9487 parapets)

The actual figures vary from one wall section to another, as Siren Osvald recorded (3-18).?

Totally, there are 63 bastions

on the wall; 43 of them are accompanied by buildings on the back. The bastions have the same section as the city wall, and the depth of them on the base is about 40 chi. The distance from one bastion to another is about 380 to 400 meters.

There are seven gates. On the south are Zuoan Men (左安門), Yungding Men (永定門), Youan Men (右安門). The one on the east wall is Guangqu Men (廣渠門), and on the west wall is Guangan Men (廣安門). There are also Dongbian Men (東便門), and Xibian Men (西便門) on the north (MAP 3-1).

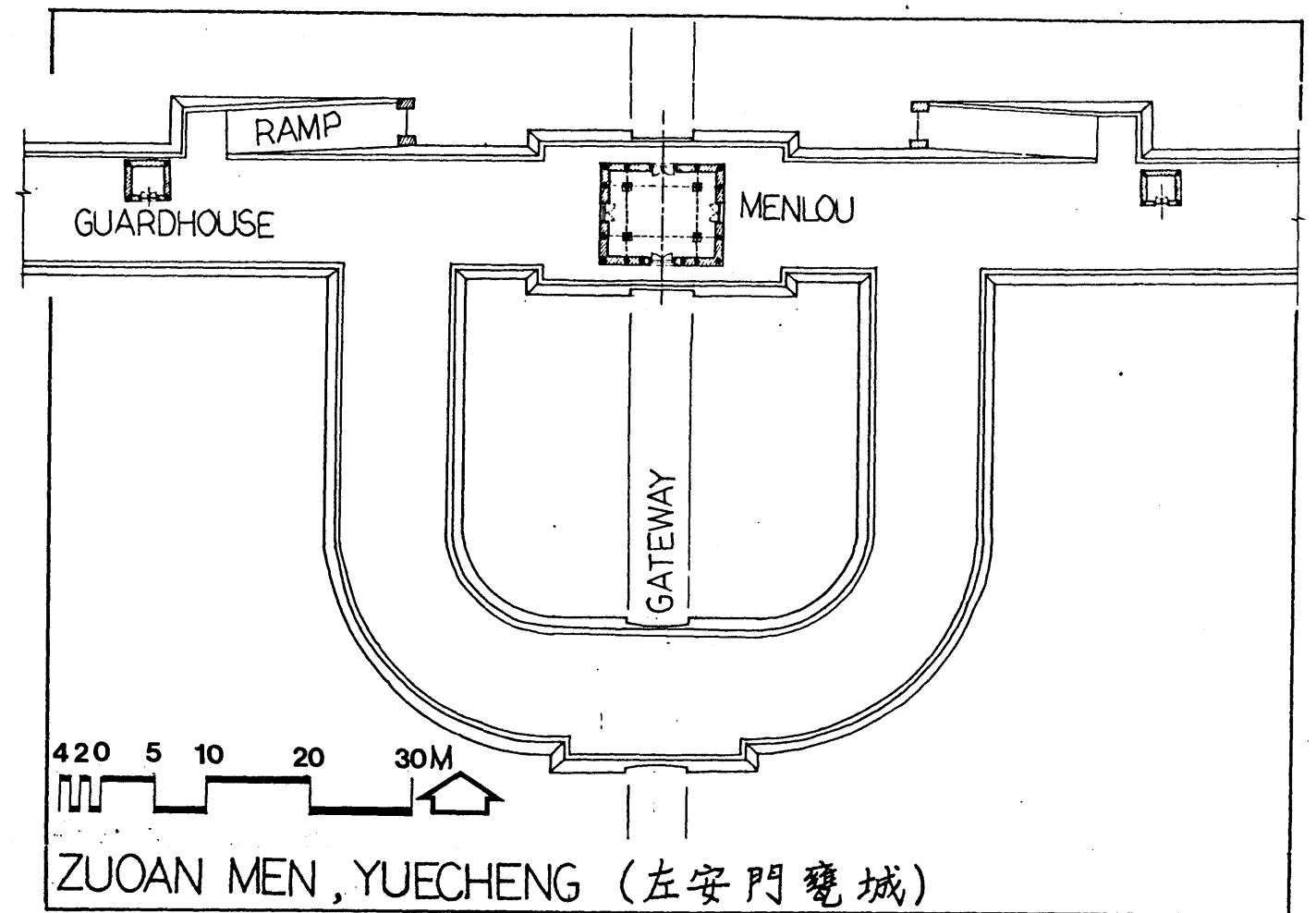


ZHENG MEN (正門)

In the Qienlong period, the five gates on the south, east and west side of the city walls were all the same. The outer shape of the yuechings of these five gates is of a half circle and inner shape of the yuechings is square. The gateways on the outer and inner sides are all placed in the center (3-20, 10-14).

There are no qiaolous on the front platform of the yuechings, and the menlous are much smaller than those of Inner City. All of them are single-story, three-bay buildings with single-eave and nine-ridge roof (單簷歇山). The structural frames are of wood and solid walls surround the whole building, thus the only openings are doors on the four sides. Behind the inner gateway, there are two ramps going up to the top of the city

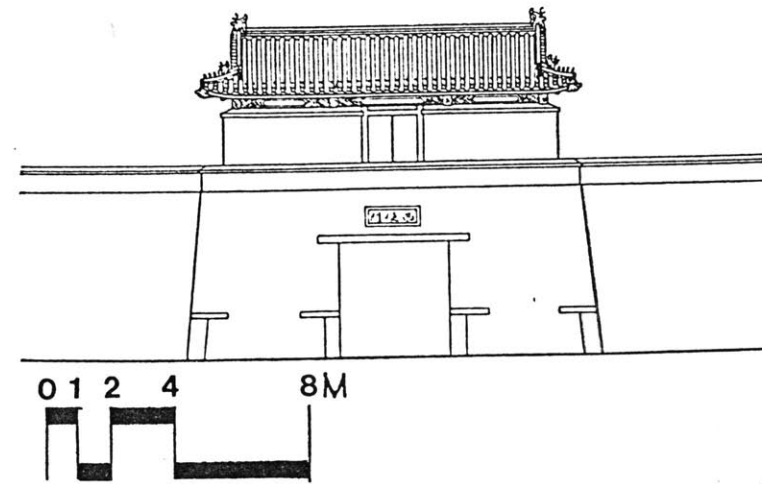
wall (3-21).



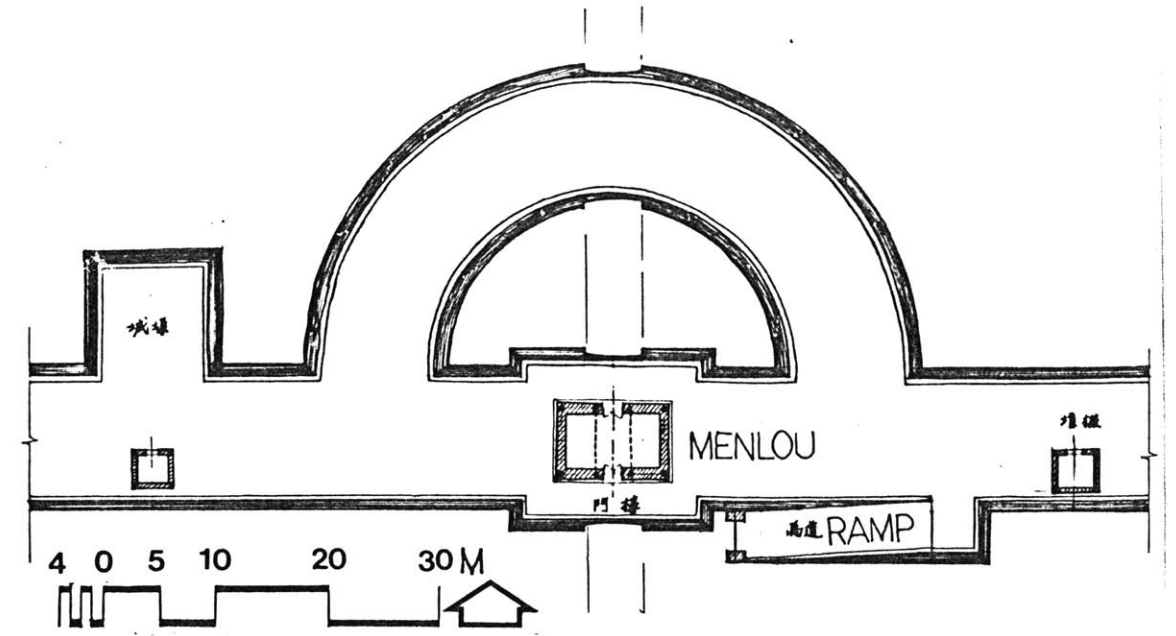
3-21

BIANMEN (便 門)

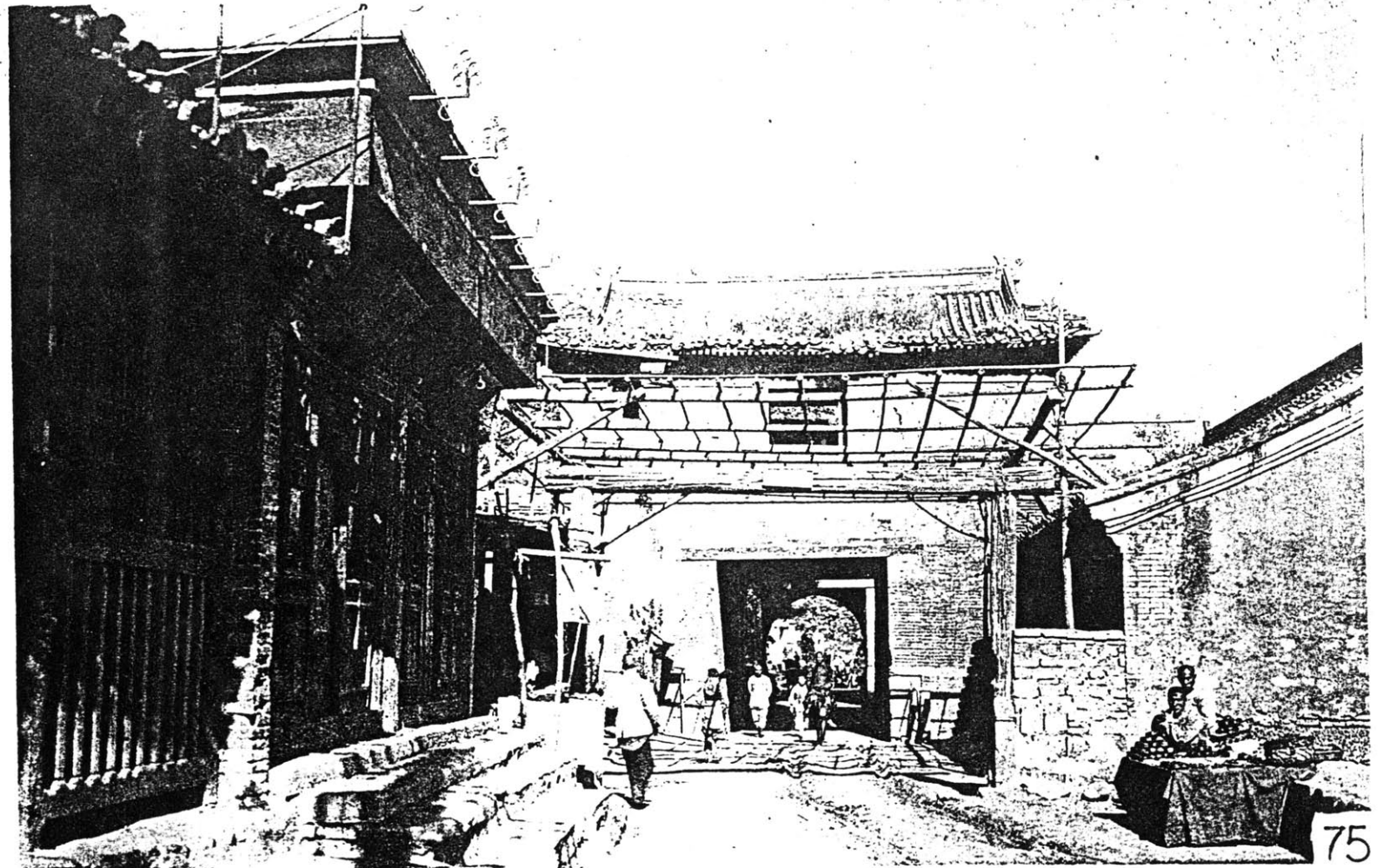
Bianmen means convenient gates. Dongbianmen (東便門) and Xibianman (西便門) are smaller than other zhengmens. Both of them are located on the north wall sections of Outer City. The plans of yuecheng for these two bianmens are exactly half circles. There is no qiaolou and falou on the bianmens of Outer City, while there is a menlou on the two bianmen of the same type as those of zhengmen. Besides the shape and size difference between the bianmen and zhengmen, only one ramp is associated with each (3-22, 3-23, P3-16).



3-23 XIBIAN MEN MENLOU
(西便門門樓)



3-22 DONGBIAN MEN YUECHENG (北京外城東便門甕城)



P 3-16
DONGBIAN MEN MENLOU

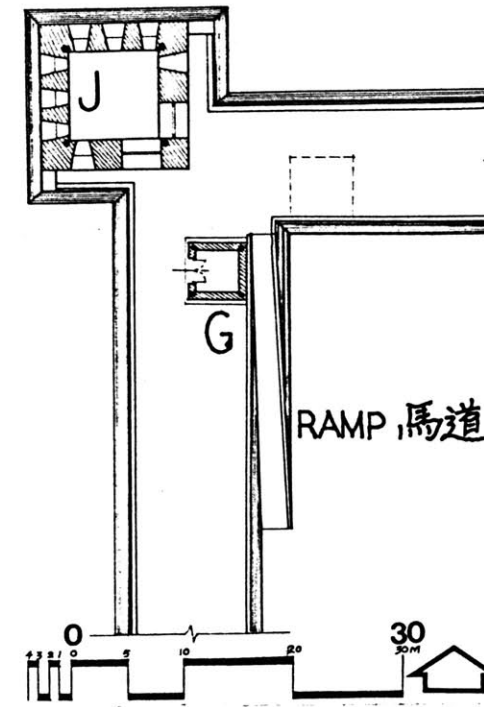
JIAOLOU (角樓)

Four of the six Jiaolous of Outer city are distributed on the four corners of outer wall, and two of them are on the joints of Inner City and Outer City walls. In "The Complete Map of Beijing, the two jiaolous on the joints are not visible because of the defect in perspective of the map. We can see the one around the southwest corner of Inner City in an aerial photograph taken by Wulf Pieter between 1933 and 1936. The photograph is taken from far away so that except for the mass of jiaolou not much further information can be derived from it (P3-17).

The other four have the same form but have different directions. Jiaolous of these four corners are three-story fortresses with square plans standing on a protruded

platform. Similar to qiaolou and jiaolou of Inner City, they are wood-structured and are covered with thick brick walls. On the sides facing out, each floor has three gunpits, and on the sides facing in, each floor has one gun pit. The defenders enter the fortress from the sides facing in and shoot from the gunpits. The roof is cross-ridged (十字脊), a complex roof for a square plan; however, its monumentality is stronger than others'.

There are one or two small buildings near the fortress and a ramp on one side of the walls (3-24, P3-16).



3-24 北京外城西北角樓
NORTHWESTERN JIAOLOU OF OUTER CITY
J: JIAOLOU (角樓)
G: GUARDS' DORM (堆撥房)

P 3-16 NORTHWESTERN JIAOLOU OF OUTER CITY



WATER GATES (水關)

The outer wall of Beijing has three water gates and three aqueducts to allow water to pass into and out of the city. All aqueducts are on the southern wall. One is to the west of the Altar of Agriculture (先農壇). Another is between the Altar of Heaven (天壇) and the Zuoran Men (左安門). The third one is on the right-hand side of the Zuoran Men. These aqueducts are covered and not visible on the ground. All the water gates are in the two sections of northern wall. One is to the east of Xibian Men, the other two are on the sides of Dongbian Men. Each water gate has three courses to let water in or out of the city. Each course has a sluice to block water and has two layers of pallsades to prevent enemies entering the

city from water gates. We will describe the works of these water locks in chapter five in detail.

These four layers of walls in Beijing were maintained by two different institutions. The Palace city and the Imperial city were taken care of by the Interior Events Department (內務府). The Outer City and Inner City were maintained by the army. However, for major maintenance and repair projects permission from the Engineering Department (工部) was needed and funding had to be obtained from the National Treasury.

The Manchurians were famous for their cavalry. They are not very good at defending cities. Also, the Manchurians were a minority in their empire. The



P3-17 JOINT OF INNER AND OUTER CITY WALLS

segregation policy made it impossible for them to increase their troops. They preferred to concentrate troops for major fights in the field rather than to distribute them to defend cities.

Therefore, although there were four layers of walls in Beijing, there were not enough troops and facilities to defend the city. The symbolic meaning and the psychological effects of the city walls were more important than its military functions.

CHAPTER 4

STREET SYSTEM

-TYPE, STRUCTURE, & USES

This study of the system of streets attempts to discover different aspects of the streets. These include the similarities and differences of streets profiles, the relationship of streets to alleys, the form and use associations of streets, and the influences of other physical elements on streets.

We can outline this chapter into the following sections:

1. types of streets
2. street networks
3. the uses of streets.

The sources used in this chapter are mainly "The Complete Map of Beijing, Qienlong period" and other contemporary documents.

However, most of the photographs were taken between 1860 and 1912 by various professional photographers. These photographs are still valid as good illustrations because the form and uses of streets in Beijing did not change dramatically for the one-hundred and fifty years before 1911 AD.

TYPE OF STREETS

SECTION I

Streets may be classified in different ways based on different criteria. In this section, we are discussing the most obvious distinction, which originated from the differences of width decided during the planning of Dadu of the Yuan Dynasty. As we know from the second chapter, the planner of Dadu classified streets into four types - "shunchengjie" (順城街, the streets beside the city wall, 50 steps wide), "dajie" (大街, wide street, 24 steps wide), "xiaojie" (小街, narrow street, 12 steps), and hutong (胡同, alleys, 6 steps wide). Owing to the differences in direction and location and to the adjustment

due to inhabitation, these four basic types have rich variations.

To illustrate the types and their variations, as many examples as possible are given, as well as descriptions of the examples based on the photographs and plans that are available.

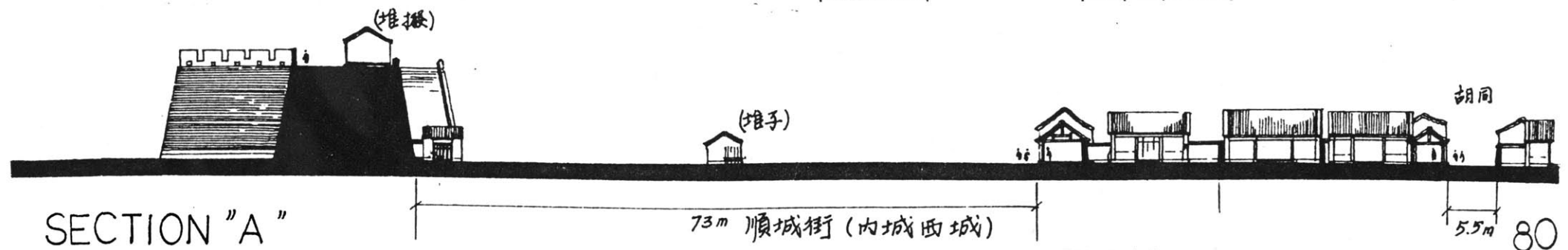
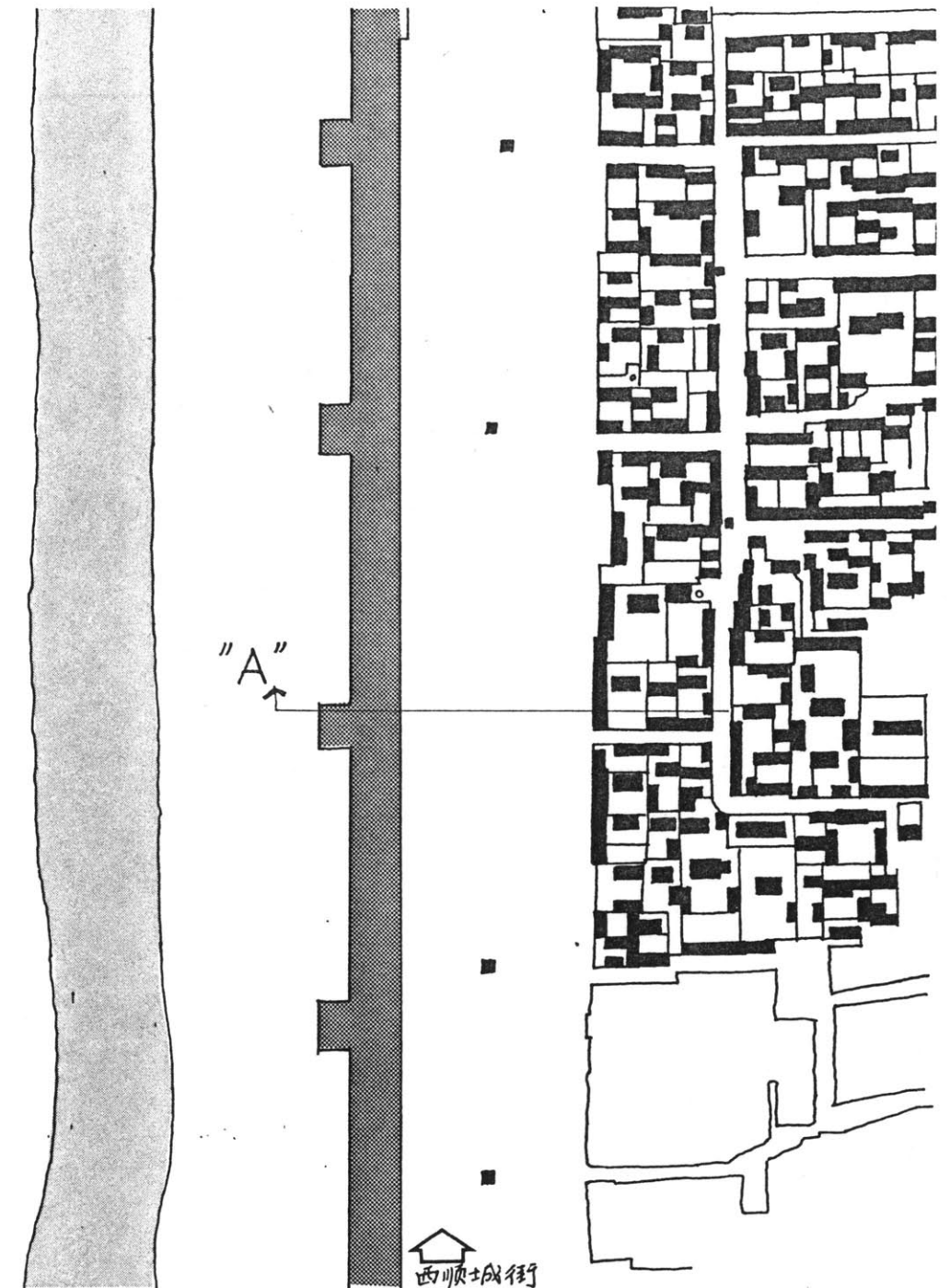
SHUNCHENGJIE (順城街)
 "Shunchengjie" is the widest type of streets in Beijing. The three characters - "shun," "cheng," "Jie" - in Chinese mean the street attached to a city wall. Both the Inner City and the Outer City have "shunchengjie." The "shunchengjies" of the Inner City are clearly defined by houses and shops on one side and the city wall on the other side. For the Outer City, the density of houses around city wall is very low so that it is impossible to recognize "shunchengjies" from the map. The original width of the "shunchengjie" varies from 60 meters to 86 meters. The East and West Shunchengjie built in the Yuan Dynasty were 86 meters wide, the North Shunchengjie built in the early Ming Dynasty is 60 meters wide, while the South Shunchengjie built in

the Yongle period of the Ming Dynasty is between 60 and 86 meters. Some of the streets are occupied illegally by houses, thus narrowing the street width (4-1).

"Shunchengjies" were built for military reasons. The ring of "shunchengjies" along city walls forms a military expressway surrounding the city. They allowed the speedy delivery of orders and information, and the transportation of people and materials to the parts of city wall that were attacked. In addition, the width of the

SHUNCHENGJIE

4-1
 WEST SHUNCHENGJIE
 OF INNER CITY



streets provided the possibilities of gathering armed forces in an emergency and were used as training fields in an ordinary time. In fact, during Qing Dynasty, the "shungchengjies" of Inner City were often used as a training field.

Usually "shunchengjies" support fewer commercial activities than do "dajies" or "xiaojies." This is because one side of the street is city wall which restricts the normal street activities. Besides, in order to ensure the accessibility of "shungchengjies" at all times, the activities on these streets were restricted by the government. However, some shops face toward the "shunchengjie" on sections near the gates of city walls (4-1).

DAJIE

The streets oriented to gates of the Inner City, the Outer City and the Imperial City are "dajie" (大街) which means wide street. The original width of the "dajie" is about 40 M. In the course of time, residents often occupied parts of the street, so that some of the streets are reduced to 25 meters or less. Zhengyang Men Dajie (正陽門大街, the street in the front of the central gate - Zhengyang Men of the Inner City), is the Imperial Boulevard leading to Tien Tan (天壇, altar of heaven), therefore it is wider than any other. The original width of this street is 86 M, but the long-term illegal occupants reduce the central part to 40 meters.

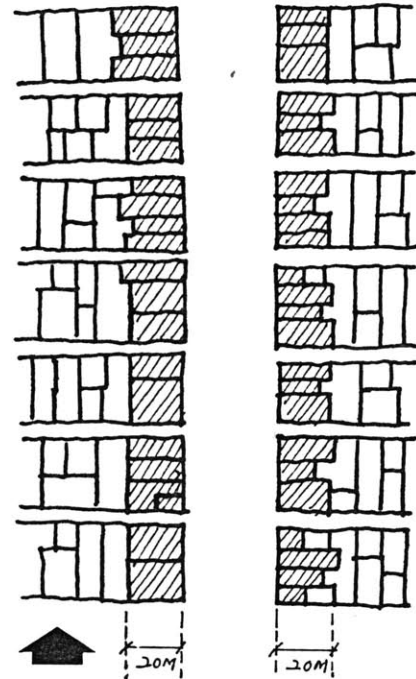
The atmosphere of the "dajie" in the north-south direction is

different from that in the east-west direction. Because the north-south "dajies" gather people coming out from the east-west alley system, they are more heavily used than are the east-west "dajies" (4-2). The heavy commercial uses of the north-south "dajies" caused a change in the orientation of buildings on both sides of the street from their original north-south direction to an east-west direction (4-2). The depth of these adjusted houses is about 20 M. The houses on the east-west "dajie" did not have to change orientation. The only adjustment needed was to change the buildings of courtyard complexes adjacent to the street into shops (4-4). The north side of an east-west street benefits from the sun during winter and is more prosperous than its south side.

The shops facing the "dajie" are always continuous and it is very common to have a double- or triple-roofed building, or two-storied buildings on a "dajie" in order to enlarge the interior commercial spaces (1-2). Thus, the appearance of any of these two building types can be considered an indicator of commercial prosperity.

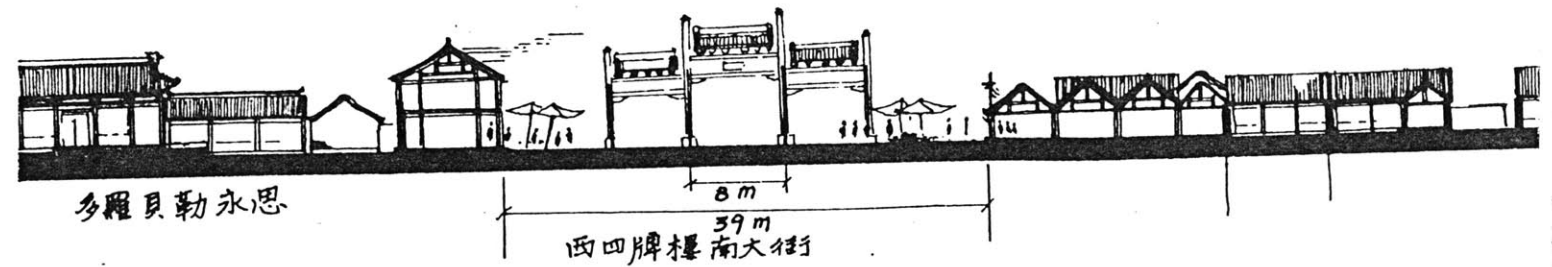
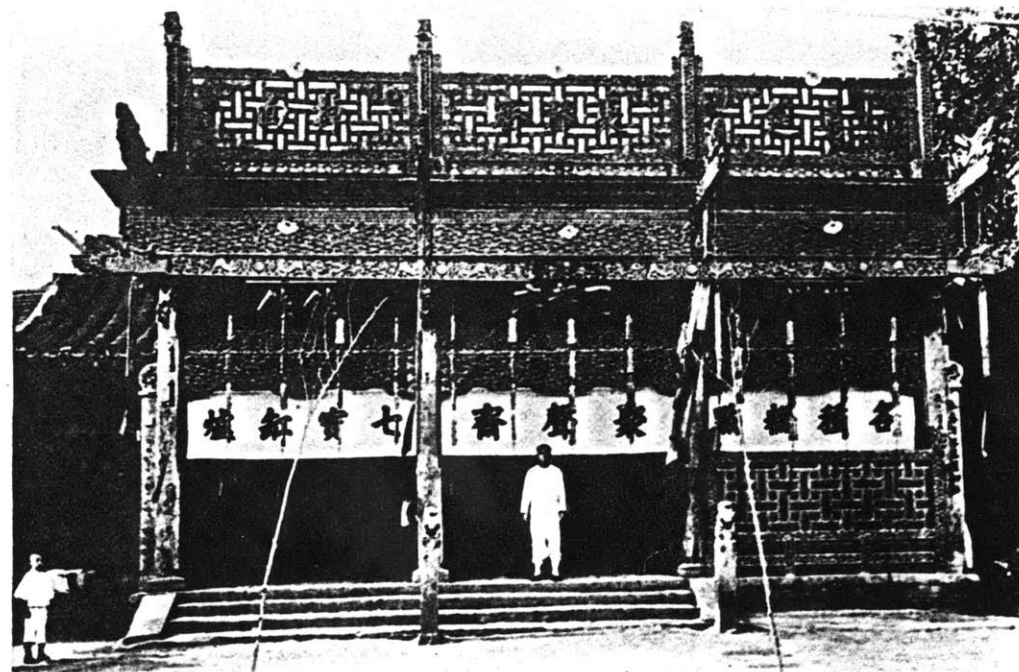
The facades of shops are different from the normal facade of a house, and different kinds of shops have different facades (P 4-2). Generally speaking, the simplest shop facade has solid wooden doors that can be moved off during the daytime and closed at night. They usually have a simple signboard or "huangzi" (幌子) to catch the attention of passers-by. There are of course more sophisticated styles, called "dian mien," meaning decorating facade for

DAJIE

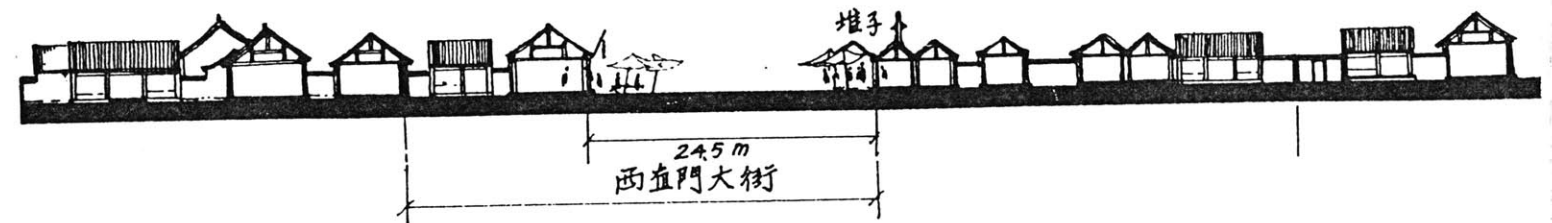


4-2

P.4-1 DIAN MIEN - FACADE OF A SHOP

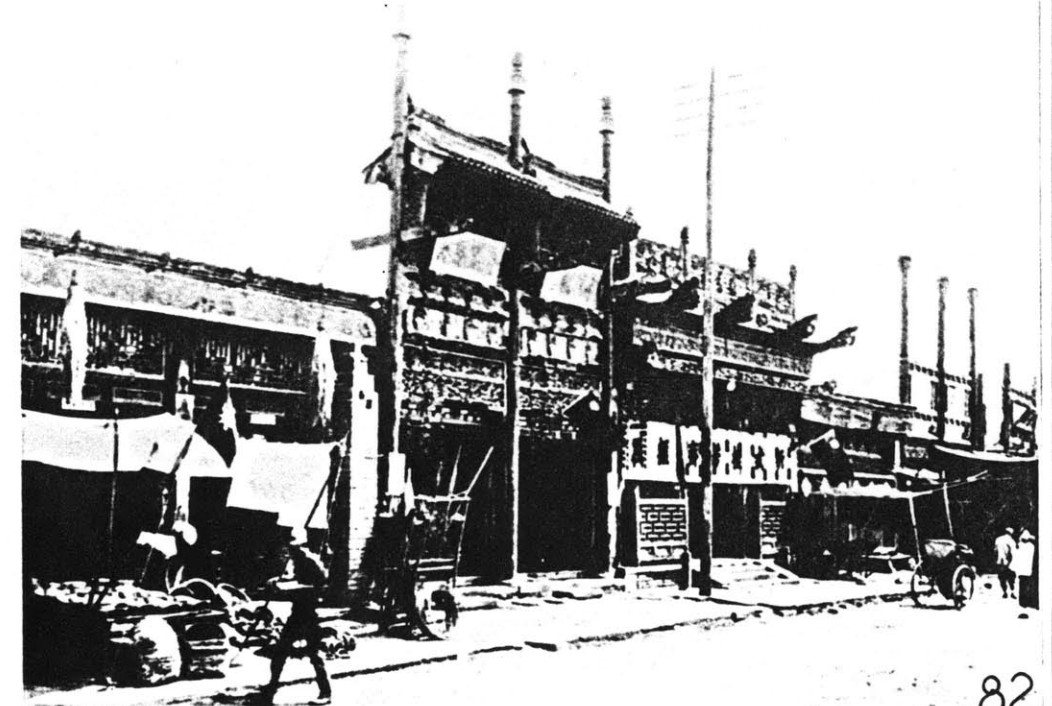


4-3 XISINAN DAJIE A TYPICAL NORTH-SOUTH STREET



4-4 XIZHI MEN DAJIE AN EAST WEST STREET

P. 4-2 DIFFERENT TYPES OF DIAN MIEN



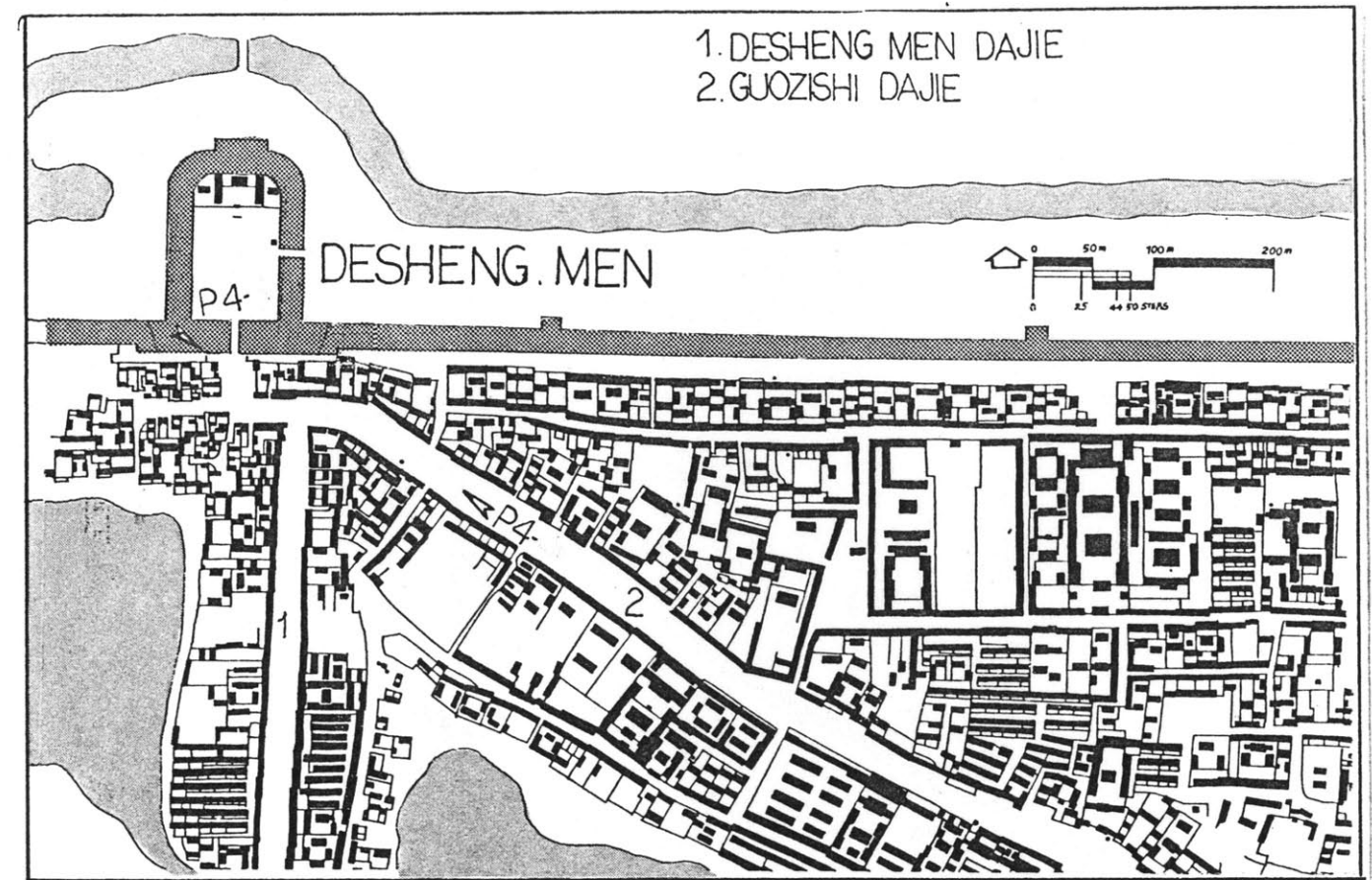
shops (P 4-1). Different kinds of shops or different kinds of trades have different styles of "dian mien." It would be interesting and meaningful to study the interior layout of these shops and the interaction between shops and street.

In the front of the shops, there were usually stalls with tents or umbrellas aligned on the street. These stalls might or might not belong to the shops behind. The stalls and shops defined a narrow temporary street on both sides of the "dajie." Outside the line of stalls is the traffic line for carts, carriages, camels, horses and other transportations (P 4-3, P4-4, P 4-5).

On some of the busier streets, such as Chongwen Men Wai Dajie (崇文門外大街), the wide street outside Chongwen Men; Chongwen Men is the east

southern gate of Inner City), some tents and stalls are replaced by row shops. The row shops on Chongwen Men Wai Dajie are not continuous through out the whole street. The gaps are filled by the stalls during the commercial hours (4-6, location refers to MAP 4-5).

Zhengyang Men Dajie (正陽門大街) was the widest and busiest street in the city. The tents and stalls beside the street were here completely replaced by permanent buildings. Many of these buildings are two-story or double- and triple-roof buildings. Thus the street was divided into three smaller streets. The central street is still as wide as other "dajies," and on both sides of this central street new stalls and tents are still more in evidence than on any other street. In the Qienlong period, in order to



4-5 DESHENG MEN DAJIE & GUOZISHI DAJIE

P 4-3 GUOZISHI DAJIE (果子市大街, 鼓樓西斜街)



prevent the endless extension of vendors' stalls to block traffic, the Emperor issued an edict to line up two 10 "chi" curbs (1 "chi" = 0.318-0.345 M) through the center of the Imperial Boulevard for the traffic flow. Only in the areas between curbs and buildings could one set up tents and stalls. The other two temporary streets on both sides developed into two regular streets of 6 meters wide and are crowded with people all the time (4-7, location refer to MAP 4-5, P4-6).

In early Qing Dynasty the Government paid much attention to the maintenance and the appearance of the "dajie." The buildings on the street were not allowed to be removed casually. All changes of buildings on the street had to be reported to the city authorities.

P 4-4
 GUOZISHI DAJIE
 〈果子市大街〉

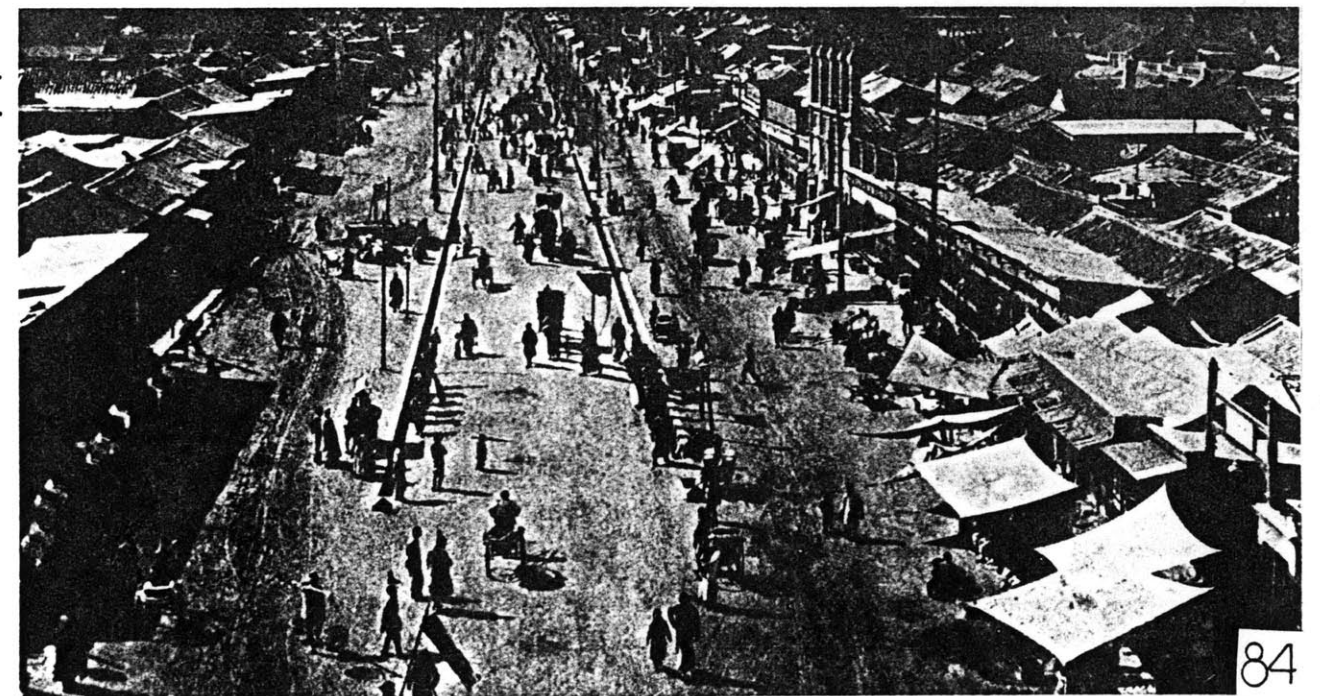
LOOKING FROM THE GATE
 TOWER OF DESHENG MEN.

THE ILLEGAL OCCUPATION
 OF STREET IS VERY
 SERIES IN LATE QING
 DYNASTY



P 4-5
 ANDING MEN DAJIE
 〈安定門大街〉

ALSO LOOKING FROM THE
 GATE TOWER OF ANDING
 MEN (THE EAST NORTHERN
 GATE OF INNER CITY)



XIAOJIE (小街)

"Xiaojie" means narrow street or small street. The original design width was 18.5 M. In the Qienlong period, the illegal occupation of the sides of the streets made the width of most "xiaojies" narrow to 10 M. Therefore, the distinction between a "xiaojie" and a "hutong" (胡同, alley) is not on the width of the street. The difference is on the location of a street in the street network, and on the importance of the activities happening there (4-12, 4-13).

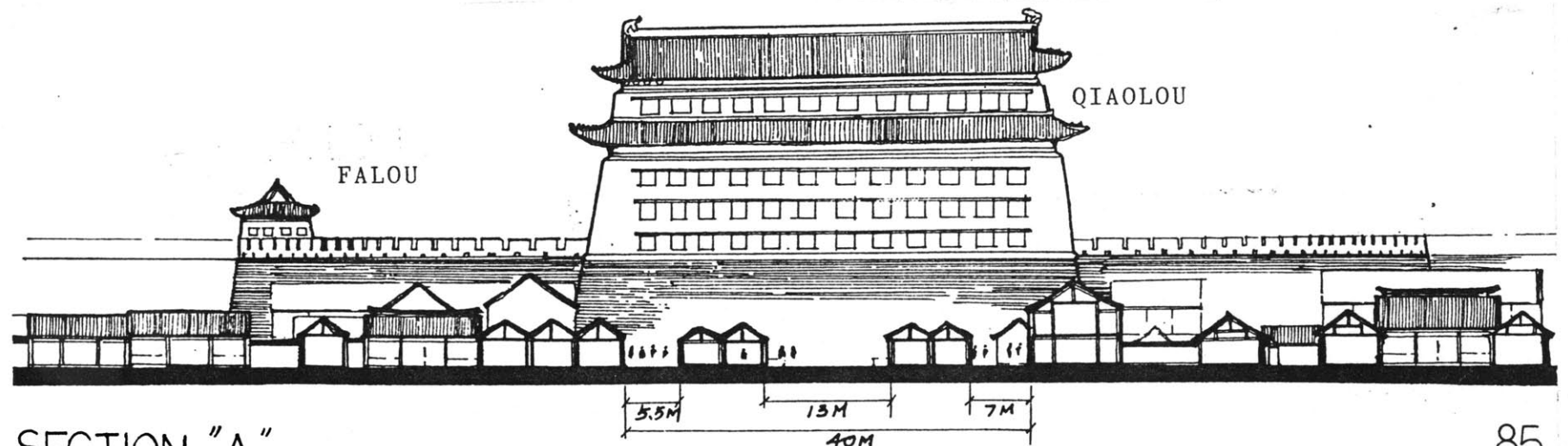
Characteristic of a "jie" in contrast with that of "hutong" is its commercial activities. "Dajie" is usually associated with wholesale and shops with some specialities while "xiaojie" is associated with retail and everyday shopping.

CHONGWEN MEN
WAI DAJIE



4-6

- 1. CHONGWEN MEN WAI DAJIE (崇文門外大街)
- 2. HUASHI DAJIE (花市大街)
- 3. SUANSHI KUO (蒜市口)



SECTION "A"



P 4-6
ZHENGYANG MEN DAJIE & WU PAILOU

LOOKING OUT FROM THE WEST WING OF ZHENGYANG MEN'S
YUECHENG

4-7

M: IMPERIAL WAY

V: RESERVED FOR HEAVY CARTS

〈御道〉

〈重車道〉

1. ZHENGYANG MEN

〈正陽門〉

2. WU PAILOU

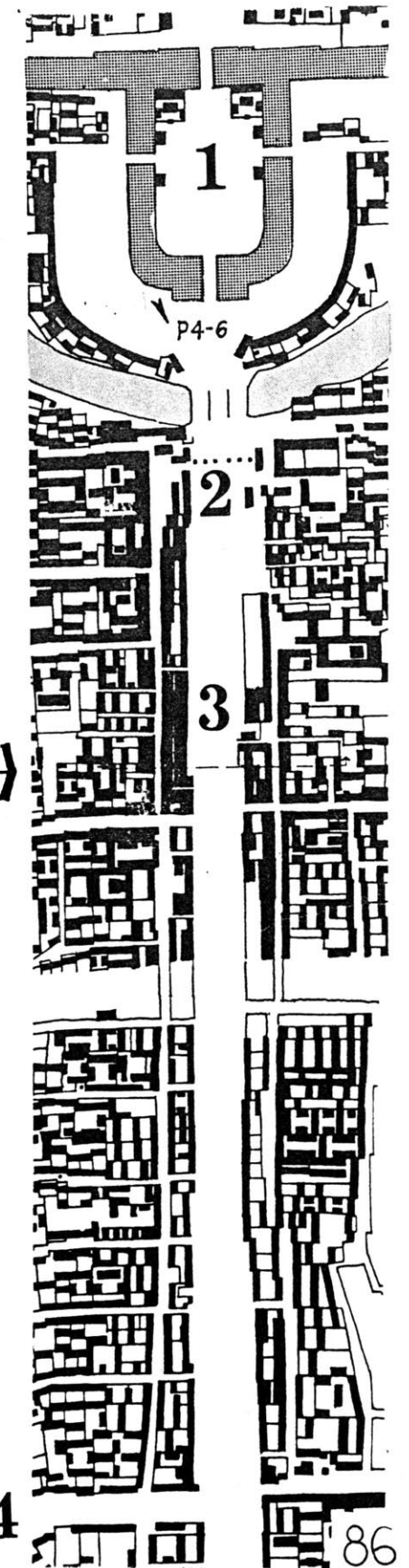
〈五牌樓〉

3. ZHENGYANG MEN DAJIE

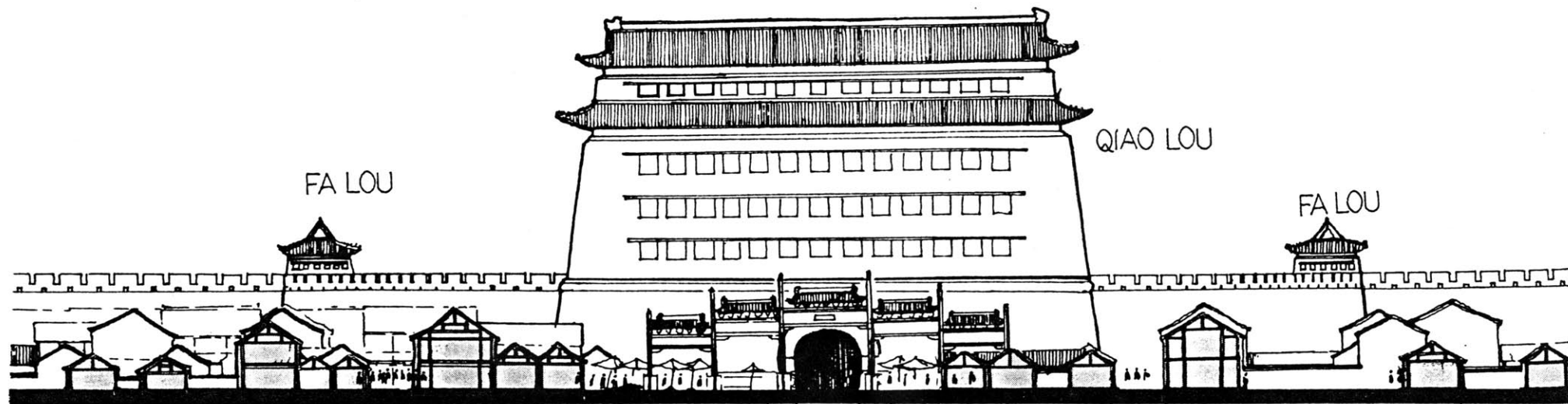
〈正陽門大街〉

4. ZHUSHIKOU XI DAJIE

〈珠市口西大街〉



SECTION "A"



SECTION "A"

正陽門大街

86 M

ZHENGYANG MEN DAJIE

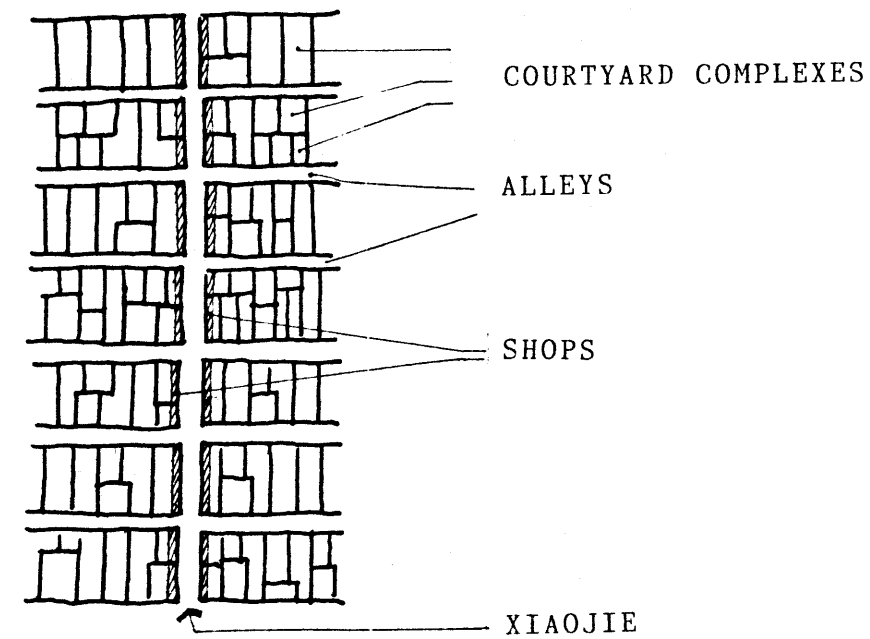
4

86

The shops of "xiaojie" also form continuous rows. But unlike "dajie," the orientation of building complexes on a north-south "xiaojie" were unchanged. In order to have a shop, people only have to convert the wings of their courtyard houses into small shops (4-8). Also, there are very few two-story buildings or double-roof buildings. The width of a "xiaojie" does not allow stalls and tents to be set up on both sides of a street, therefore the vendors on a "xiaojie" usually carry lighter stalls and the activities are less sophisticated (4-9, the location of the street is indicated in MAP 4-4).

The "xiaojies" around the Zhengyang Men area are quite different from others. The prosperity of Zhengyang Men Dajie penetrated into the surrounding "xiaojies" and

XIAOJIE

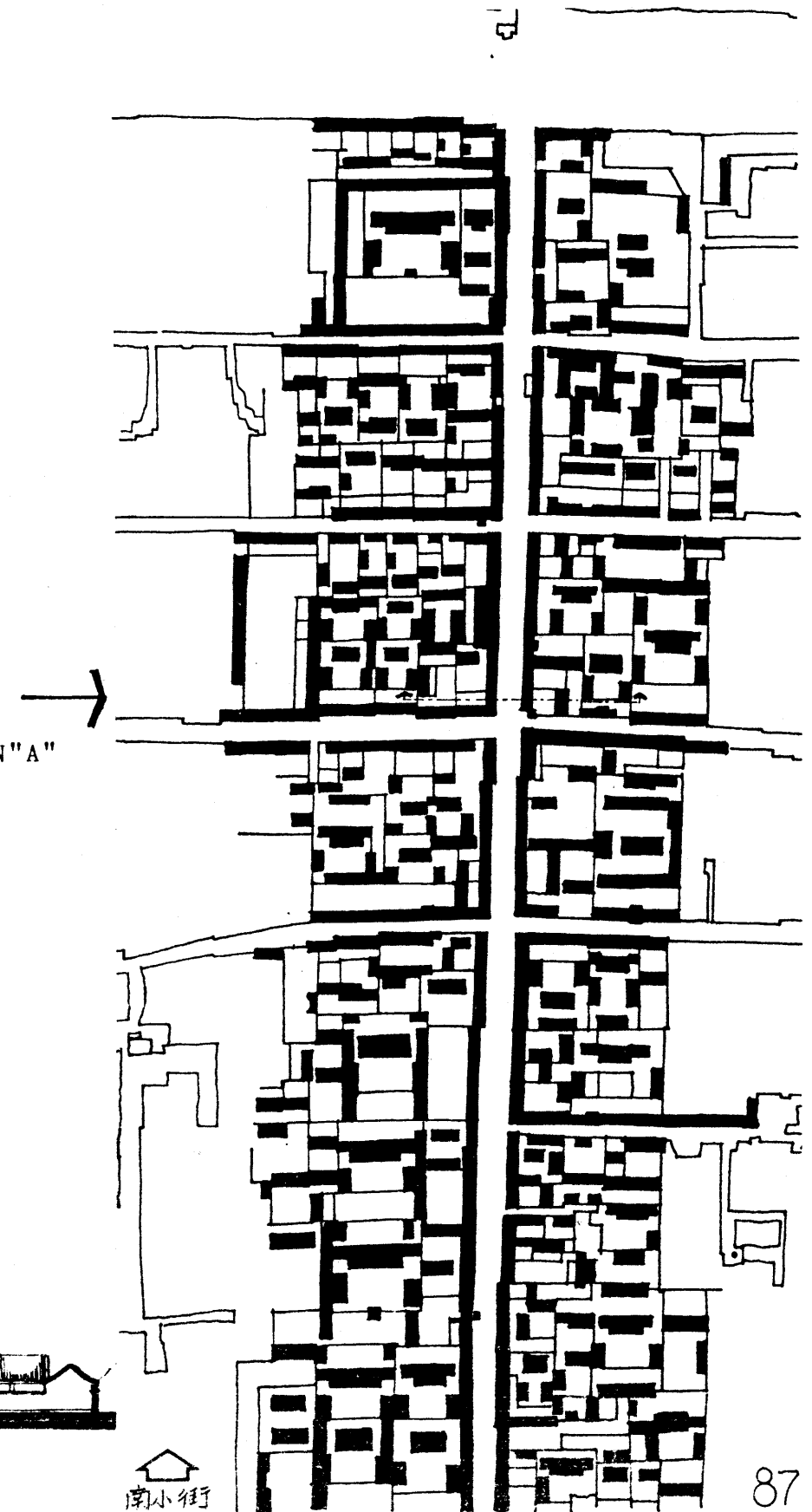


4-8
WINGS OF COURTYARDS
CONVERTED INTO SHOPS

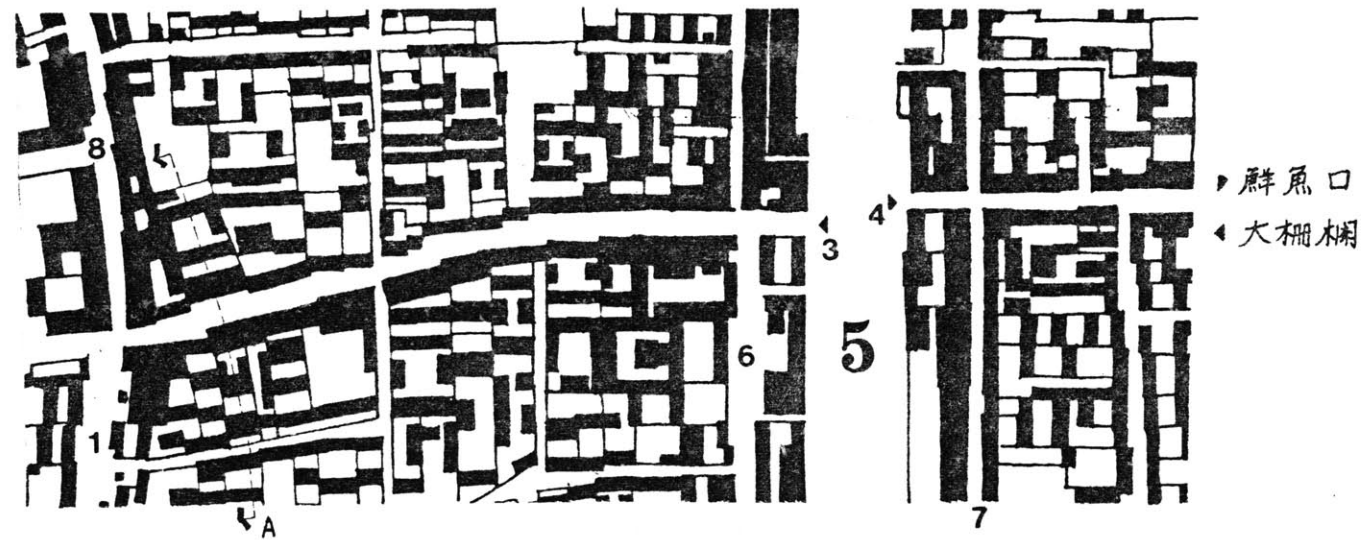
4-9 NANXIAOJIE (南小街)
A TYPICAL XIAOJIE IN INNER CITY



SECTION "A"



"hutongs." For example, Meishi Jie (煤市街) is a north-south "xiaojie" parallel to Zhengyang Men Dajie. The shops on both sides are prosperous enough to cause the conversion of courtyards' directions. Occasionally, there are double- or triple-roof buildings on the front row of a courtyard complex (4-10, the location of street is indicated in MAP 4-5). Another example is the most famous Dasha La (大柵欄). Almost all buildings were two-storey or multi-roof buildings (4-11, The location of the street is indicated in MAP 4-5). The streets are filled with tea houses, hotels, bars and other recreational facilities. The prosperity is the same as in the Zhengyang Men Dajie.



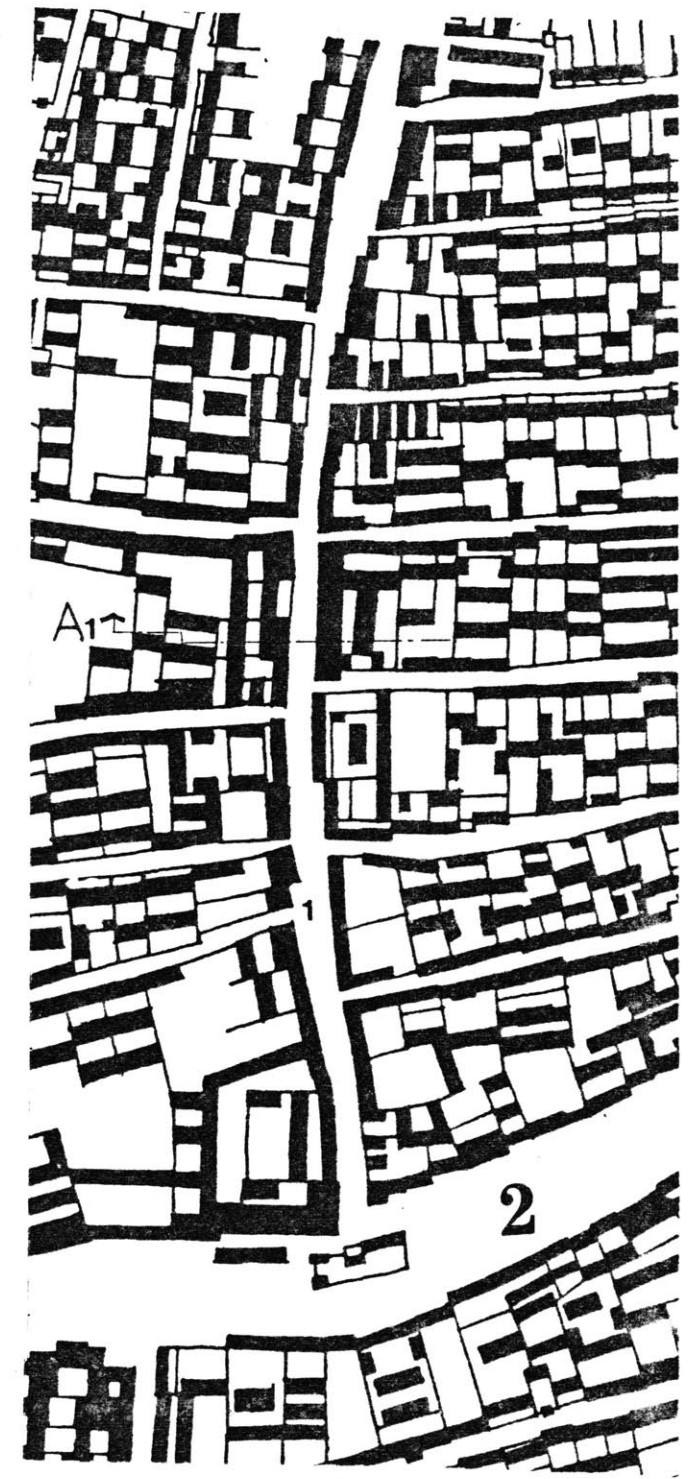
SECTION "A"

11.05M
大柵欄

DA SHALA

4-11

- | | |
|-------------------------|----------|
| 1. NANMEISHI JIE | (南煤市街) |
| 2. XIZHUSHIKOU DAJIE | (西珠市口大街) |
| 3. DASHALA (XIAOJIE) | (大柵欄) |
| 4. XIANGYUKOU (XIAOJIE) | (群魚口) |
| 5. ZHENGYANG MEN DAJIE | (正陽門大街) |
| 6. ZHUSHI | (珠市) |
| 7. ROUSHI | (肉市) |
| 8. BEIMEISHI JIE | (北煤市街) |



4-10 NANMEISHI JIE



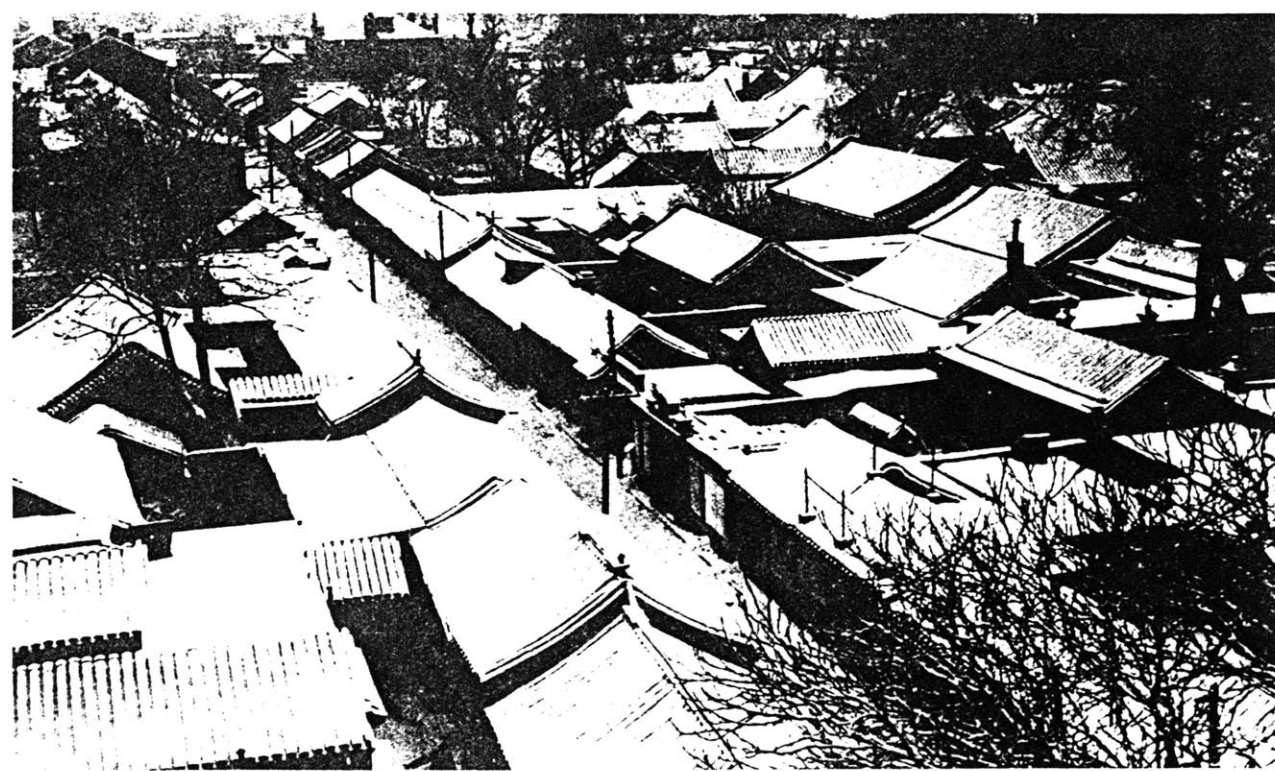
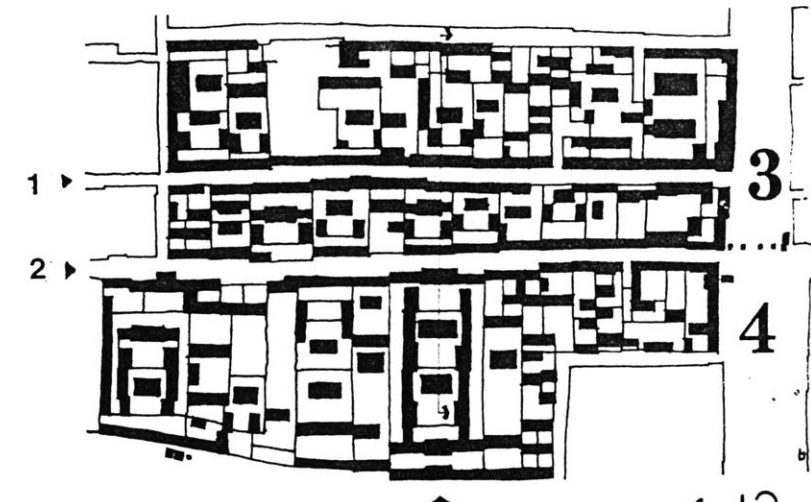
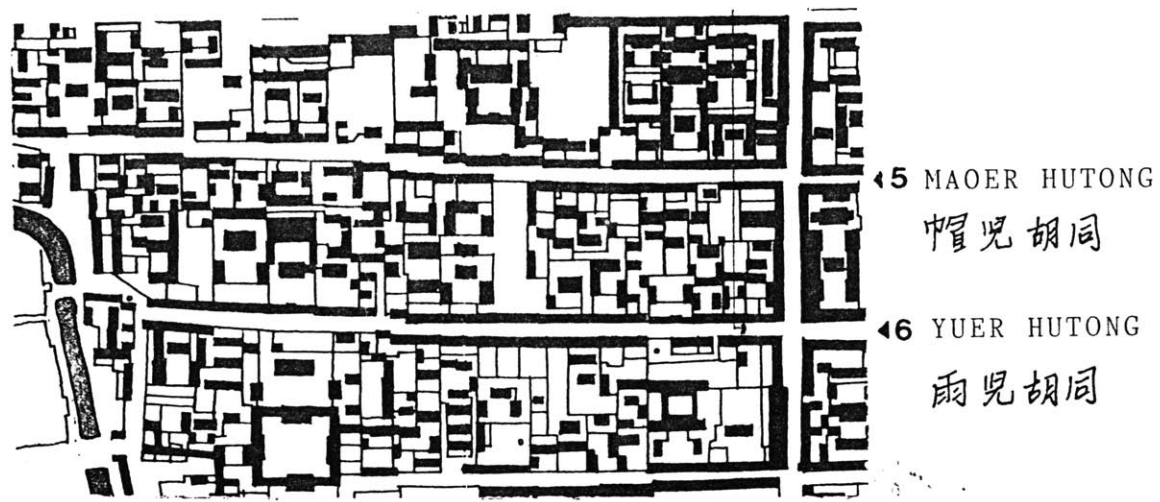
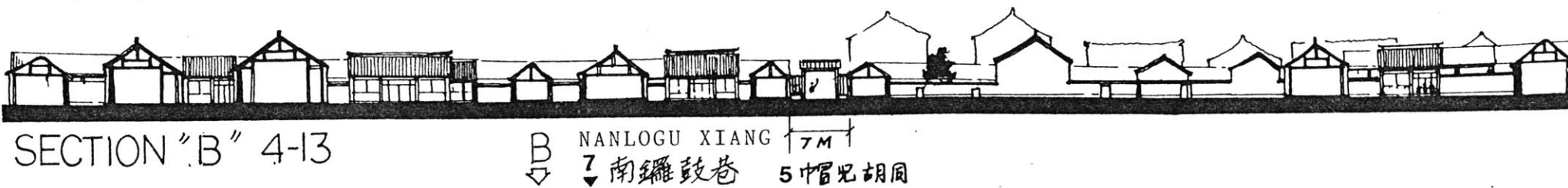
9.0M 南煤市街

SECTION "A1"

MEISHI JIE

HUTONG (胡同)

"Hutong" means alley. The designed width is 6 steps (9.3 M). In the Qienlong period, the width of an "hutong" varied from 6 meters to 10 meters. The distinction between "hutongs" and "xiaojies," especially among the east-west ones, was vague (4-12, 4-13). In the Qing Dynasty, the homogeneous eight-flag social structure replaced the original social structure thus breaking the texture course by the differentiation of rich from poor, and reduced the commercial activities of the Inner City. The distinction between "hutong" and "xiaojie" further diminished. For example, the two "xiaojie" - Xingbu Jie (刑部街) and Bozi Jie (泊子街) in 4-12 and the "hutong" - Maoer Hutong (帽兒胡同) in 4-13 have no evident differentiations. However, Xingbu Jie and Bozi Jie are



- 1. XIANGBU JIE 刑部街
- 2. BAOZI JIE 泊子街
- 3. XIDAN BEI DAJIE 西單北大街
- 4. XUANWU MEN NAI DAJIE 宣武門內大街

P 4-7 A TYPICAL HUTONG OF INNER CITY

HUTONG

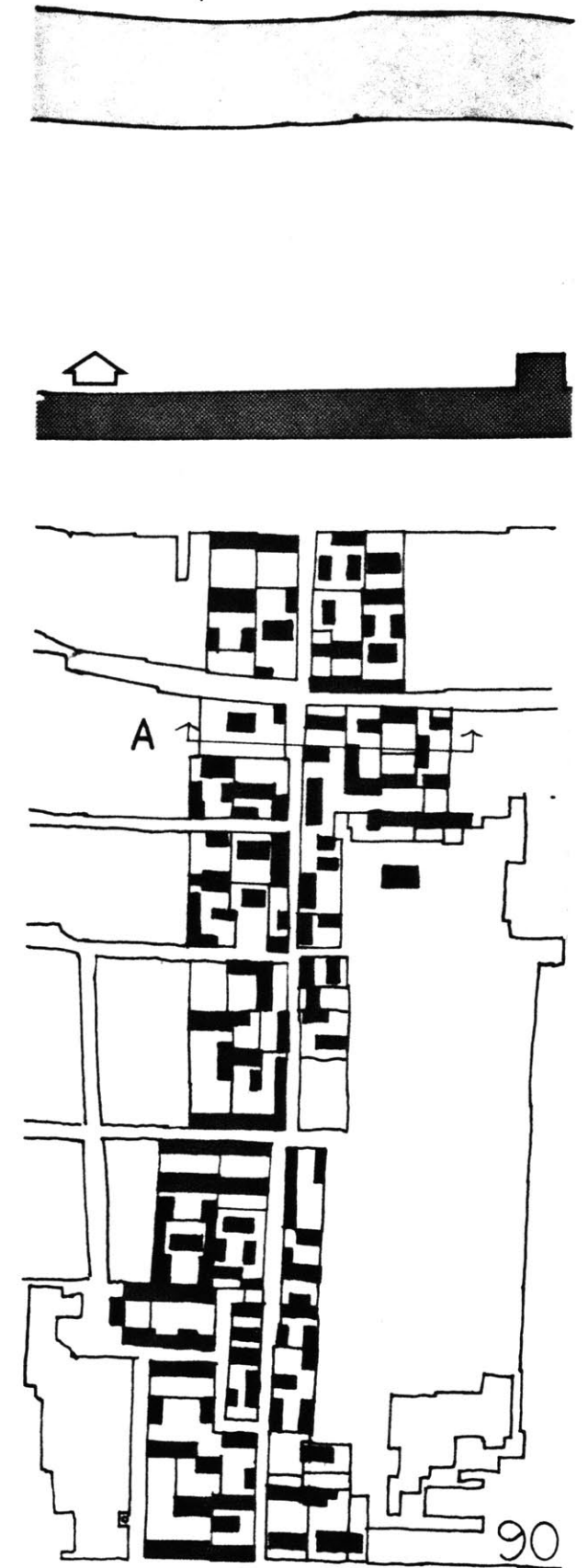
still categorized as "xiaojie" because of importance in the street network, and because of their special position in the historical development of urban structure. (They are the Southern Shunchengjie of Dadu in the Yuan Dynasty.)

In a "hutong" of a residential area, the front-row buildings of courtyard complexes usually faced inward. Only the gate faced outward. Thus the atmosphere is quiet (P 4-7). In a "xiaojie," or a "hutong" in a commercial area, the front row is usually converted into shops, thus the atmosphere and activities are quite busy (P 4-8). Another example is a north-south "hutong" near the Confucious Temple and the northern wall of the Inner City. The difference between this and the north-south "xiaojie" can be recognized from the figure



P4-8 AN ALLEY NEAR DASHALA
A TYPICAL HUTONG IN A COMMERCIAL AREA

4-14 A NORTH-SOUTH HUTONG ON THE NORTH PART OF INNER CITY



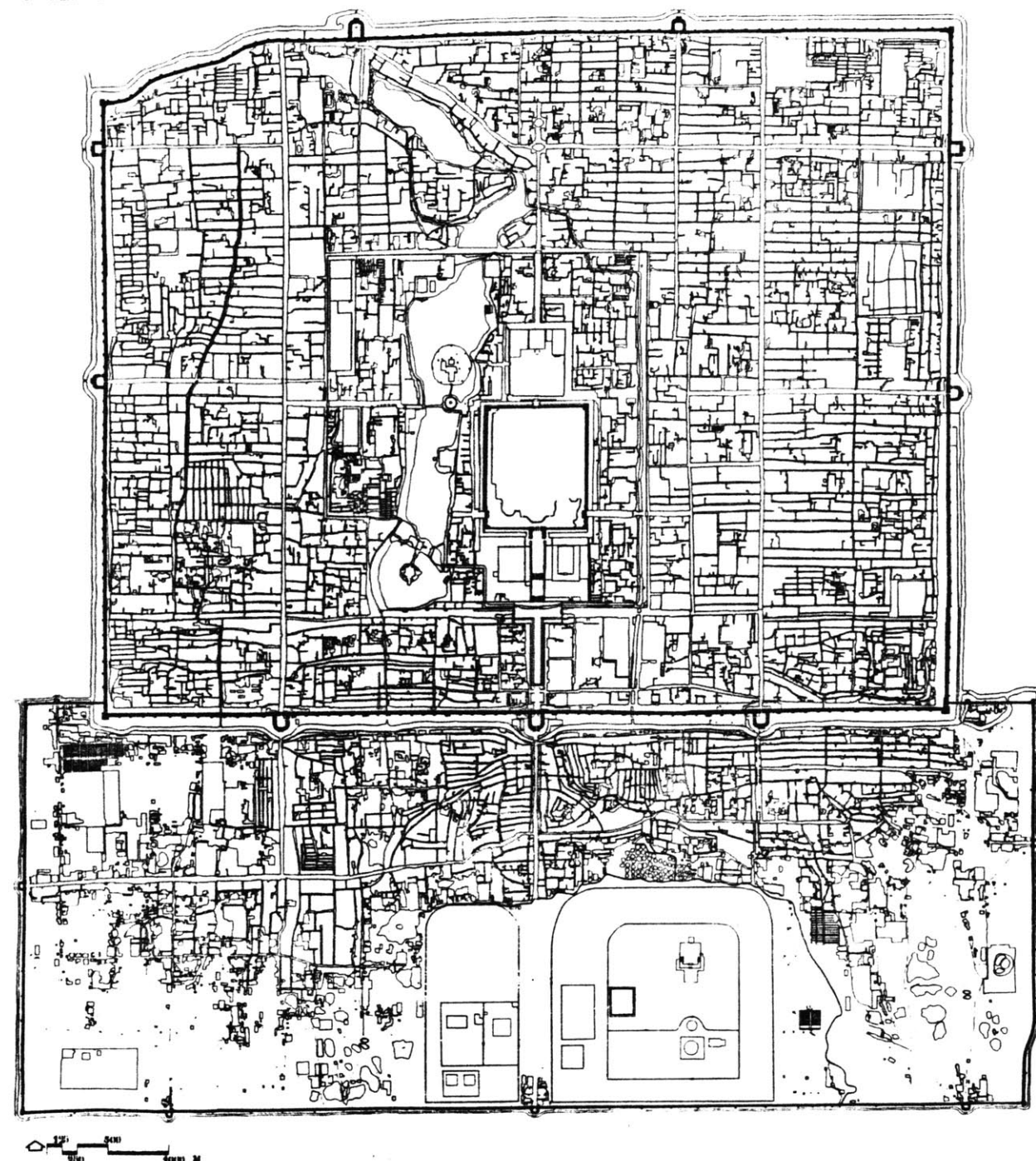
ground plan (4-14, 4-9). In a "xiaojie," the wing houses are continuous along the street. while in a "hutong" the wing houses appear only casually.

STREET NETWORK

SECTION 2

In the previous section we looked at the individual street. Here we look at streets as a structural whole. Still, we are not going to talk about the patterns of alleys too much, because the topic is more related to another level of study -- urban tissue.

Compared with some patterns of alleys, this network is stable. It rarely changed even in a long time-frame. The stability is based on the restricted control of street appearance by the government. Also, the interruption of a street network usually requires an enormous and expensive change of infrastructure, which discourages the governments to do so.

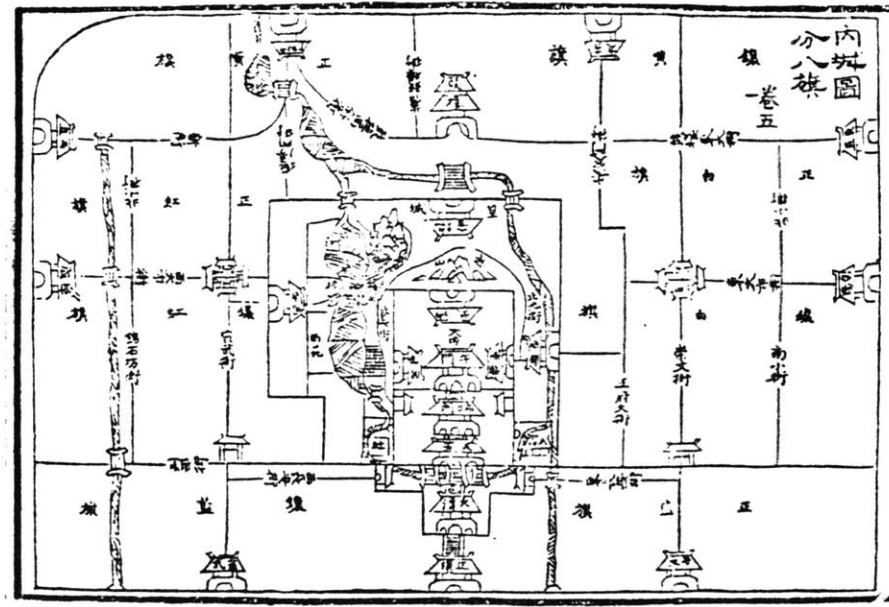


MAP 4-1 STREET SYSTEM OF BEIJING
INCLUDE ALL THE STREETS AND ALLEYS

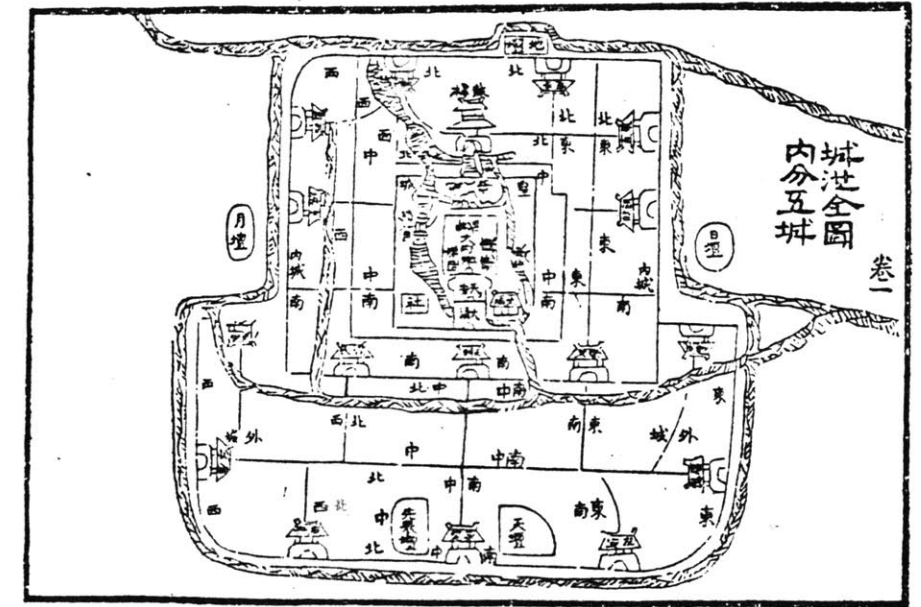
The idea of street network is not new at all. In a book - "Chen Huan shi lue" (宸垣識略) published in 1788, there is a series of maps showing the street networks of the Imperial City, Inner City and Outer City of Beijing (MAP 4-2) as well as patterns of alleys for all districts of the city. The idea of street network in my description is the same as in this old document. However, the author classifies the streets into three levels based on the previous section.

STREET NETWORK OF IMPERIAL CITY

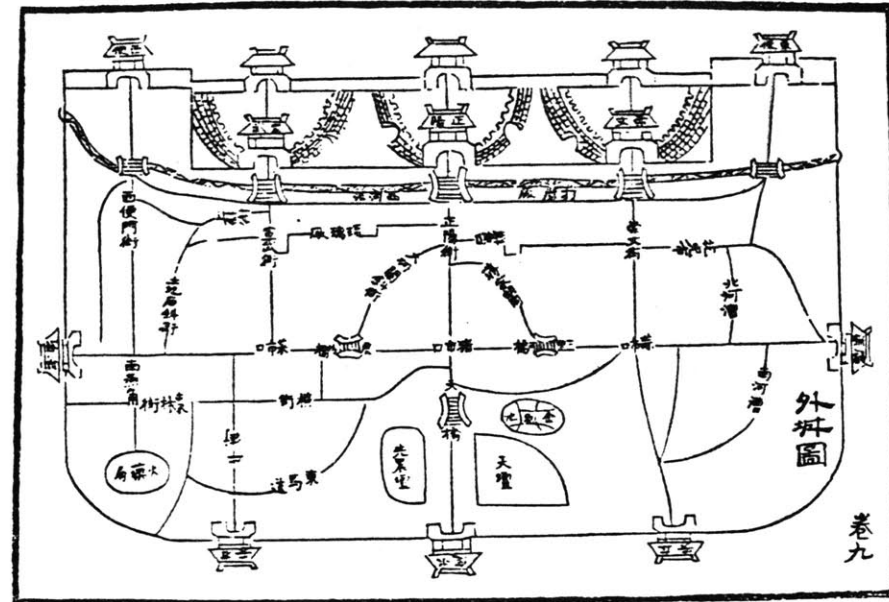
The street network of the Imperial City was established in the Ming Dynasty. At that time people were not allowed to reside in the Imperial City. The city was occupied by palaces, Imperial Gardens and imperial service workshops. The street



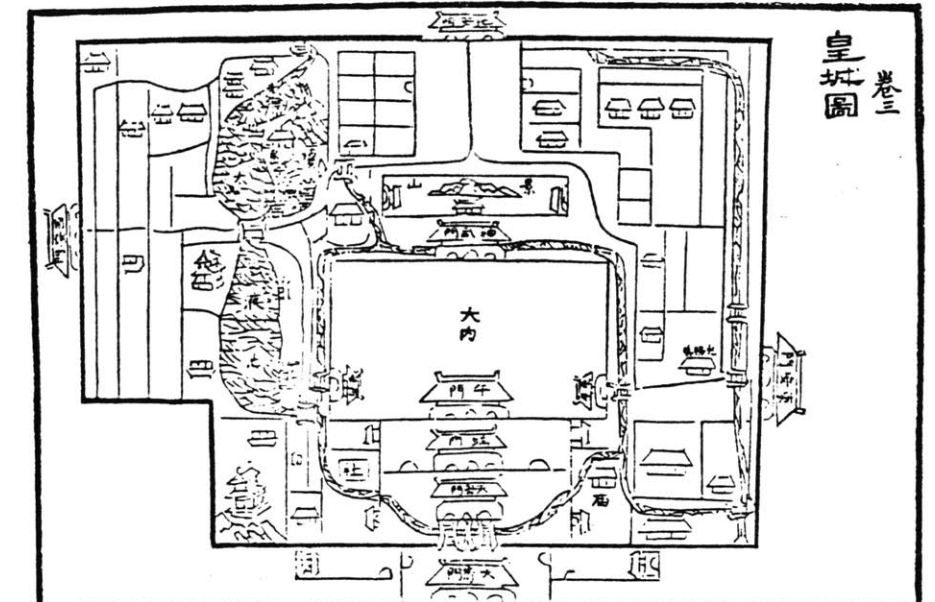
STREET NETWORK OF INNER CITY



GENERAL MAP SHOWING THE WHOLE CITY

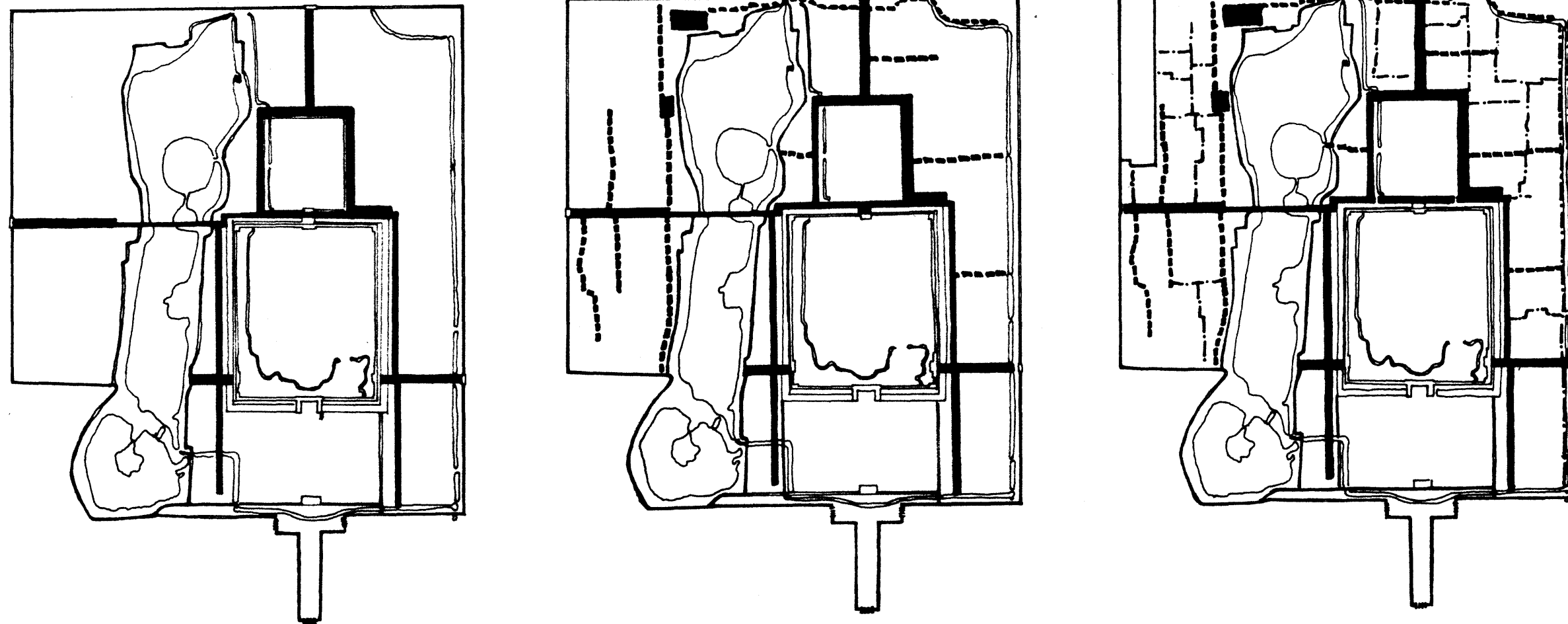


STREET NETWORK OF OUTER CITY



STREET NETWORK OF IMPERIAL CITY

MAP 4-2 MAPS FROM "CHEN HUAN SHI LUE" (宸垣識略 1788)



STREET NETWORK OF IMPERIAL CITY

network of the Imperial City was set up for these institutions. In the Qing Dynasty, Chiren (旗人) were allowed to build houses in the Imperial City, thus people developed lower level streets under Ming Dynasty structure.

The general characteristic of

the street network of the Imperial City is hierarchical. The first level streets are the streets surrounding the Palace City and Mei Shan (煤山), and those leading to the north, west, and east gates of the Imperial City. The second level streets connect with one of the first level streets

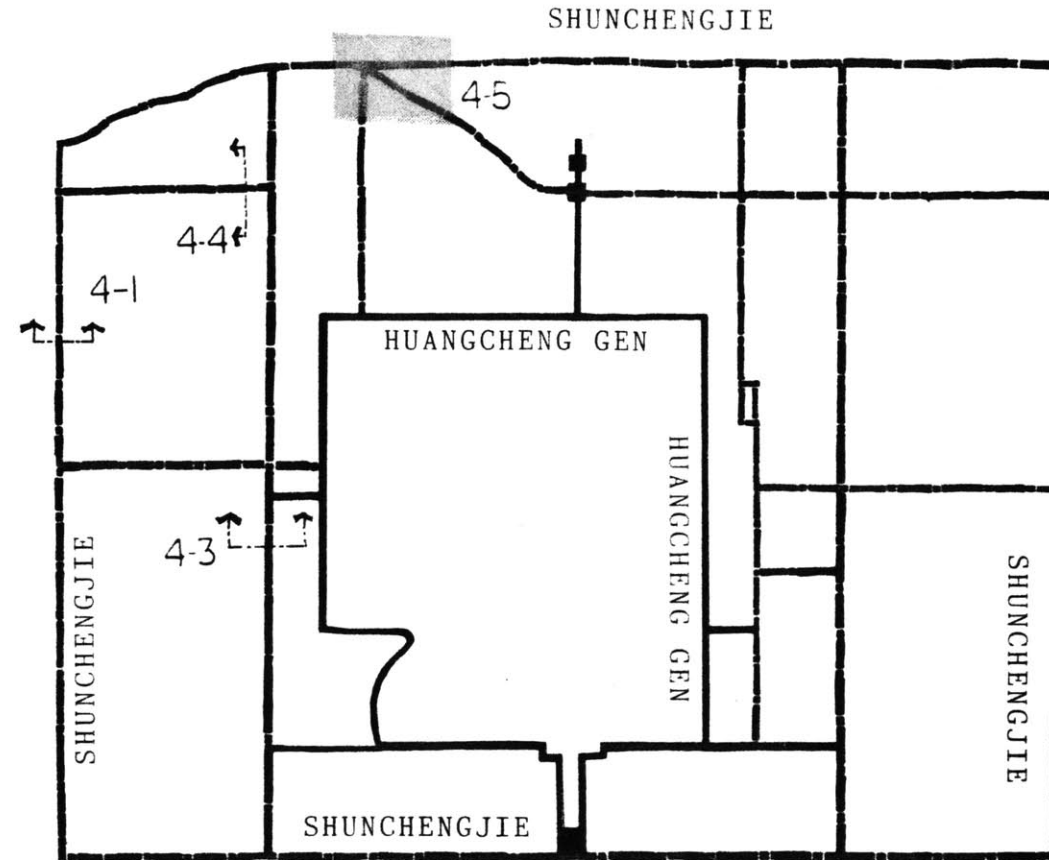
perpendicularly. And the third level streets again connect with one second level street, thus the network is like a tree with a few limbs. One part is separated from the other parts (MAP 4-3).

STREET NETWORK OF INNER CITY

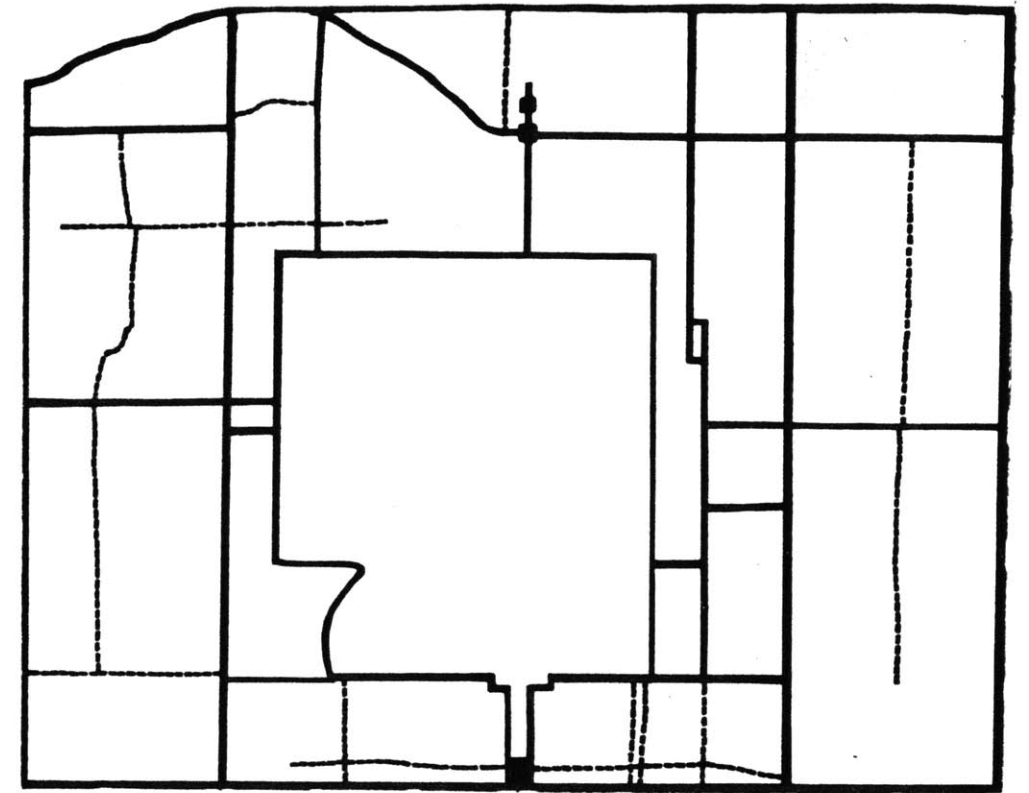
The streets of Inner City are also classified into three levels. The first level combines two systems. One is the "shunchengjie" and "dajie" leading to the gates of Inner City. The other system is "dajies" coming out from gates of the Imperial City and the Huang Cheng Gen (皇城根) - streets surrounding the Imperial City walls (A in MAP 4-4).

Basically, the "dajie" of Inner City penetrates through the whole Inner City, while the "dajie" coming out from the Imperial City stops at the next perpendicular "dajie" (MAP 4-4)

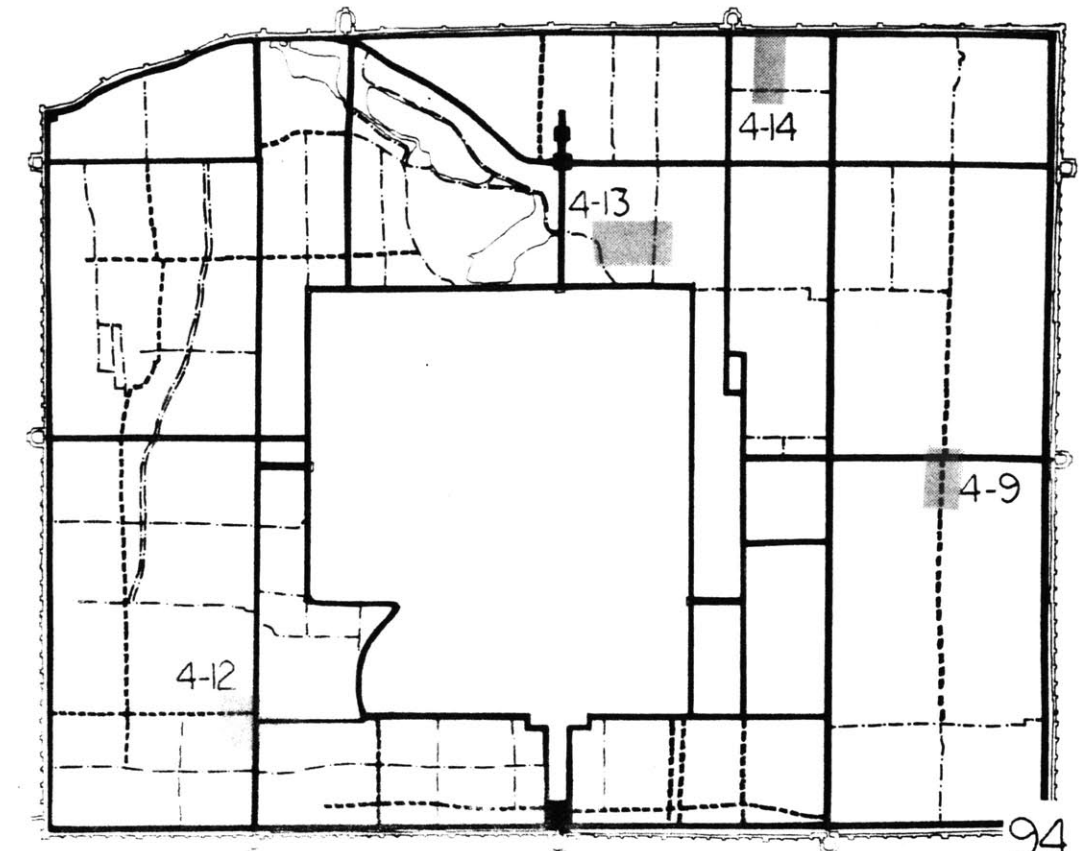
The joints of these "dajies" are important to the transportation of the city, and thus become activity nodes. As we can see in the next section, most of the markets are located at these joints.



MAP 4-4



STREET NETWORK OF INNER CITY



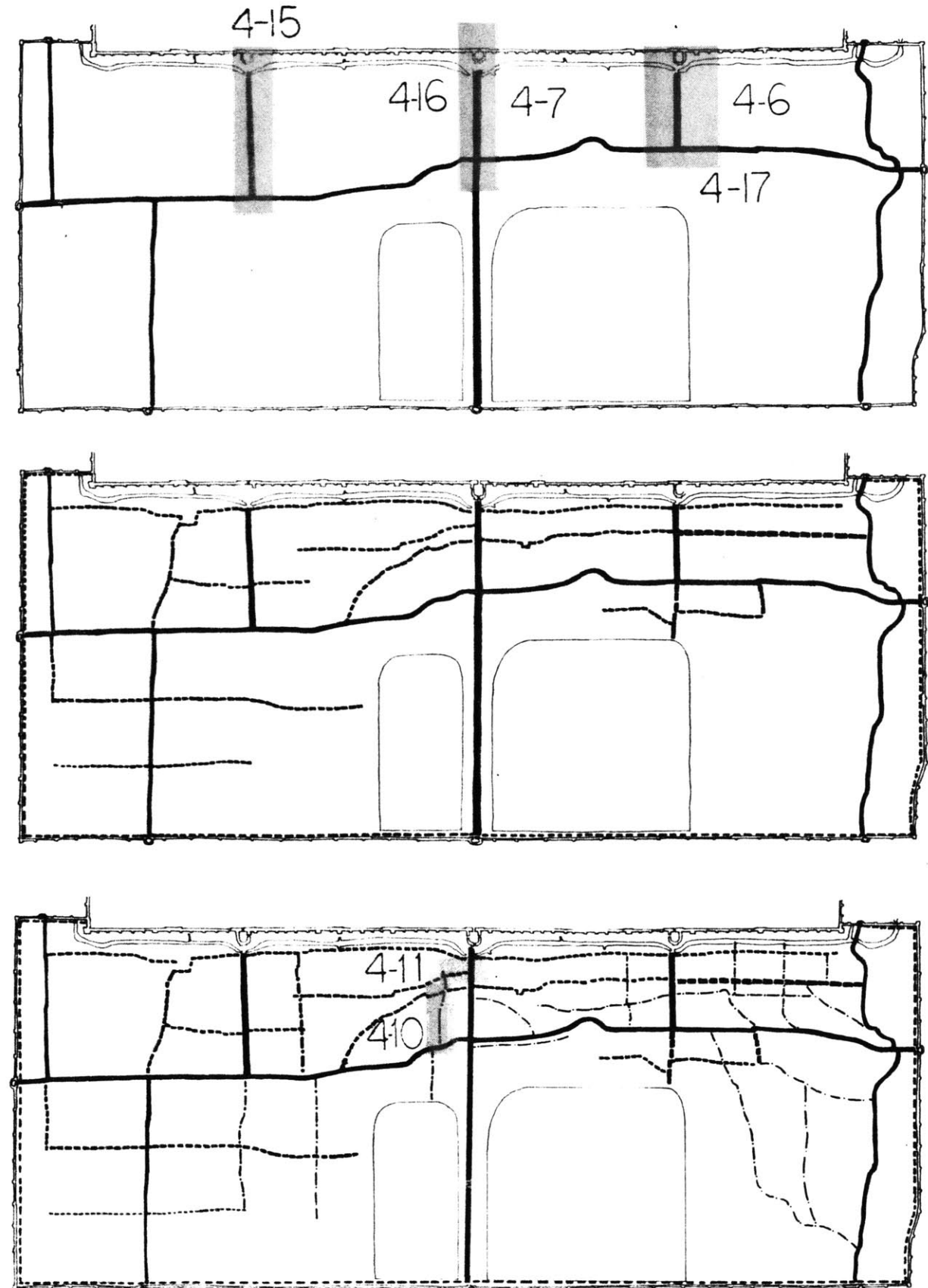
Streets of the other two levels are filled into blocks defined by "dajies" to form a grid system. The infilled "xiaojie" and are much more crowded on the western half than on the east, because on the western side there are more lakes and canals that disturb the ideal pattern of the east-west alleys system so that only a few streets are able to penetrate through these canals thus distinguish their positions. Besides, due to the results of historical development, the western side have more variations on patterns of alleys thus the ones that remains their positions become important (MAP 4-4).

STREET NETWORK OF OUTER CITY

MAP
4-5

The organizational principle of first-level streets of the Outer City is the same as that of Inner City ("shungchengjie" + "dajies" lead to the gates). An east-west "dajie" goes through the middle of the Outer City from the west gate to the east gate. All the other "dajies" join this street perpendicularly.

The streets in this level integrate the Outer City into a whole. However, the Outer City is composed of different parts with different street patterns. When we fill in the streets of the other two levels step by step, We discover the differences of the street pattern developed from the past history of Beijing.



STREET NETWORK OF OUTER CITY

For example, to the east of the altar of agriculture (先農壇) is the street network developed for Zhongdu of the Jin Dynasty. Outside Chongwen Men is the area planned in the Early Ming Dynasty used as wood workshops for the construction of the Palace City. While some other areas are just the same as rural areas outside the city (MAP 4-5).

USES OF STREET

SECTION 3

Although I use the term "uses of streets," I really mean to describe the relationship between uses and form of streets. Also in my own considerations some of the lower "level" elements such as street furniture are part of the contents of urban form.

This section will be organized in three parts. The first part is a description of general uses of

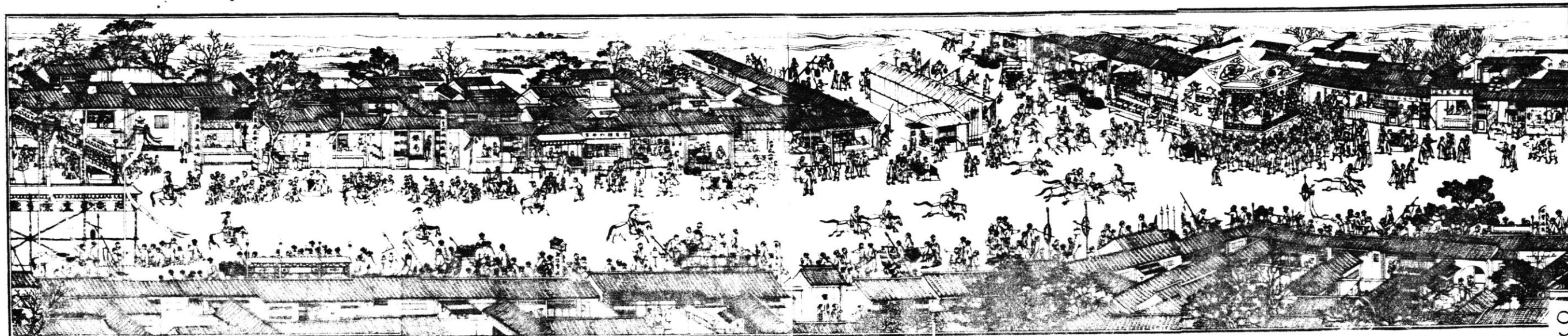
streets and alleys, such as transportation and other activities on street. The second part is about the relationship of markets and streets. The third part is about how temple festivals and temple markets relate to streets and how these temples are part of the system of urban spaces.

萬壽盛典圖 (一七一二)

PART OF "WAN SHOU SHENG DIAN TU" (1712)

A long picture describes the inspection tour of Emperor Kangxi from Yuanming Yuan to Beijing in his The forearm of the emperor's security guard just come to this part of Beijing --Xinjie Kao. Some of the ranking officials already kneel down to wait for the coming emperor.

P4-9

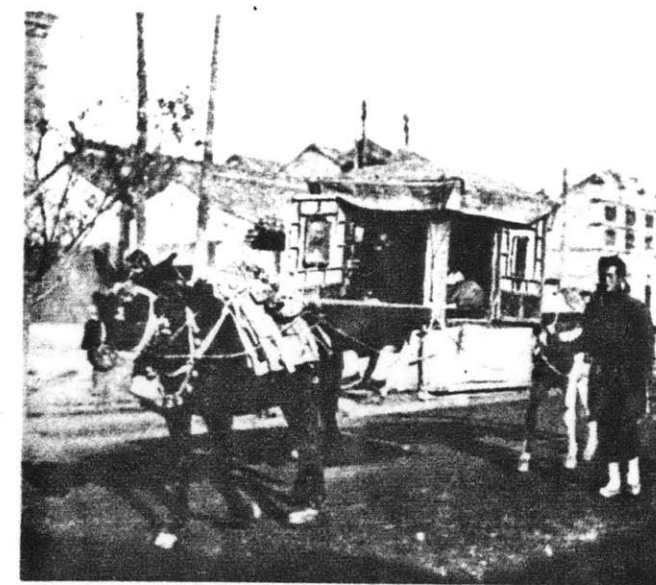




P 4-10 A CAMEL BOY



P 4-11 A CARRIAGE ON A DAJIE



P 4-12 A DONKEY SEDAN



P 4-13

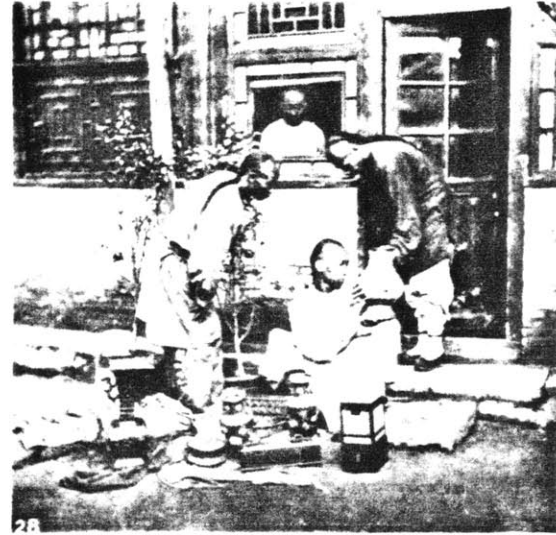
A GROUP OF DONKEYS
COMING TO BEIJING

The background is a
renovated gate of
Outer City, and the
street the donkey
coming to is a
shungcheng jie of
Outer City.



P 4-14

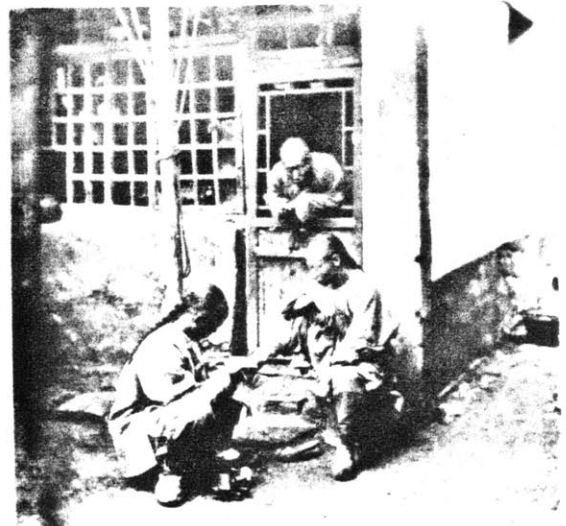
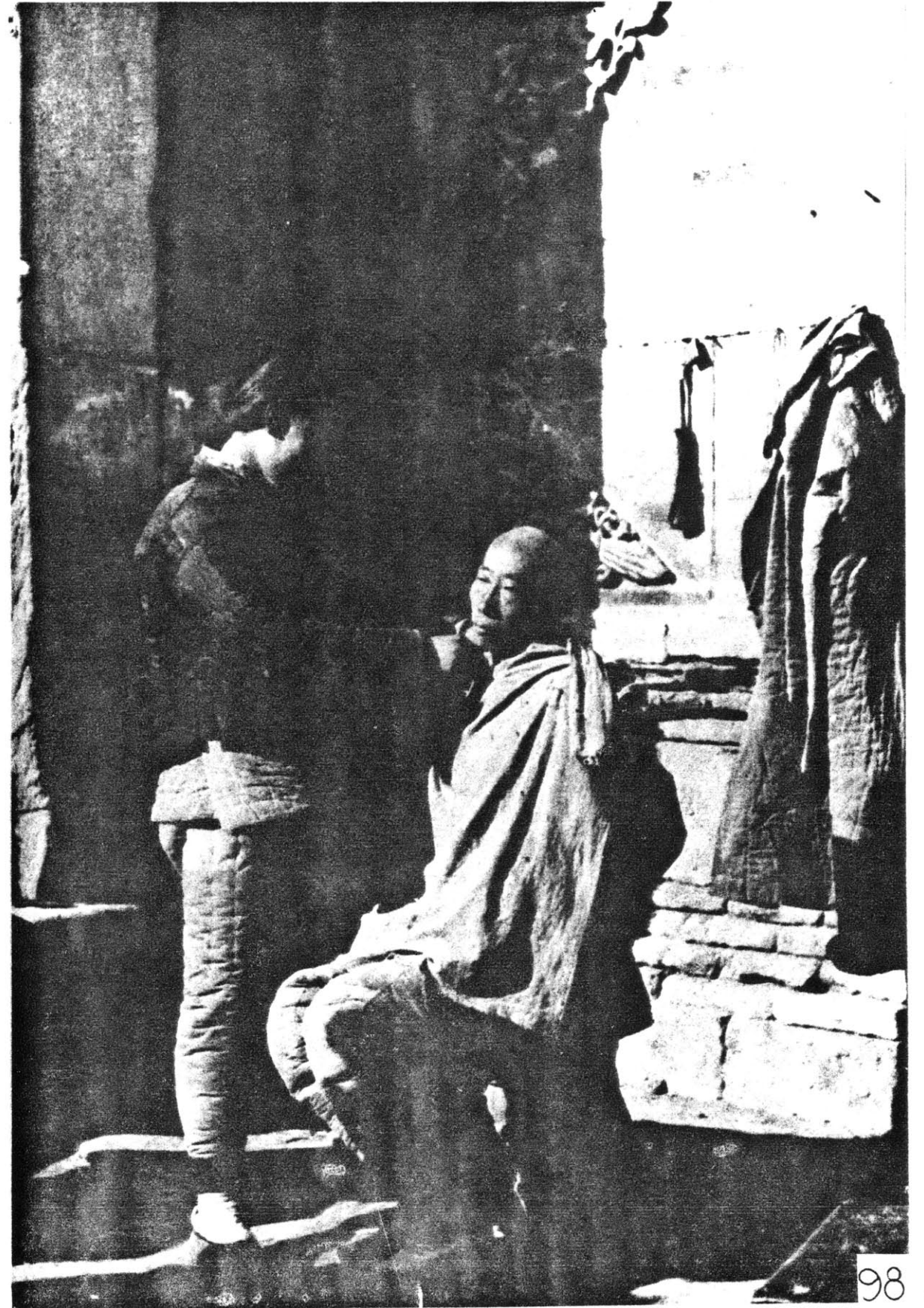
A FRUIT VENDER



P 4-15

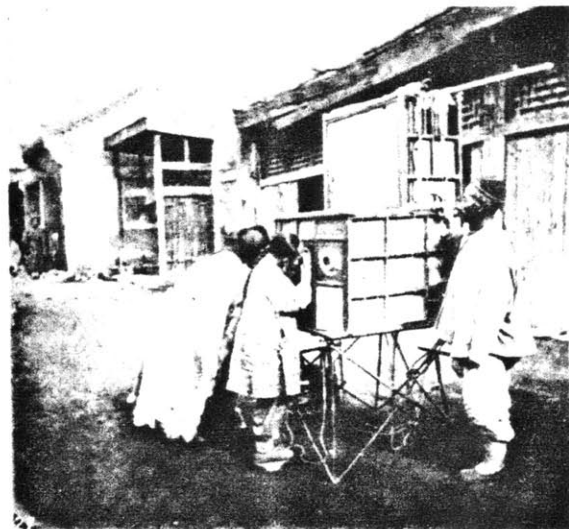
AN ANTIQUE DEALER

P 4-18
STREET BARBER



P 4-16

A PERSON PROVIDING THE
SERVICE OF PAIRING TOE
NAILS



P 4-17

OLD FASHION MOVIES

GENERAL USES OF STREET

1. TRANSPORTATIONS

Transportation is only one of the uses of streets in Beijing. When we ask the reason why the wide streets in Beijing are 40 M, it is impossible to answer this unless we also consider the uses of streets other than transportation. However, transportation is the first thing we should discuss considering the uses of streets.

The only occasions when the full size of the wide streets were used were the Imperial Inspection Tours. The imperial sedan chairs or carriages were much bigger than regular ones, and were also surrounded and followed by a great deal of entourages and security guards. Also, in an Imperial Inspection Tour many ranking officials had to kneel down on both sides of the street. Usually, there would be a street curfew to clear the

street for these occasions. However, in the pictorial material shown here, the occasion is the sixtieth birthday of the Emperor Kangxi, and the streets were open to the public without curfew for the celebrations. The vanguard of Imperial Security Guards have just passed through the area, and some of the officials have started to kneel down (P 4-9).

Normally people use donkeys, donkey carts, carriages, sedans, sedan chairs and monocycle carts to transport people and goods within the city, and use camels, donkeys, horses, carriages, and donkey carts for out of city trips. The volume of transportation is relatively small compared with the width of the street (P 4-10, P 4-11, P 4-12, P 4-13).

P 4-19

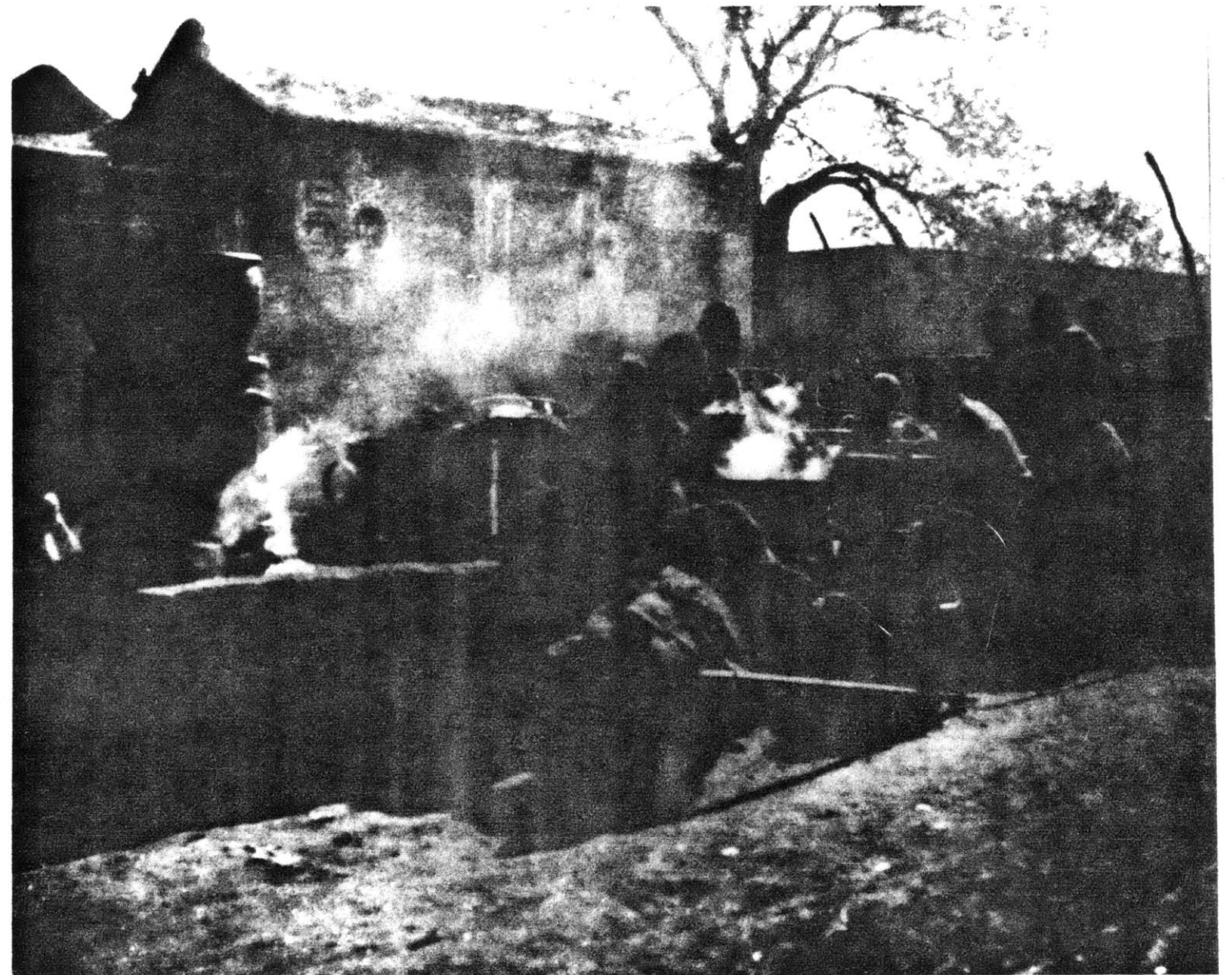


▶ AN ELDER IS EATING ON AN EATERY'S STALL



P 4-20
A FRUIT VENDER

He carries fruit baskets with a shoulder pole, thus he can move around streets and alleys freely.



P 4-22 FIXED EATERY IN THE CITY



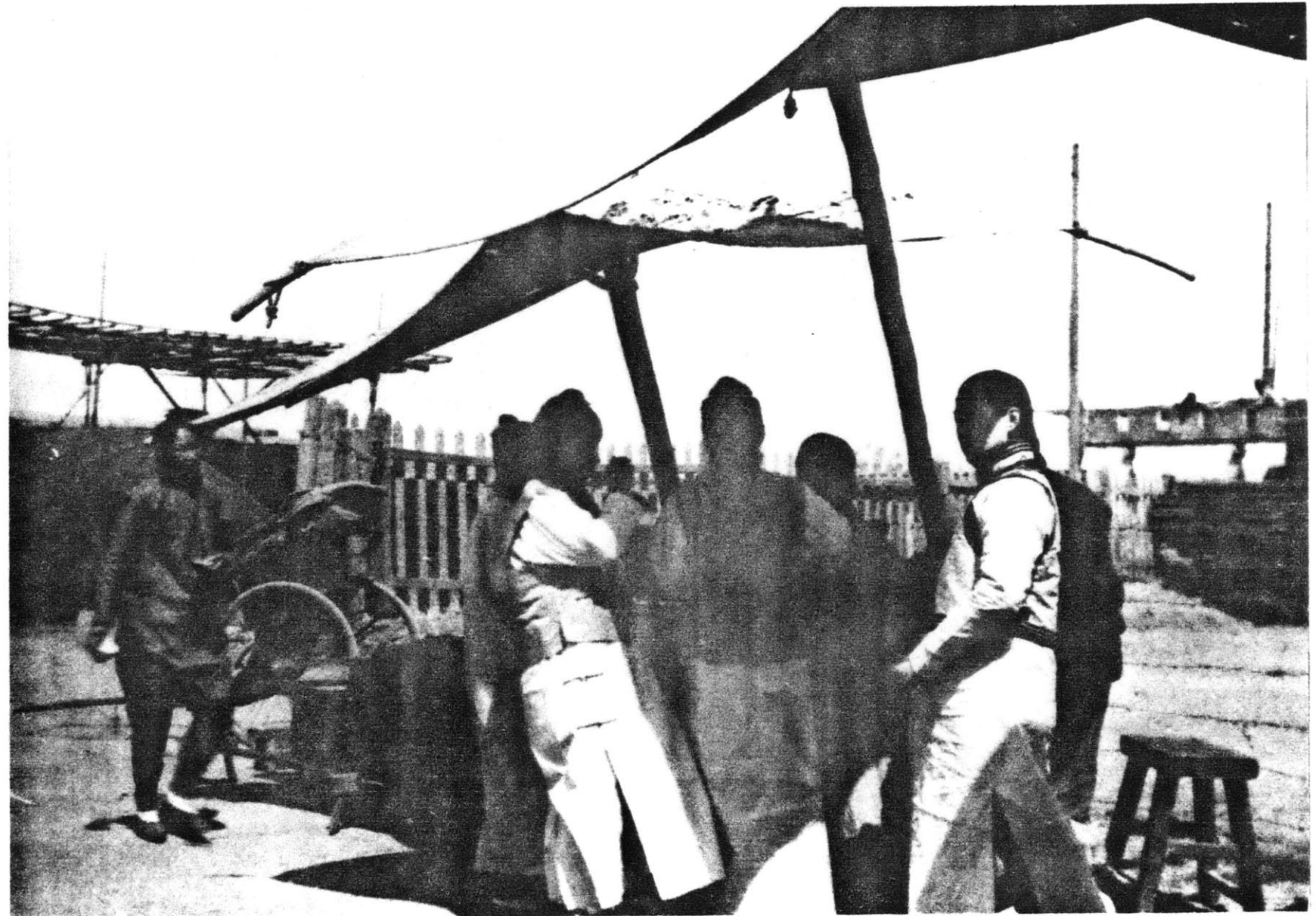
P 4-21

AN EATERY OUTSIDE THE OUTER CITY

2. VENDORS

The vendors were very important characters in the street of Beijing. We can find different kinds of vendors on every corner of open space of the city. Some of the vendors settled in a particular place and to wait for the customers to come (P 4-21, P 4-22, P 4-23). The others wandered around streets and alleys (P 4-14, P 4-19, P 4-20). Some vendors sold goods and products and others provided to door such as cutting hair and paring toe nails and so forth (P 4-15, P 4-16). Sometimes, a vendor provides special performances to attract the attention of people in order to sell their products (P 4-17). Commonly, vendors sell food, drinks, fruits, and daily usages.

The mobility of these vendors providing door to door service



P 4-23

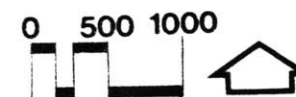
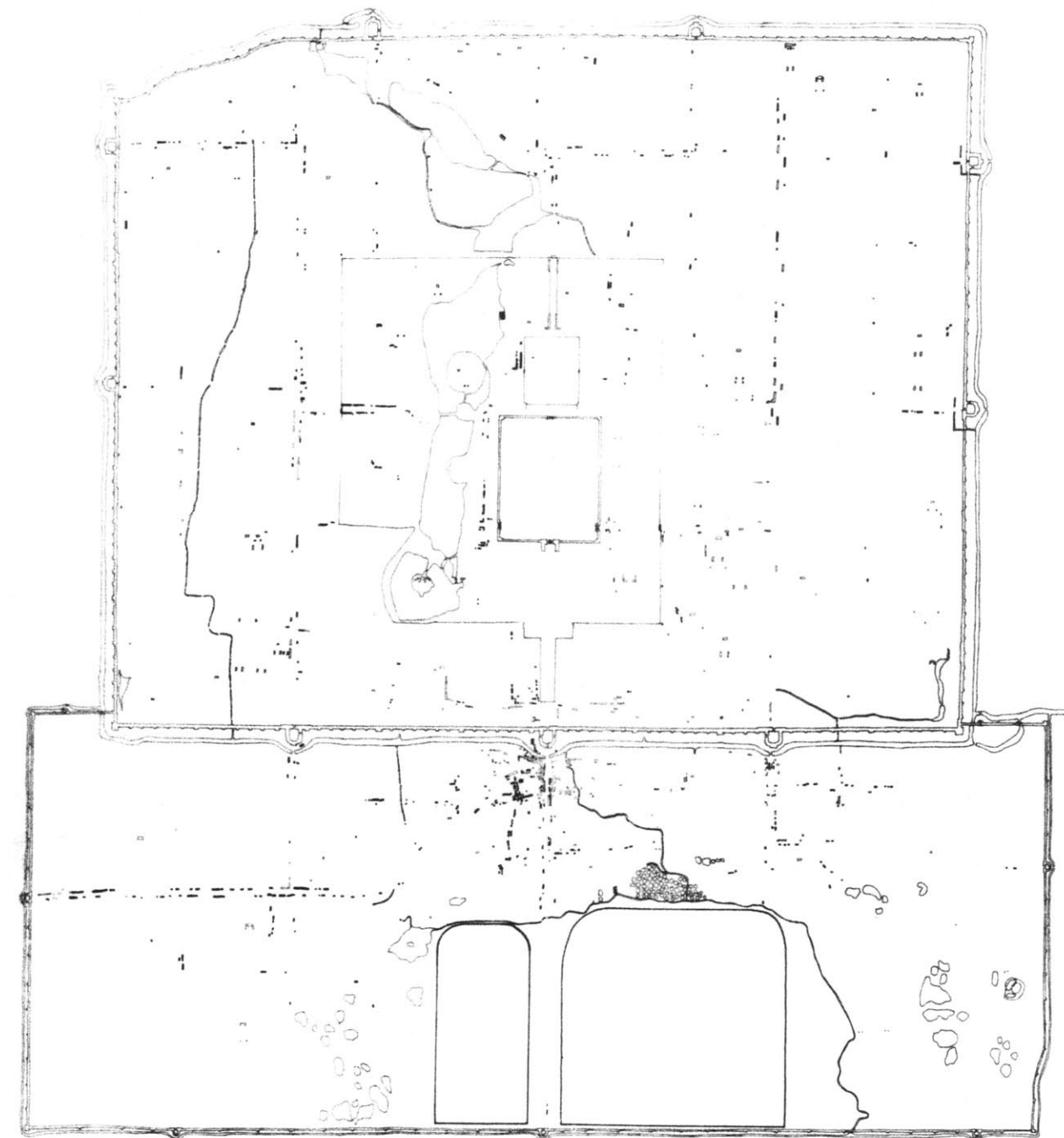
Manchurian women are eating in front of a semi permanent eatery. A semi-permanent stall is usually a two-wheel cart carrying all the stuffs needed such as tents, umbrellas, stools, stoves, plates and everything. Although the cart can move from one place to another a vender usually keeps his cart in a certain place to catch certain groups of people.

made it possible for city dwellers to shop without leaving their houses. This was particularly convenient for women and children because they need not leave their neighborhood.

MARKETS AND STREETS OF BEIJING

In earlier Chinese cities such as Changan (長安) of Tang Dynasty, the market in the city is separated and distinguished from other wards. It is enclosed by walls, and opened only on certain hours in a day. The purpose of this was to restrict commercial activities and to make the tax collection easier. In the Qing Dynasty, the early market style changed. There were no separate settings for markets. The notion markets in the Qing Dynasty was segments of street where commercial activities were more concentrated than other place.

In order to discover the locations of markets the author collected information from both literal documents and "The Complete Map of Beijing." Two different methods were used in collecting information. One is



TWO-STORY BUILDINGS
 MULTI-ROOFS BUILDINGS
 CITY WALL



MAP 4-6 DISTRIBUTION OF TWO-STORY & MULTI ROOFS

to identify all the two-story buildings and multi-roof buildings (1-2). These two building types are specially adjusted for commercial use, therefore they can be considered as indicators of commercial intensity (MAP 4-6). Besides, based on "The Complete Map of Beijing" and other contemporary maps and records, the author defined all the streets and alleys using the character- shi (市, market)- in their names. Combining these two pieces of information we can locate market areas in the city. There were 13 markets in the Inner City and 8 markets in the Outer City. One common physical characteristic of these markets is that they were located on the streets crosses or close to a gate (MAP 4-7).

Shops are much more concentrated in markets than in other areas.

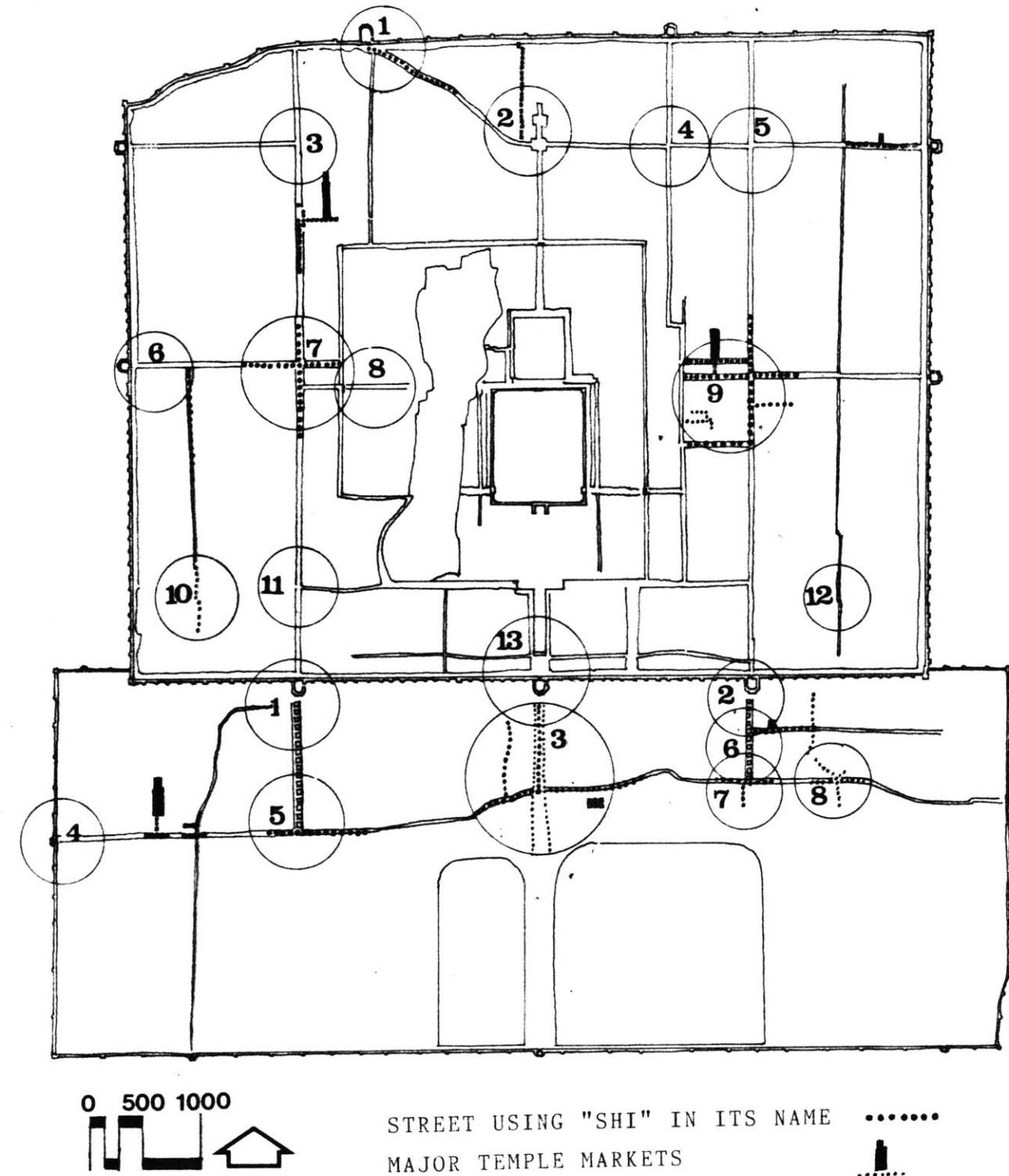
MARKETS

INNER CITY

- | | |
|---------------------------------|------|
| 1. DESHENG MEN | 德勝門 |
| 2. ZHONG GUO LOU | 鐘鼓樓 |
| 3. XINJIE KOU | 新街口 |
| 4. JIAODAO KOU | 交道口 |
| 5. BEIXIN QIAO | 北新橋 |
| 6. FUCHENG MEN | 阜城門 |
| 7. XI SIPAILOU | 西四牌樓 |
| 8. XIAN MEN | 西安門 |
| 9. DONG SIPAILOU | 東四牌樓 |
| 10. NAOSHI KOU | 鬧市口 |
| 11. XI DANPAILOU | 西單牌樓 |
| 12. NAOSHI KOU (the same as 10) | 鬧市口 |
| 13. CHIPAN JIE | 棋盤街 |

OUTER CITY

- | | |
|-------------------------------|-----------|
| 1. XUANWU MEN | 宣武門 |
| 2. CHONGWEN MEN | 崇文門 |
| 3. ZHENGYANG MEN - ZHUSHI KOU | 正陽門 - 珠市口 |
| 4. GUANGNING MEN | 廣寧門 |
| 5. CAISHI KOU | 菜市口 |
| 6. HUASHI KOU | 花市口 |
| 7. SHUNSHI KOU | 蒜市口 |
| 8. XIMI KOU | 細米口 |

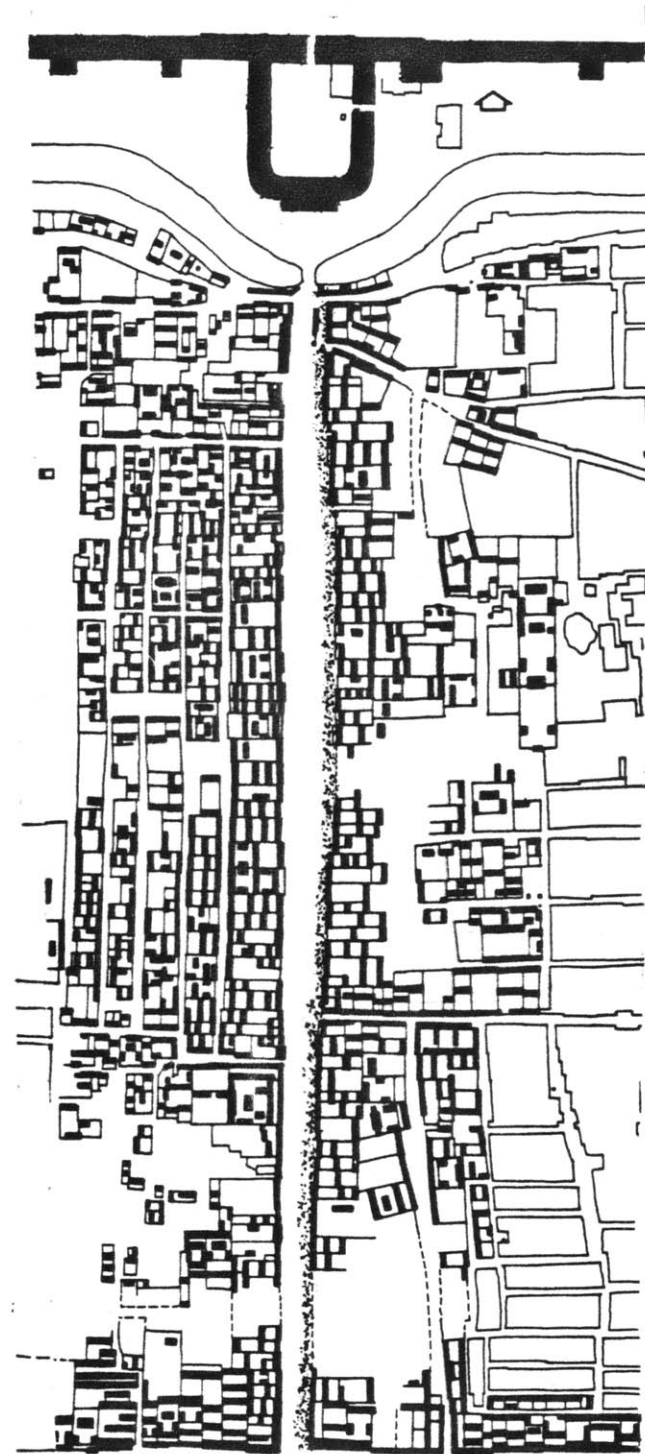


MAP 4-7 MARKET LOCATIONS (1750)

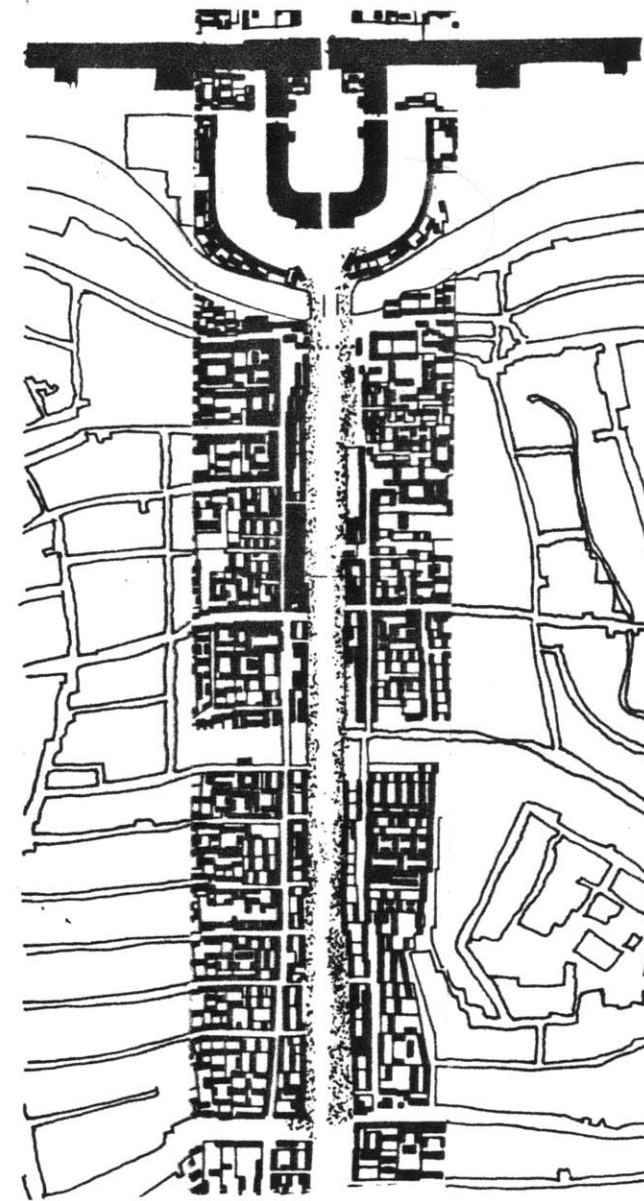
However, they are not the only type of business in markets. In the front of these regular shops, stalls line up to form a small street in between. These temporary street are the basic form of the market. In these small streets, it is usually very crowded on regular market hours (P 4-5, P 4-7).

These markets opened from 9 o'clock in the morning and dismissed at dusk. Besides these regular markets, there were markets open on special hours. Those opened in the early morning are xiaoshi (晓市, dawn market). Those open during the night were yeshi (夜市, night market). After midnight, there was a guishi (鬼市, ghost's market).

In the Qienlong period of Qing Dynasty, two dawn market are found in the 1788 text - Cen



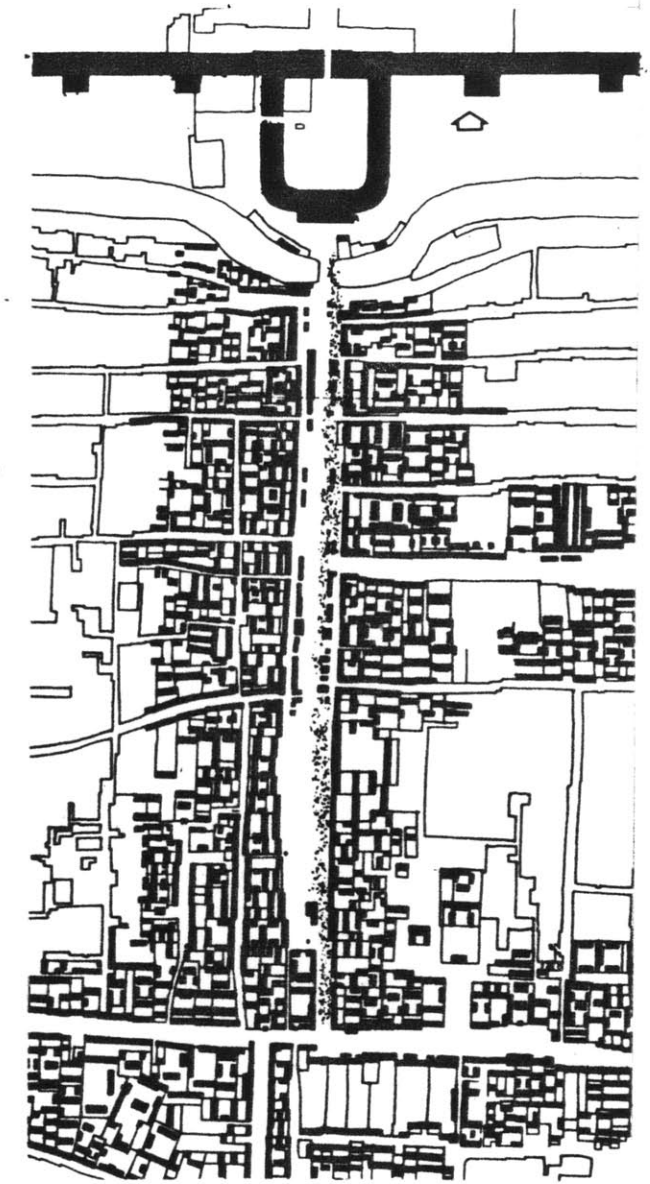
YESHI



4-16

NIGHT MARKETS OF BEIJING (1911)
 XUANWU MENWAI DAJIE 4-15
 ZHENGYANG MEN DAJIE 4-16
 CHONGWEN WAI DAJIE 4-17

4-15



4-17

DISTRIBUTION OF STALLS
 BUILT AREAS



Huan Shi Lue (寰垣識略).

Both of them located in the Outer City. The western dawn market (Xi Xiaoshi, 西曉市) was on the Lumashi Dajie (驢馬市大街, 5), and the Eastern dawn market (Dong xiaoshi, 東曉市) was on an open spaces east to Jingzhong Miao (精忠廟, a temple in memory of a famous general in the Song Dynasty). They opened at 4 o'clock and dismissed at 9 o'clock before the regular market starts. Most of the goods sold in the dawn markets were used goods, and the east dawn market is specially famous for their used clothes.

Three night markets were located in the front of the three southern gates of Inner City (4-15, 4-16, 4-17). They were opened from the dusk to midnight by turn. Zhengyang Men Night Market opens on the second, fifth, and eighth day in every

ten days. Xuanwu Men Night Market opens on the first, fourth, and seventh days, and Chongwen Men Night Market opens on the third, sixth, ninth days in every ten days. There was one day off in every ten days.

Zhengyang Men night market was more prosperous, the stalls distribute on both sides of the street. In the other two markets, the stalls distributed only on the east side of the street to catch the last glimpse of the setting sun.

The ghost market was a market for stolen goods. It located on the east-west "hutong" outside Desheng Men (德勝門, 1 in MAP 4-7). These "hutongs" are the remains of the Yuan Dynasty planning.

TEMPLE MARKETS AND FESTIVALS

Temple markets and temple festivals are different events. Temple markets occurred in a few famous temples in Beijing. On certain days of every month, these temples would open to salesmen, allowing them to set up stalls, tents, umbrellas, tables and chairs in the courtyards to do their business.

Temple festivals are more or less like carnivals. They only occurred for a few days once a year. Normally, they occur on the days before and after the most important day of the temples such as the birthday of the main god worshiped in that temple (MAP 4-8). The activities and arrangement of spaces for temple festivals was similar to temple markets, and temple festivals were always prosperous.

Temple markets and festivals

From the distribution pattern of markets and temple markets, we find that temple markets are set up for different purposes from regular markets. From the vendors' view point, a temple market provided better enclosed spaces which could prevent stalls from exposure in the sandy wind. Many eaterys, especially those not haveing a shop in a regular street market, would like to have a space in a temple market rather than on the street. Besides, the crowd in a temple market must have been more intensive than in a regular market, and were willing to spend money when participating in a temple market or festival. Moreover, different courtyards in the temple market often had different contents. Activities that conflict with one another could be arranged in different courtyards thus preventing conflict.

MARKET FESTIVALS IN THE CITY
INNER CITY

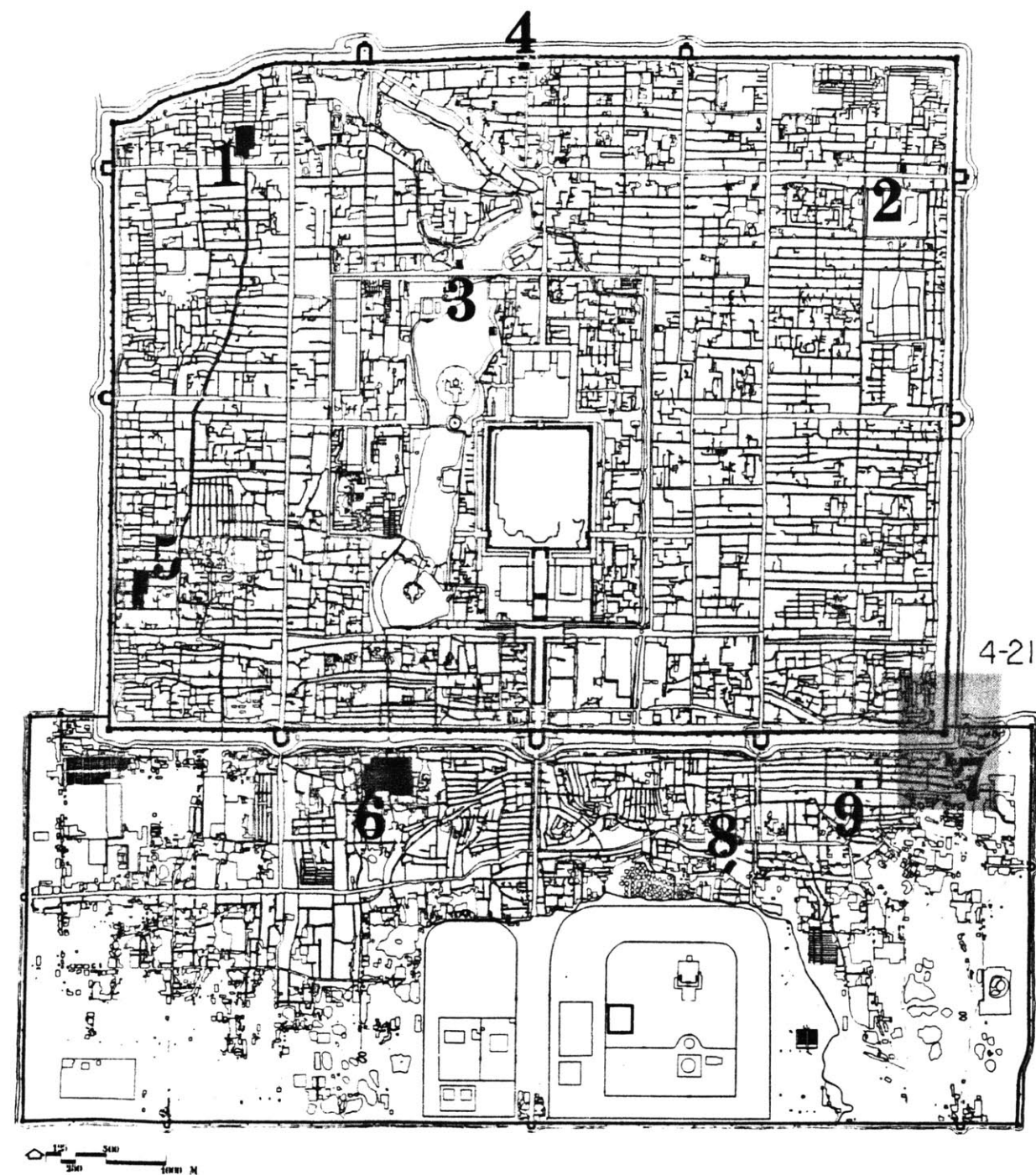
1. CHONGYUAN GUAN (崇元觀)
JAN. 1-10
2. DONGYAO WANG MIAO (東藥王廟)
APR. 15-28
3. XIYAO WANG MIAO (西藥王廟)
APR. 15-28
4. BEIYAO WANG MIAO (北藥王廟)
APR. 15-28
5. DU TUDI MIAO (都土地廟)
MAY 1-8

OUTER CITY

6. LIULI CHANG (琉璃廠)
JAN. 4-17
7. PANTAO GONG (蟠桃宮)
MAR. 1-3
8. NANYAO WANG MIAO (南藥王廟)
APR. 15-28
9. DU ZAOJUN MIAO (都竈君廟)
AUG. 1-3

CEN HUAN SHI LUE (宸垣識略, 1783)

DI JING SHUI SHI JI SHENG (帝京歲時紀勝, 1758)



MAP 4-8 MAJOR TEMPLES FESTIVALS IN THE CITY

show that courtyards of temples played important roles in the open space system of Beijing. In ordinary time, They were quiet public places. Everyone could get into the temples and enjoy the peaceful atmosphere or ? worship if he liked. In temple markets or festival times, they became a crowded market. Although the courdyards of these temples were huge, most of them were not large enough to contain all the activities during the market or festival. Therefore, some of the venders have to extend out to the streets and open spaces nearby these temples. Observing some of the most important temples that had markets or festivals made it easier for us to understand the relationship between streets and temples. All these temples are facing or at least are near to one of the major streets in the city.

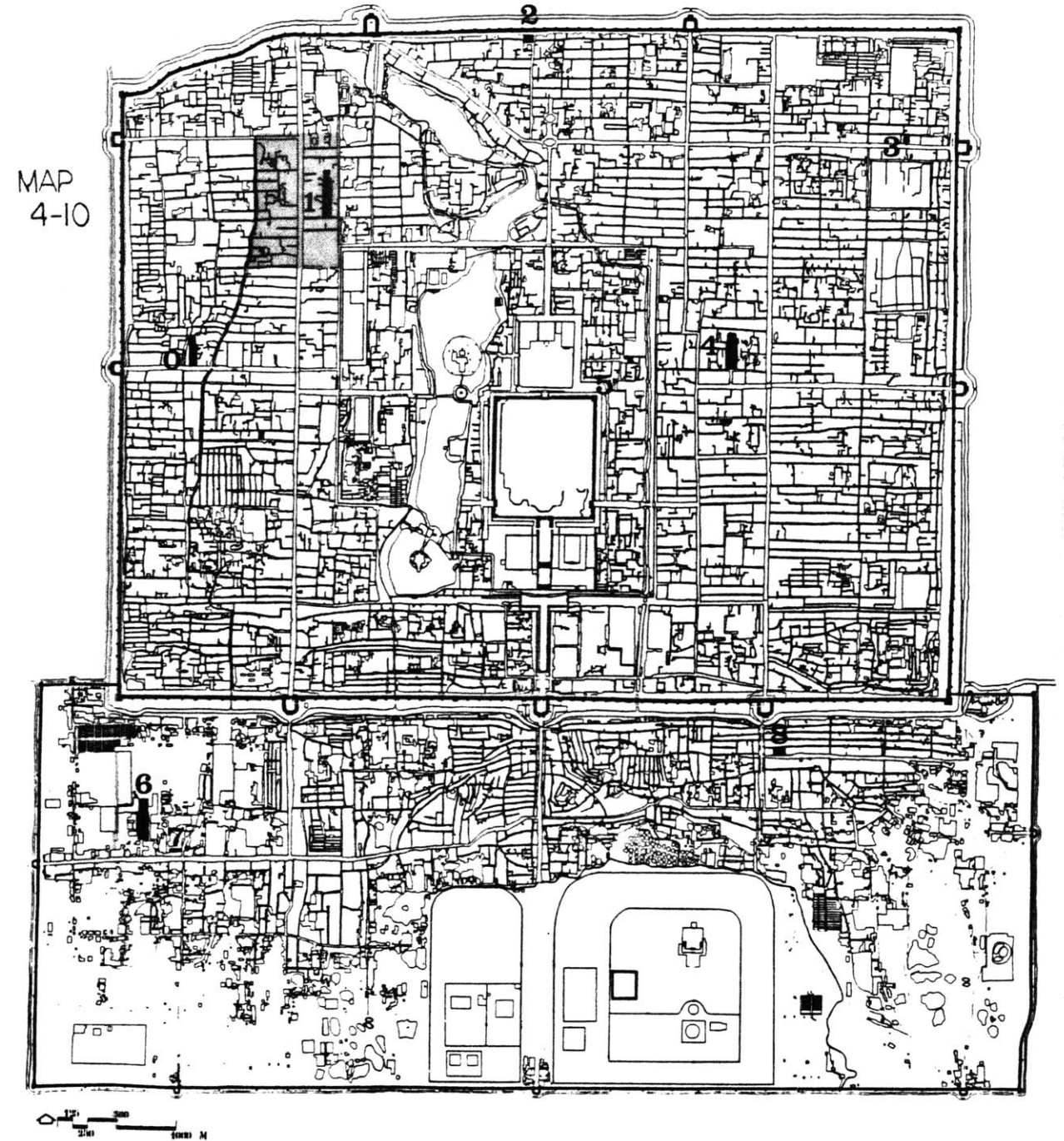
INNER CITY

- 0. MIAOYING SI (妙應寺)
5, 6, 15, 16, 25, 26 (4-20)
- 1. HUGAO SI (護國寺)
9, 10, 19, 20, 19, 30
- 2. BEIYAOWANG MIAO (北藥王廟)
1, 15
- 3. DONGYAOWANG MIAO (東藥王廟)
1, 15
- 4. LONGFU SI (隆福寺)
7, 8, 17, 18, 27, 28
- 5. NAISHI (內市)
4, 14, 24

OUTER CITY

- 6. BAOGOU SI (報國寺)
5, 6, 15, 16, 25, 26
- 7. DU TUDI MIAO (都土地廟)
3, 13, 23
- 8. HUAER SHI (花兒市)
4, 14, 24

CEN HUAN SHI LUE (宸垣識略)
DI JING SHUI SHI JI SHENG
(帝京歲時紀勝)



MAP 49 TEMPLE MARKETS (1758 ~ 1788)

From the customer's point of view, the temple market was not just a market. It provided family recreation. People could try different tastes in different stalls and can watch all kinds of performances at the same time. It was common for women to go to these temples to worship on a temple festival day, for it was the only time and place where they could go out and relax (P 4-25). A temple market also offered more variation than a regular market so that the customers did not have to run about busily to get different things. Besides, each temple markets had its own specialities. For example, Bao-Guo Si's (報國寺) temple market was famous for its books, calligraphys, soft pens, and other materials for scholars.

Like night markets, these famous temple markets occurred by

turn. The third day of every ten days, the market took place in Du Tudi Miao (都土地廟, a temple of earth God), the fourth day of every ten days, the temple market occurred in Huoshen Miao (火神廟, a temple of Fire God) of Huashi Dajie (花市大街, flower market street). Then, the markets moved into the Inner City. On the fifth and sixth days of every ten days, the markets were in Miaoying Si (妙應寺, a famous buddist temple with a white pagoda, another name of this temple is Baita Si) in the west part of the Inner City. On the seventh and eighth days of every ten days, the markets were held in Huguo si (護國寺, a huge buddist temple to the north east of Miaoying Si) also in the west part of the Inner City. On the ninth and tenth days of every ten days, the market was held in Longfu Si (隆福寺, a buddist temple) in the east part of the

Inner City. The first and the second days are the resting days for the sellers.

Another two smaller temples also have temple markets on the first and fifteenth days of every month. They are North Yaowang Miao (北藥王廟, temple for Medical Gods near the north wall in the Inner City) and East Yaowang Miao (東藥王廟, another temple for the same gods, located on the Dongzi Men Dajie). In addition, a period market, not directly related to any other temple, was also held in the Imperial City on the fourth day of every ten days (MAP 4-9).

Theoretically, every temple has its temple festival; however, only a few were famous city wide. The influence range of these most famous temple festivals was beyond the city

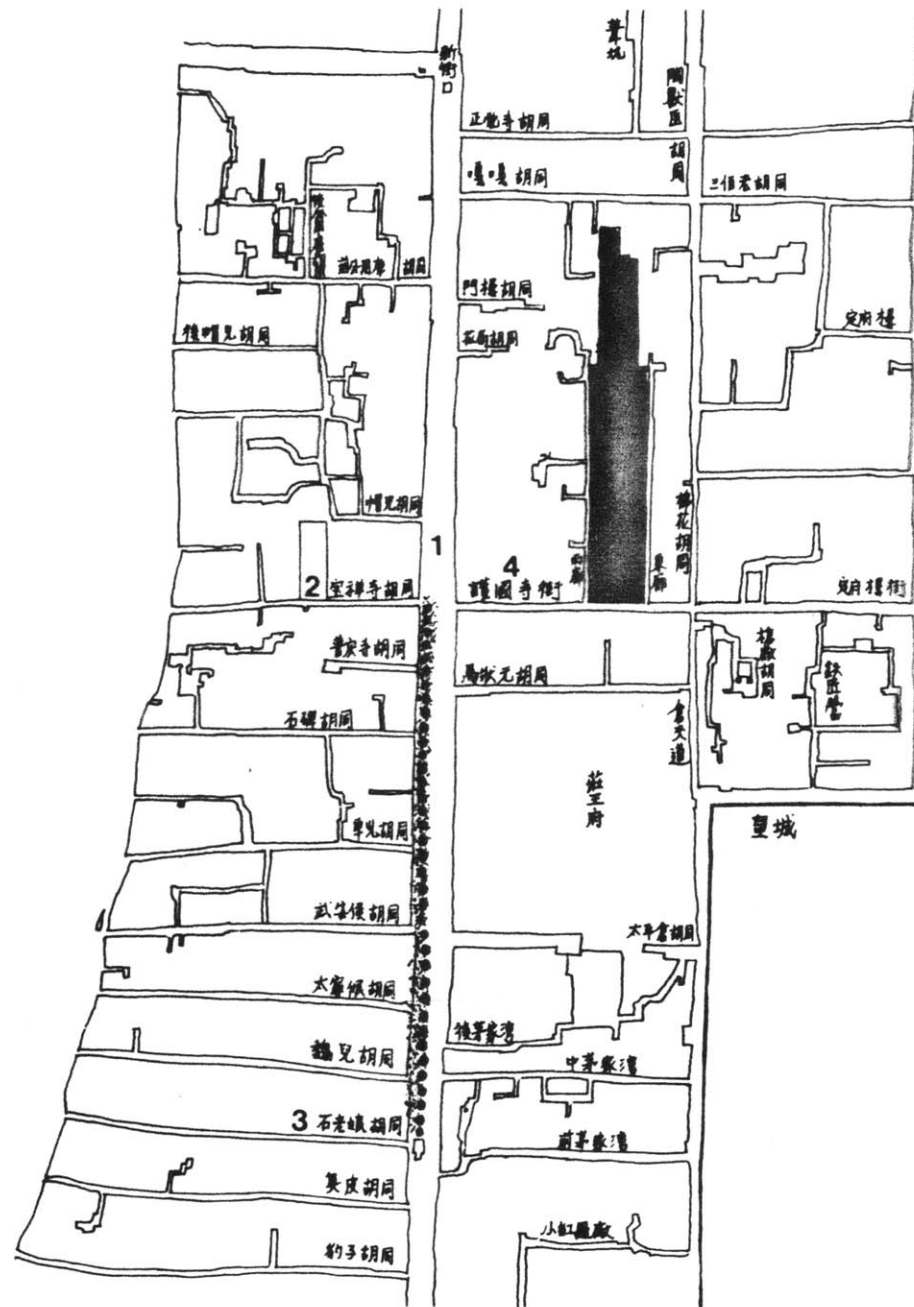
walls. In fact, some of the important temple festivals were held in temples outside the city while they were popular to both city dwellers and peasants in the country.

A temple market or festival was always composed of different activities at different spaces and times, and could last for periods of from three days to fifteen days. There is therefore no general description of the temple market. Following are several examples of specific temple festivals and markets.

HUGUO SI (護國寺)

The activities of Huguo Si temple market included a dawn market from 4 AM to 9 AM, and a regular temple market from 9 AM to the dusk. The dawn market, though related to Huguo Si, was not held inside the temple; instead, it was on the "dajie" west of the Huguo Si block. The stalls of this dawn market were distributed from the east entrance of Siyingniang Hutong (石應娘 衚衕) in the south to the east entrance of Baochansi Hutong (寶禪寺 衚衕) in the north. The stalls were all on the west side of the street in order to catch the rising sun. This dawn market was famous for its old books, wood furniture, antiques and other luxuries.

After 9 o'clock in the morning, the regular temple market began. As we entered the street - Huguo



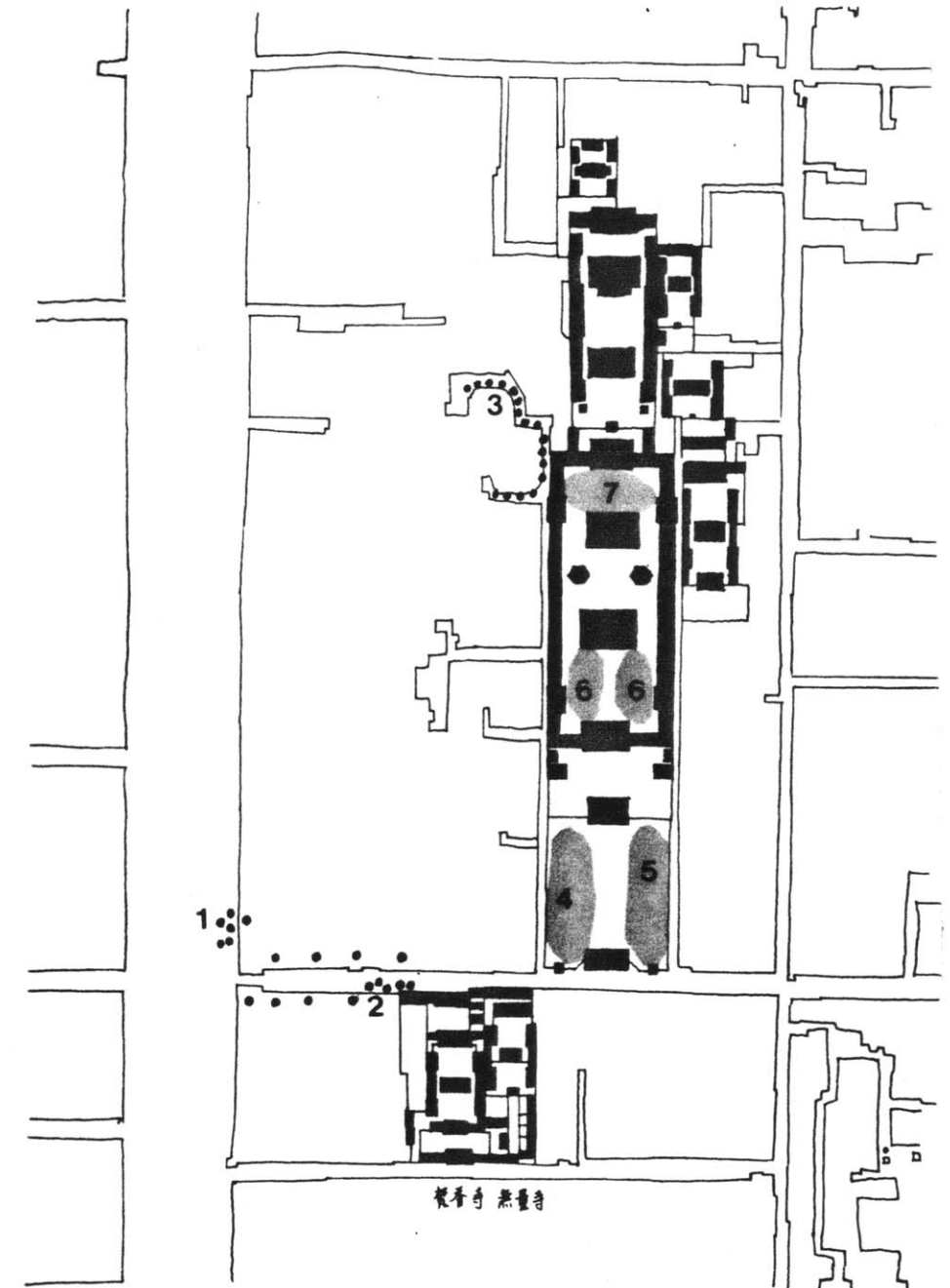
MAP 4-10 HUGUO SI XIAO SHI (DAWN MARKET)

DISTRIBUTIONS OF STALLS

1. XISI BEI DAJIE
2. BAOCHAN SI HUTONG
3. SHIYINGNIANG HUTONG
4. HUGUO SI JIE

西四北大街
寶禪寺胡同
石應娘胡同
護國寺街

HUGUO SI



4-18 ACTIVITIES IN HUGUO SI TEMPLE MARKETS 1920

1. DOG MARKET 狗市
2. BIRDS MARKET 鳥市
3. FLOWERS 花市
4. FRUITS, CLEANING STUFFS 水果, 掃把, 簸箕, 毛氈.
5. EATERIES 吃食攤, 炸糕, 粥.
6. MAJOR EATERIES 饅頭, 灌腸, 羊肚腸, 湯圓, 蔥花酪, 豆汁.
7. STREET PERFORMANCES 野臺戲, 相聲, 變戲法.

Si Jie (護國寺街) - in the front of Huguo Si, we began to see the activities extended out from the temple. Pets market, flower shops, drug stores as well as other stalls for daily usages were distributed on this street. The shops around Huguo Si benefited from the temple market and became familiar to everyone who ever attended this market. They include tea houses, bars, drug stores, furniture workshops, and flower shops.

Entering Huguo Si, the activities differ from one courtyard to another. For example, in the first courtyard, there were fruit stalls at the front and cleaning tools and daily usages at the back on the west side of the central path. On the other side of the central path, there were eateries. The third courtyard was famous for different kinds of small dishes

foods and drinks. In the fifth courtyard there were street performers such as comedians, magicians, signers, and others players. The temple market did not come to an end as we got out of the northwest gate. The small alleys out there were the most famous bird markets during the market days (MAP 4-10, 4-18).

LONGFU SI (隆福寺)

Longfu Si temple market was as famous as Huguo Si temple market. Huguo Si is on the west side of the Inner city while Longfu Si is on the east side.

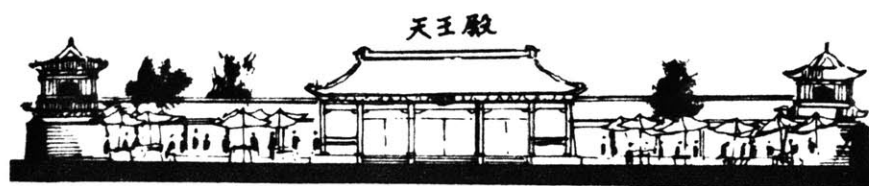
During the temple market dates, the vendors arrive in the early morning and distribute their stalls in courtyards as well as in the T-shaped street outside Longfu Si and on the alley to the east of the temple. It had become a convention for certain vendors to place their stalls on certain positions, and the pattern of distributing stalls was also a tradition. In a courtyard, the stalls had to be placed on the sides of the central path. While on each side the stalls had to line up face-to-face to form a street (4-19).

The contents of stalls and

performances were the same in every major temple market. Actually, some of the sellers and eateries moved from one market to the other in a ten day cycle, while some of the specialist only attended one or two of these temple markets. For example, the two streets (1 & 3 in 4-19) and the alley (2 in 4-19) had different specialities during the market opening days. On the alley east of Longfu Si there was the dog market, on the front street there was the pigeon market, and on the east-west street there was the birds market. The vendors of these pet markets sold pets as well as cages, food, and all kinds of accessories.



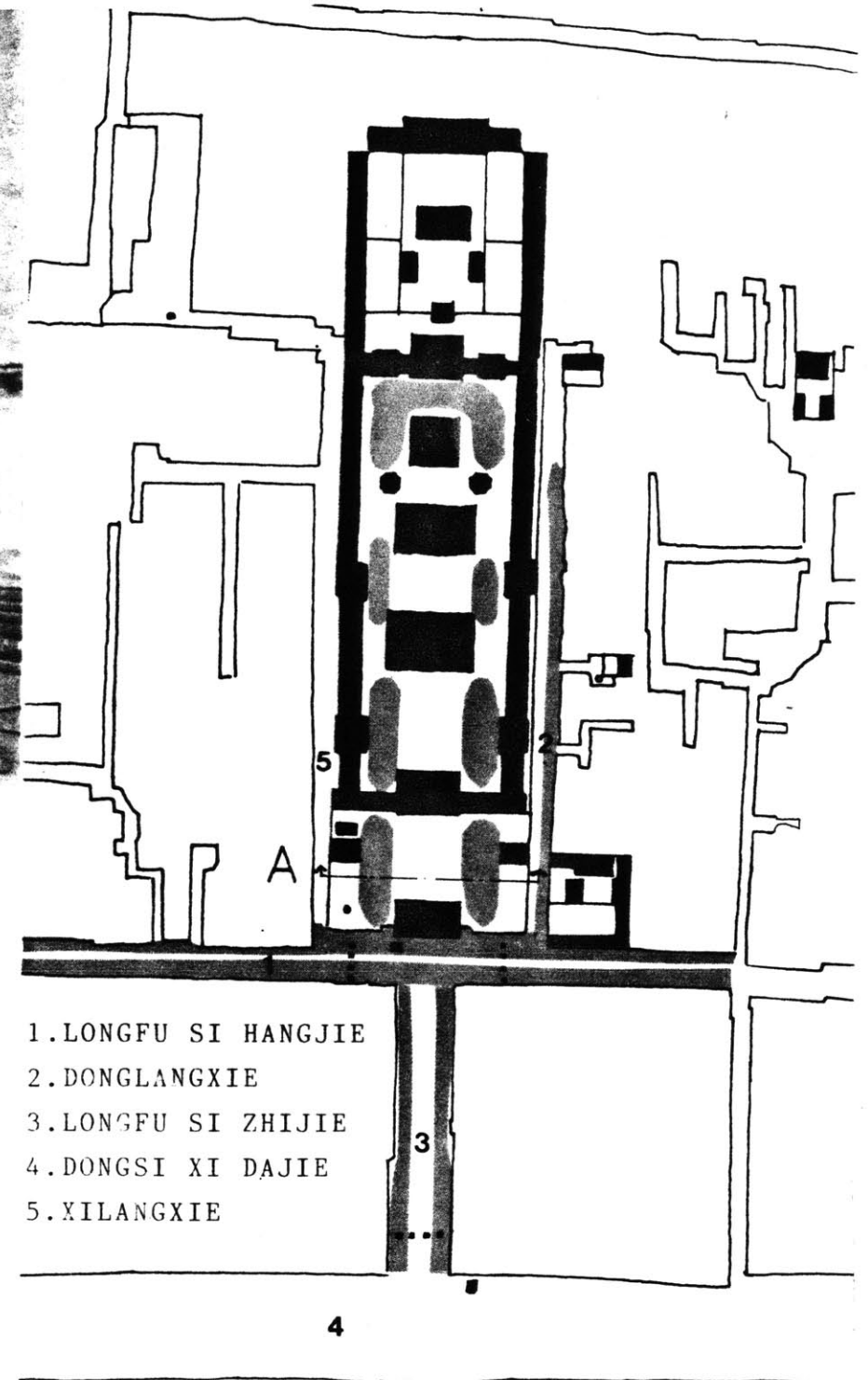
P 4-24 A TYPICAL EXAMPLE OF AN EATERY IN A TEMPLE MARKET



隆福寺廟會第一進光景

SECTION "A" A IMAGINARY SCENE OF THE FIRST COURTYARD OF LONGFU SI TEMPLE MARKET

4-19



1. LONGFU SI HANGJIE
2. DONGLANGXIE
3. LONGFU SI ZHIJIE
4. DONGSI XI DAJIE
5. XILANGXIE

DISTRIBUTION OF STALLS IN LONGFU SI TEMPLE FMARKETS

LONGFU SI

MIAOYING SI (妙應寺)

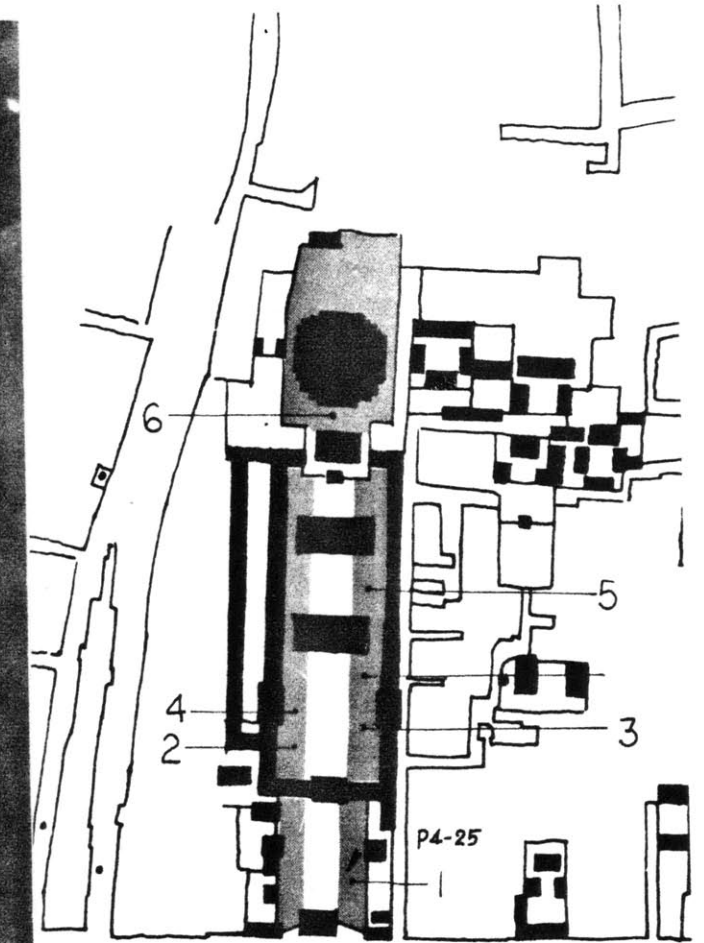
Miaoying Si temple market was a market of the late Qienlong period. Before this market developed, the 5th and the 6th days of every ten days, the market was held at Baoguo Si (報國寺) in the Outer City. Basically, the activities of Miaoying Si were the same as those of the other temple markets. We were lucky enough to have a photo from the 1920s showing Manchurian women sitting at the table of an eatery. It gives one the idea of the courtyard of a temple market (4-20).

In the early Qing Dynasty, Miaoying Si was assigned to some Lamas (buddhist monk from Tibet). During the haydays of the Qing Dynasty, the temple had different sources of income, mostly from the donations of the



P 4-25

MANCHURIAN WOMEN ATTENDED MIAOYING SI TEMPLE MARKET



FUCHENG MEN DAJIE (阜成門大街)

- 4-20 ACTIVITIES IN MIAOYING SI TEMPLE MARKET
- 1. FRUITS, SALT EGGS, MOUNTAIN PRODUCTS 水果、鹹蛋、山貨
 - 2. CLOTH 布料 洋貨、食
 - 3. FOREIGN PRODUCTS, EATERIES
 - 4. FRESH FLOWERS 鮮花
 - 5. TOYS, CANDIES, EATERIES, AND ACROBITS 玩具、糖果、吃食雜耍
 - 6. CANDY, EATERIES 玩具、食

MIAOYING SI

royal families. As the Qing Dynasty decayed from the late Qienlong period the temples lost their regular support, thus collecting money from the vendors became an important source of income for the temple.

PANTAO GONG MIAOHUI (MARKET FESTIVAL 蟠桃宮廟會)

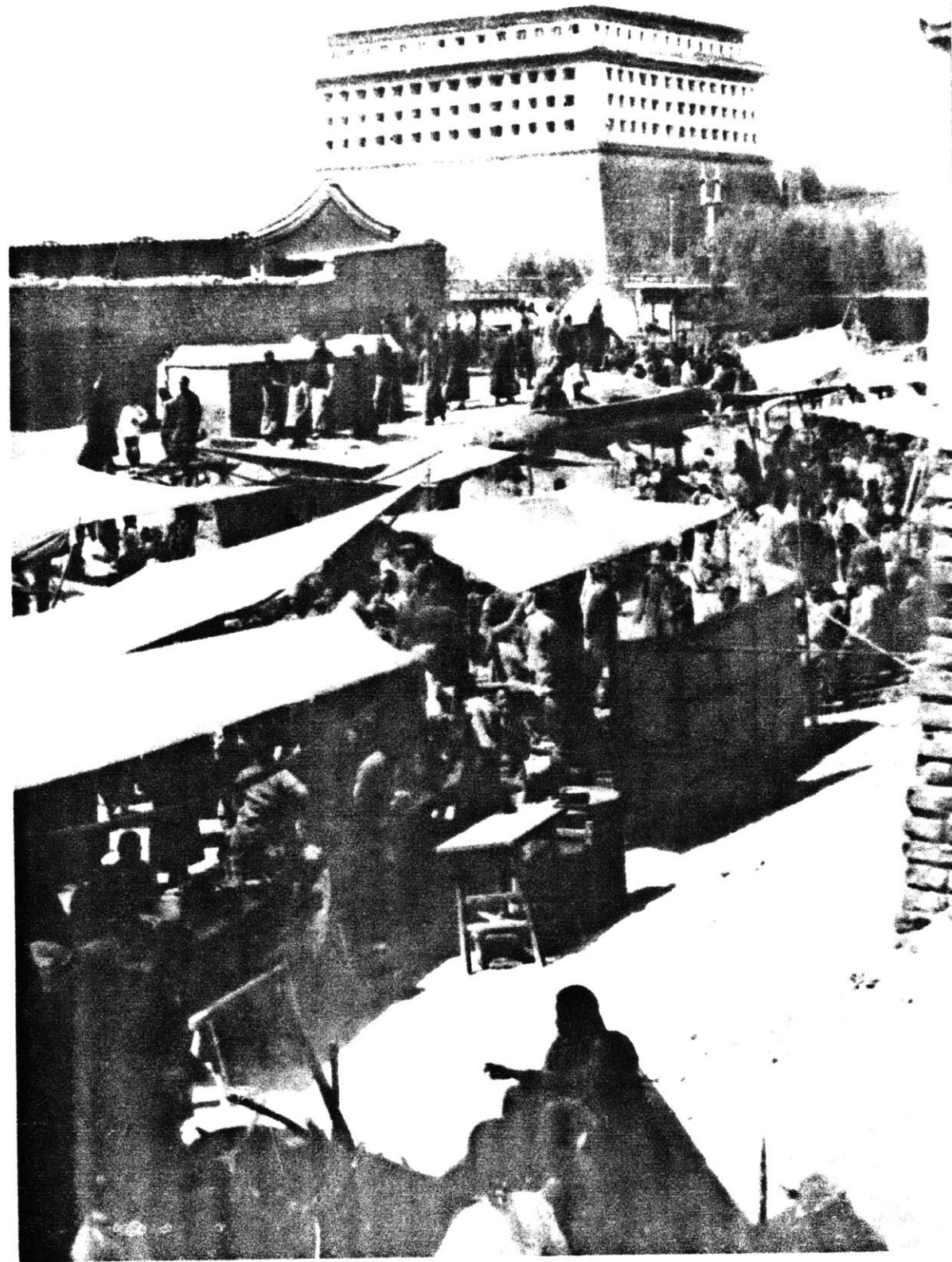
Pantao gong was only a medium-sized taoist temple in the northeast corner of the Outer City. It was close to Dongbian Men gate and the east water gates of Outer City. This taoist temple was famous for its temple festival from March 1st to 3rd. The scale of this temple festival excelled all the others of the Beijing area. The activities inside the three courtyards of the temple were only a very small part of the festival. The surrounding alleys, streets and vacant lands were all used as spaces for this festival. The most important street of the festival was the south bank of the Inner City Moat from Chongwen Men to Dongbian Men (4-21).

The days of Pantao Gong temple festival were the beginning of

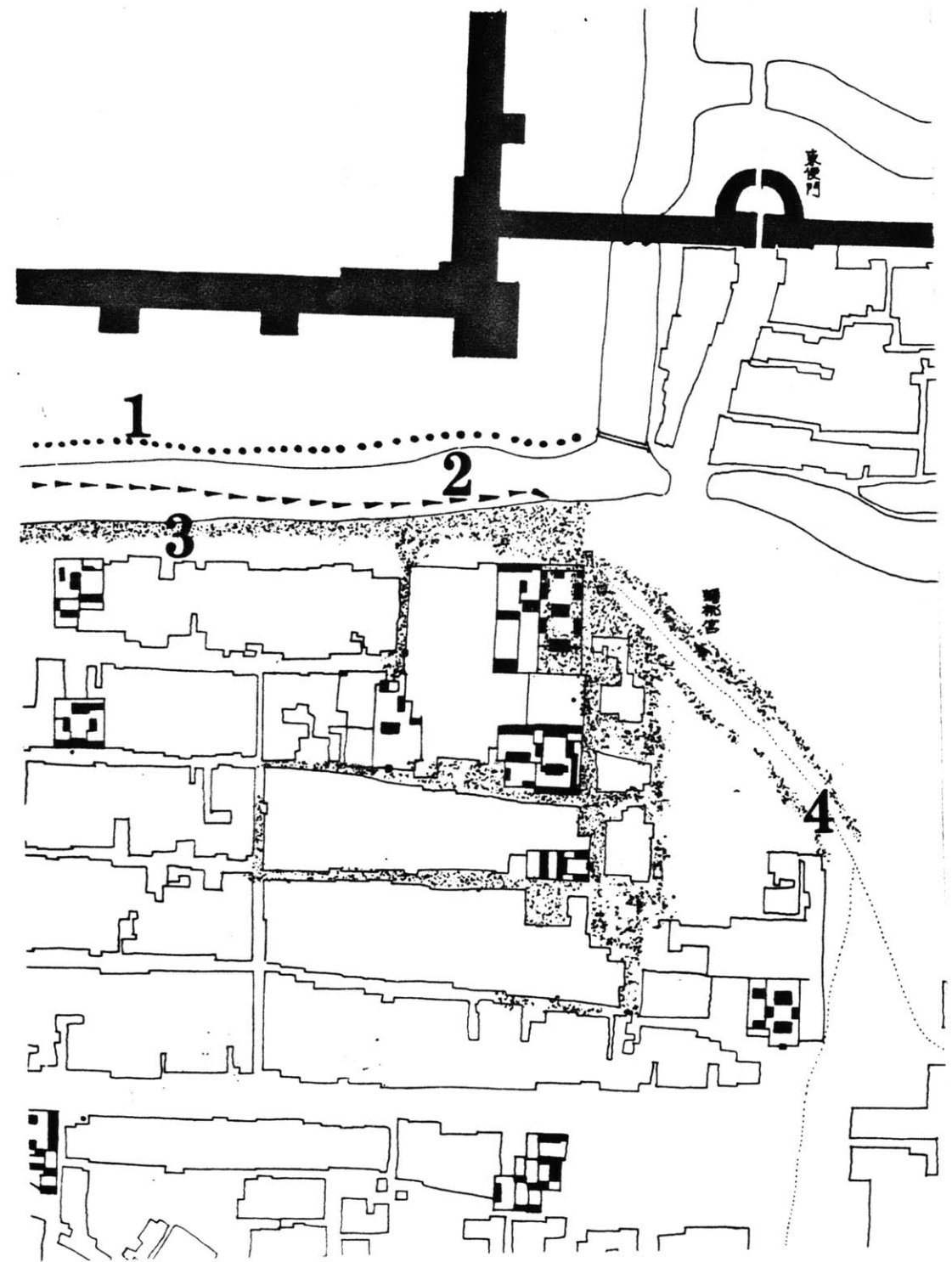
spring. The temple festival was a place for a spring outing. People could rent a donkey and run the donkey from Chongwen Men to Pantao Gong or rent a boat and row downstream from Chongwen Men to the water gate of Outer City. One could also walk along the south bank of the moat and watch all kinds of acrobats and other performances and stalls along the river bank.

To the south of this temple was another famous place for this festival. It was a horse running way for horseriding competitions. On the both sides of this running way, there were all kinds of eateries with tables and chairs on the higher places at the back of the stalls so that people could sit and watch the running horses (P 4-26).

P4-26 4-21



1. Riding donkey coming down from Chongwen Men.
2. Boating also from Chongwen Men to Pantao Gong.
3. Along the southern bank of Inner City Moat, there are the major activities of the festival.
4. Watching People riding horses



DISTRIBUTION OF DIFFERENT ACTIVITIES IN PANTAO GONG
TEMPLE FESTIVALS (MARCH 1-3)

PANTAO GONG

CHAPTER 5

HYDRO-SYSTEM

-CANALS, WELLS & DRAINS

This chapter describes the hydro-system of Beijing in the mid-eighteenth century. Several systems, such as an open water system, drainage system, and well system are included. The open water system consists of water bodies (such as canals, rivers, lakes) on the ground surface which have been transformed by human efforts to achieve certain goals. And in fact, most of the water bodies around Beijing have been altered to serve various functions.

The second system is the water supply system. Wells located throughout the city supply the using and drinking water for the city. The water supply system, should include the process of

taking water and also the activities and settings related to water taking. The third system is the drainage system, which includes the physical system and the maintenance systems.

OPEN WATER

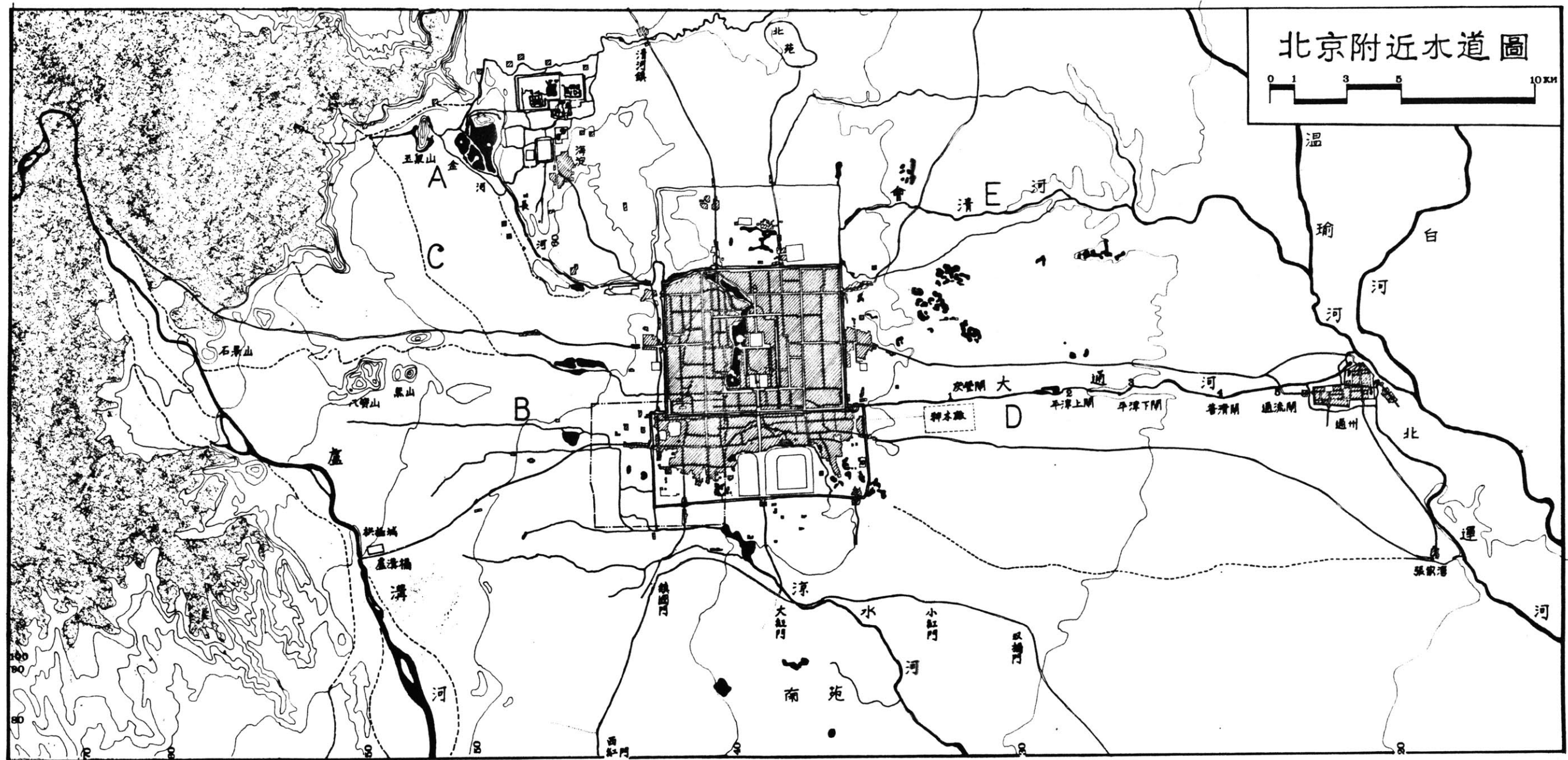
SECTION I

WATER RESOURCES AND DISTRIBUTION

1. RESOURCES

There exist three major water resources for the open water system of Beijing area. Two of them are steady sources; they rely on the spring water from Xi Shan (西山) on the northwest suburb of Beijing. The third is an unsteady source. It is supplied through aqueducts which collect rain water from the western suburb of Beijing in the summer (MAP 5-1).

Among these, the most important source is the water collected from the springs around Yuquan Shan (玉泉山, mountain of jade spring) area. The collected



MAP 5-1 SOURCES (A-C) & DISTRIBUTIONS (D-E) OF OPEN WATER AROUND BEIJING AREA (1770)

A: YU QUAN SHAN - XI HU - CHANG HE (玉泉山 - 西湖 - 長河)

B: BABAO SHAN - LIANHUA CHI (八寶山 - 蓮花池)

C: DONGNAN XIE SHUI HE (東南洩水河)

D: DATONG HE (大通河)

E: HUIQING HE (會清河)

1-5 WATERLOCKS OF DATONG HE

water is stored in Xi Hu (西湖, the West Lake; or Kunming Hu, 昆明湖). From Xi Hu, Chang He (長河, a canal built during the Jin Dynasty) channels the water to the northwest corner of Inner City's Moat (A in MAP 5-1).

Around this corner, a couple of waterlocks were built to control the flow of water. Strictly speaking, this was the only water resource seriously considered by the Engineering Ministry of the Ming and Qing Dynasties.

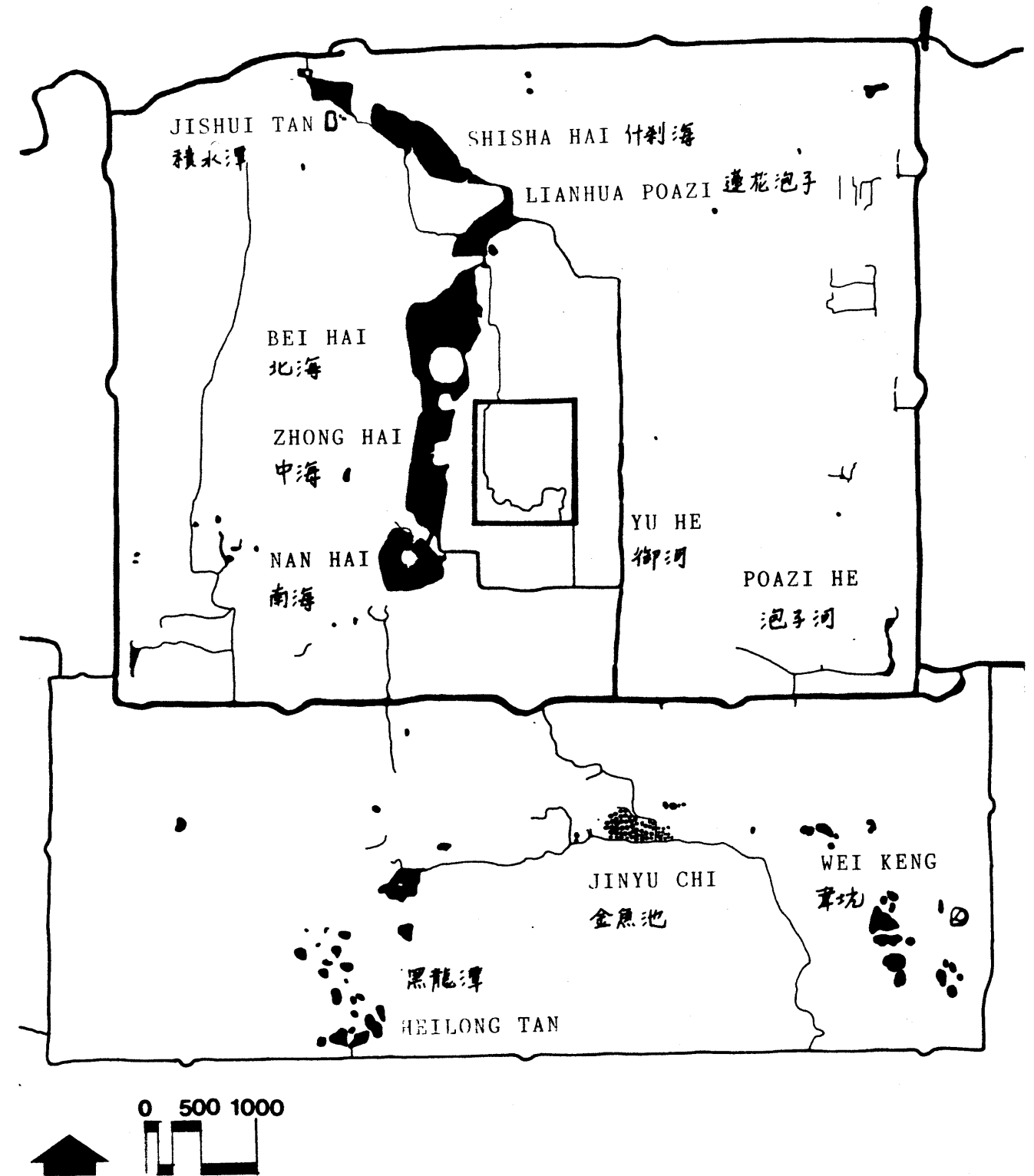
The other steady water source originates from the southern hill of Hei Shan (黑山) and Babao Shan (八寶山) area, and flows eastward to Lianhua Chi (蓮花池, the Lotus Pond). From Lianhua Chi, the stream goes further east, southward, and again eastward until it meets the west moat of the Outer City. This is the

remains of the Jin Dynasty water system. After the completion of Dadu in the Yuan Dynasty, the system itself was abandoned; however, the canal was partially preserved (B in MAP 5-1).

The third source, Dong Nan Xie Shui He (東南減水河, the Southeastern Aquaduct) collects summer storm flood water from the hills of Xi Shan, then pours into Yuyuan Tan (玉淵潭), and then channels into the West Moat of the Inner City. The downstream part of the Southeastern Aquaduct is an ancient irrigational canal. A recreational garden - Diaoyu tai (釣魚臺, the Fishing Platform) was built over Yuyuan Tan in the Jin Dynasty (C in MAP 5-1).

2. DISTRIBUTIONS

The terrain of Beijing slopes from the higher northwest to the



MAP 5-2 OPEN WATERS IN BEIJING

lower southeast. Therefore, all the water sources finally gather at the southeastern corner of Inner City and flow into Datong He (大通河), which was Tonghui He in the Yuan Dynasty and Zha He in the Jin Dynasty. Datong He leads to Tongzhou (通州) where was the terminal station of the Grand Canal. A huge portion of the land in Tongzhou was used for the warehouses which store the grain transported from southeastern China. Most of this grain was further transported to Beijing through Datong He (D in MAP 5-1).

During the Kangxi (康熙) period (1662 AD - 1722 AD) of the Qing Dynasty, a river named Huiqing He (會清河), a canal northward to Datong He, was dredged and reopened as a canal to transport part of the grain for the city to the

warehouses outside Desheng Men (德勝門, the west northern gate of Inner City). However, this new canal did not last for a long time (E in MAP 5-1).

FUNCTIONS

The open water system of Beijing was multi-functional. It was used to supply water to the lakes of the Imperial Gardens for recreational uses, to the canals for transportation, and to the moat for defence of the city (MAP 5-2). It is also connected to the major branches of the city's drainage system for the drainage of storm water. The supply of water to the lakes of the Imperial Gardens and to the canal were the most important functions of the system.

The multifunctions of this open water system was characteristic of the Ming and Qing Dynasties.

It was different from the systems of the Jin and Yuan Dynasties.

In these two previous Dynasties, the water system used in the Imperial Gardens was separated from the water supply system for the canal in order to ensure the purity of imperial recreational water.

1. RECREATION

The lakes in the Imperial Gardens include Bei Hai (北海, the north sea), Zhong Hai (中海, the central sea) and Nan Hai (南海, the south sea). These are the main recreational areas in the Imperial City, and are enclosed by another layer of wall with very few gates (MAP 5-2).

In addition, there are three lakes outside the Imperial City, which are Jishui Tan (積水潭), Shisha Hai (什剎海), and Lianhua Paozi (蓮花泡子). These three lakes are on the

upper stream of Bei Hai, Zhong Hai and Nan Hai in the Imperial City. Therefore they had to be controlled by the government in order to ensure the quality of water supply. They were regulated as part of the Imperial Gardens despite their locations and lack of enclosure.

There was a special department in charge of the maintenance and the security of these Imperial Gardens. The department set up regulations to control these Imperial Gardens, especially to those outside the Imperial City. For example, if one would like to channel the water from any of these three lakes to ones private gardens, one have to obtain special permission from the Emperor in advance. This department also took care of routine works such as the cultivation of rice in Jisui Tan and planting lotus and other

flowers in Shisha Hai and Lianhua Paozi (MAP 5-2).

Since there are no walls to enclose Jishui Tan, Shisha Hai or Lianhua Paozi, those who live near these lakes can enjoy the natural landscapes. The most attractive part of the houses bordering these lakes would be the sides facing those lakes. Thus, on the one hand, people living there could have the best view of the lakes, and on the other hand these houses became part of the scenery.

2. CANAL

Most of the water eventually pours into Datong He - the canal. After the reconstruction of Beijing in the Yungle period of the early Ming Dynasty, part of the canal which had been enclosed into the Inner City was abandoned. Since then, Datong He had started from Datong Qiao

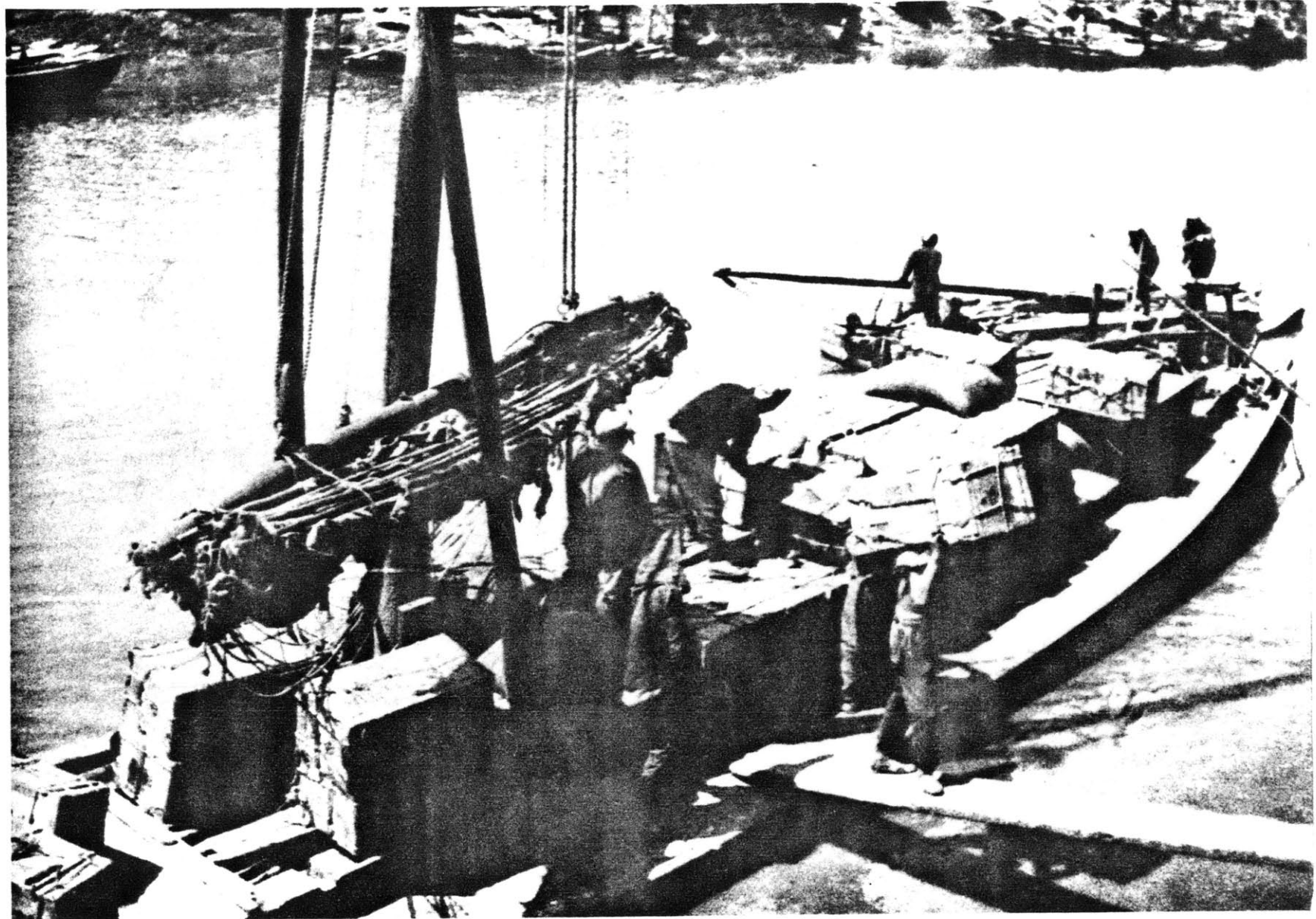
(大通橋) near the northeastern corner of the Outer City and ended at Tongzhou, and then connected the Grand Canal (MAP 5-1).

The difference in elevation between Tongzhou and Beijing is 12.5 M within 22.4 KM of distance. From the Jin Dynasty on, people constructed a series of waterlocks to control the water elevation in segments. This control procedure raised the water level of the canal thus enableing flatbottom boats to travel upstream to Beijing. In the Qing Dynasty, there were five such locks between Tongzhou and Beijing (1,2,3,4,5 in MAP 5-1).

Before the Qing Dynasty, the traffic in Datong He was not stable enough to ensure the food supply of Beijing. Therefore part of the food supply relied on the

more expensive land transportation and thus raised the price of food in Beijing. Efforts had been made by the Government to improve to transportation capacity of Datong He. But, somehow, the officials in charge of the improvement projects did not understand the key problems of Datong He, such as that the water resources of Datong He were not rich and stable enough, and that people used boats of the same size as those used in the Grand Canal while the Datong He was not as wide nor as deep as the Grand Canal.

The Qing Dynasty Government, focusing on these two defects, tried to solve the problem by using smaller flat bottom boats in the Datong He (P 5-1) and by building the Xi Hu reservoir at the upper stream to better stabilize the water supply. These



P 5-1 FLAT BOTTOM BOATS IN DATONG HE

strategies worked well. Throughout the Qing Dynasty, the Datong He flowed steadily.

3. OTHER USAGES

Apart from the above two major functions, a very small part of water was distributed to the moat of the Inner City. The moat was 180 "chi" wide (1 "chi", = 0.318 M - 0.345 M) and 10 "chi" deep. The west moat was connected with Datong He and functioned as part of the canal system. Therefore, the land between the west wall and the west moat of Inner City was occupied by warehouses (MAP 5-4). Besides, by connecting with all the other streams that linked with the storm water drainage system, the moat also functioned as the down stream of the drainage system.

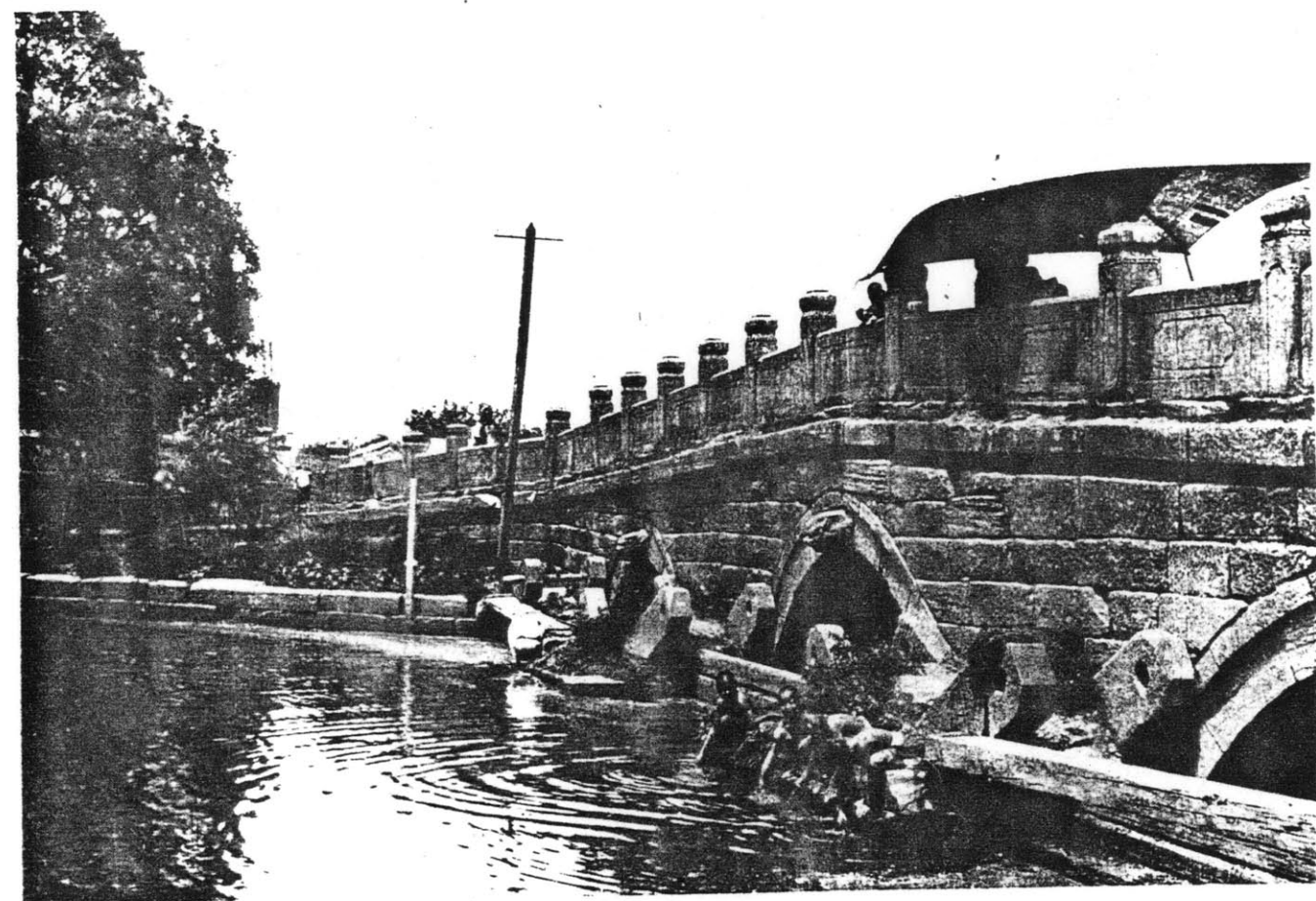
CONTROL OF FLOW

Two major functions of the open water system of Beijing are to

maintain the water level in the Imperial Gardens and to supply water for Datong He, which dictates the flowing direction of water.

The water collected from Yuquan Shan (玉泉山) was channelled to the northwestern corner of the Inner City's moat, which diverges to be the eastward moat and southward moat. The southward moat was blocked by the waterlock under Xizhi Men Bridge (西直門橋) (1 in MAP 5-3), and the eastward moat was blocked by the other waterlock under Desheng Men Bridge (德勝門橋) (2 in MAP 5-3), so that the main stream can flow into the Inner City through a culvert under the north city wall (3 in MAP 5-3).

The water pours into Jisui Tan (4 in MAP 5-3) as soon as it emerges from the culvert. In



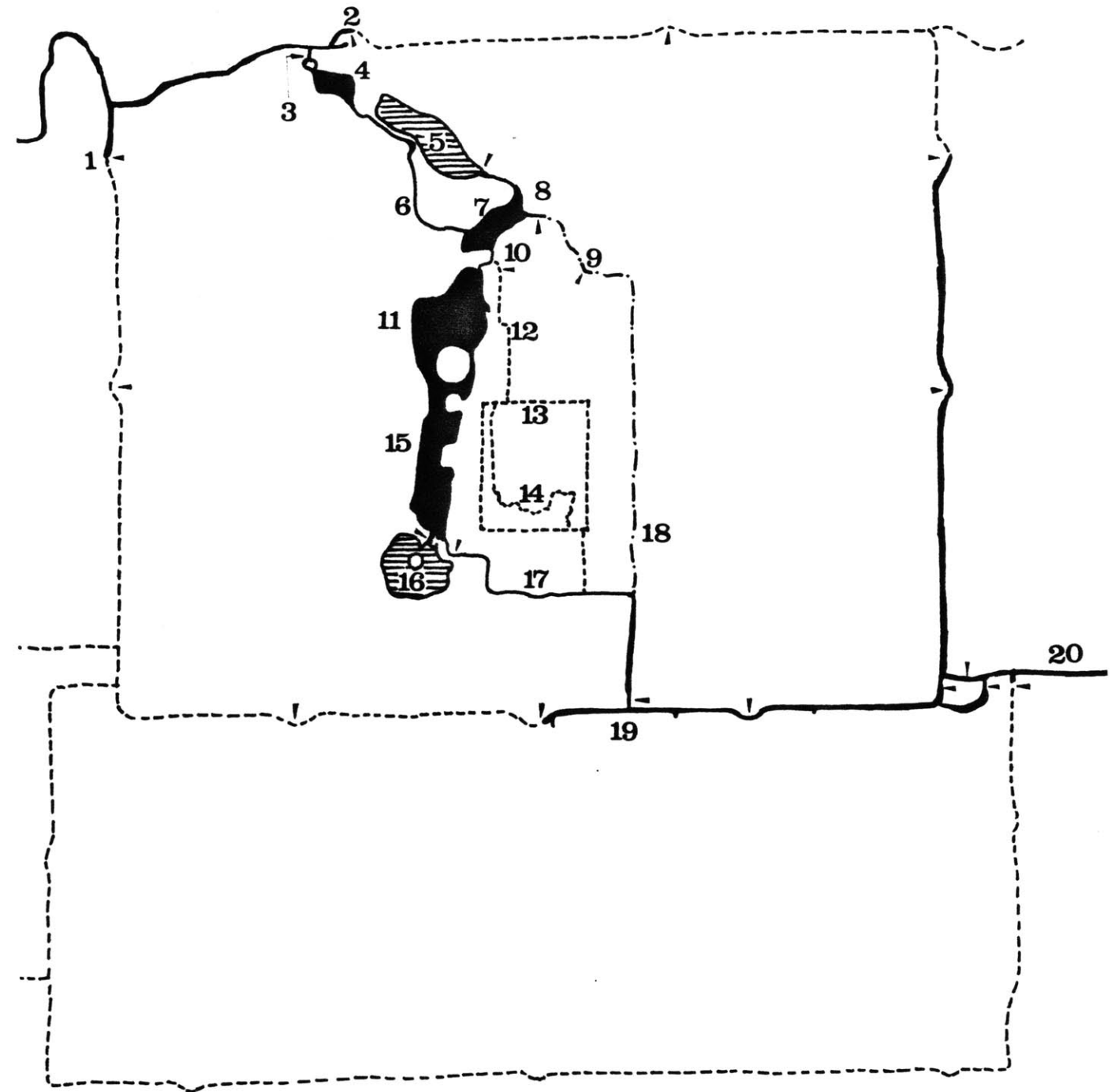
P 5-2 A BRIDGE & WATERLOCK NEAR DONG BIANMEN
"B" IN MAP 5-4

order to prevent direct pounding against the banks of Jisui Tan, an island was piled in the front of the culvert, and a stone bank with a sharp head was built on the north side of the island to break the incoming water. The head of the water break was sculptured in a turtle shape with an open mouth. The water left the culvert and flowed into the mouth of the stone turtle, then spreaded out from its mouth. The water flowed along both sides of the island and then rejoined. This device was designed by a famous scholar - Yao Xiao Guang (姚孝廣), in the early Ming Dynasty. People built a small buddist temple on this island, and Yao Xiao Guang was coworshipped in it (P 5-1, 5-1, 5-2).

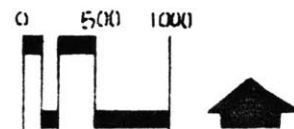
The outlet of Jisui Tan was on the southwest corner. It connected with a small waterway

MAP 5-3 FLOW CONTROL

- 1.XIZHI MEN BRIDGE LOCK
- 2.DESHENG MEN BRIDGE LOCK
- 3.SCREEN
- 4.JISHUI TAN
- 5.SHISHA HAI
- 6.WATER WAY
- 7.LIANHUA PAOZI
- 8.BEIAN BRIDGE (LOCK)
- 9.DONBULIANG BRIDGE
- 10.XIBULIANG BRIDGE
- 11.BEIHAI
- 12.MEI SHAN
- 13.MOAT of IMPERIAL CITY
- 14.NEIJINGSHUI BRIDGE
- 15.ZHONG HAI
- 16.NAN HAI
- 17.WEIJINSHUI BRIDGE
- 18.YU HE
- 19.MOAT of INNER CITY
- 20.DATONG BRIDGE



- | | | | |
|---------|---------|---------|----------|
| 1 西直門橋閘 | 6 引水道 | 11 北海 | 16 南海 |
| 2 德勝橋閘 | 7 蓮花泡子 | 12 煤山 | 17 外金水橋 |
| 3 鐵欄閘 | 8 北安橋 | 13 皇城城壕 | 18 御河 |
| 4 積水潭 | 9 東步量橋 | 14 內金水橋 | 19 內城南城壕 |
| 5 什刹海 | 10 西步量橋 | 15 中海 | 20 大通橋 |



(6 in MAP 5-3) bypassed Shisha Hei (5 in MAP 5-3) at its south shore and poured into Lianhua Paozi (7 in MAP 5-3). Lianhua Paozi was the center for distributing water in to the Inner City. From Lianhua Paozi, surplus water from the rainstorms was guided to flow northward to Shisha Hei. A waterlock was set between Shisha Hei and Lianhua Paozi. It blocked water from pouring into Shisha Hei under normal conditions, and opened when the water in Lianhua Paozi was too full. Thus the function of Shisha Hei was that of an emergency reservoir.

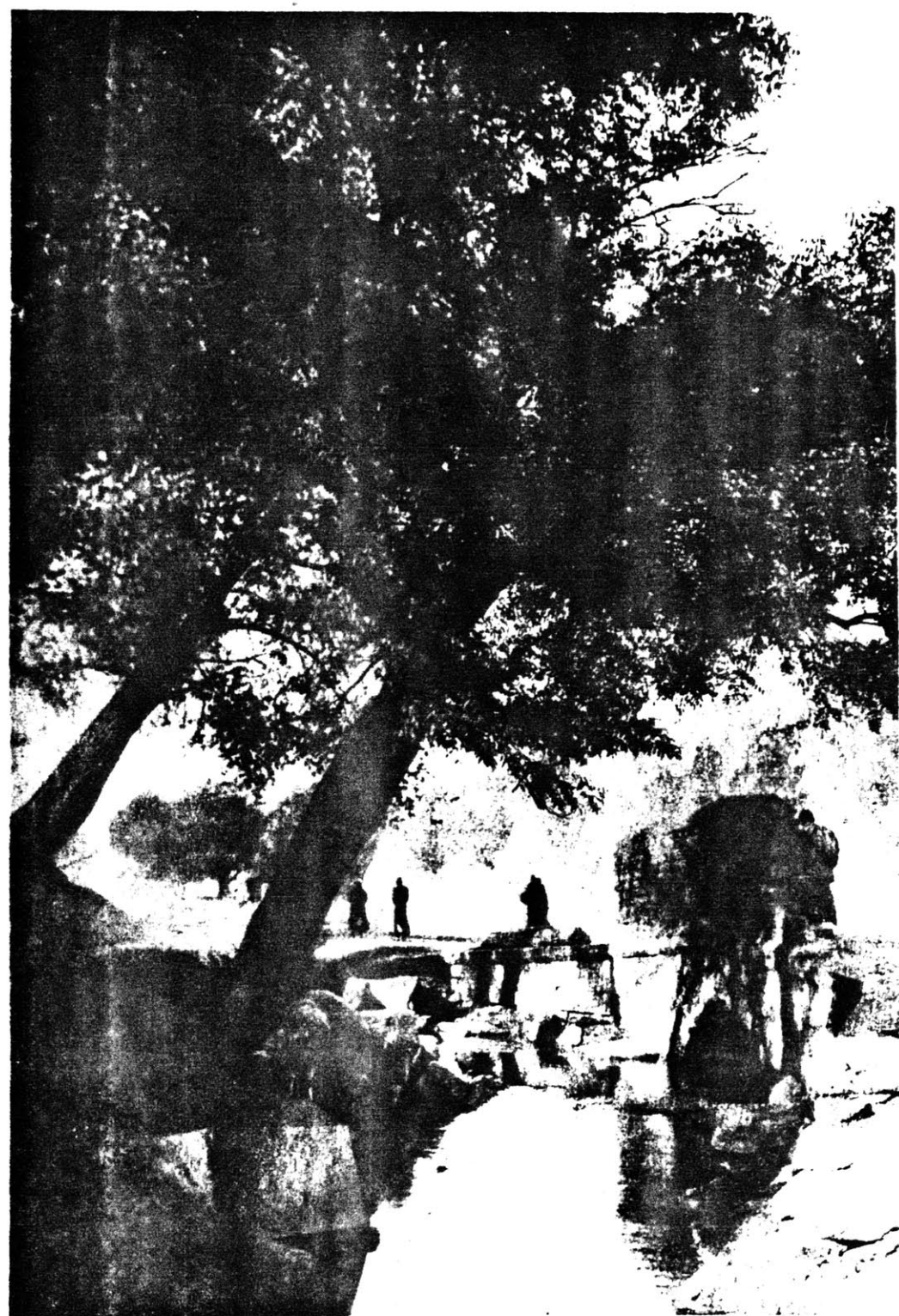
There was a stream that flowed out of Lianhua Paozi from Beian Bridge (北安橋) (8 in MAP 5-3). The stream enters into the northeast corner of the Imperial City through Dongbuliang Bridge (東步量橋) (9 in MAP 5-3),

then goes southward and finally meets the South Moat of the Inner City. The name of the stream was Yu He (玉河, or 柳河, Imperial canal) (18 in MAP 5-3). There was not much water in the stream for the water was usually blocked by the waterlock under Beian Bridge (8 in MAP 5-3). Thus the main volume of water entered into the other outlet on the south shore of Lianhua Paozi.

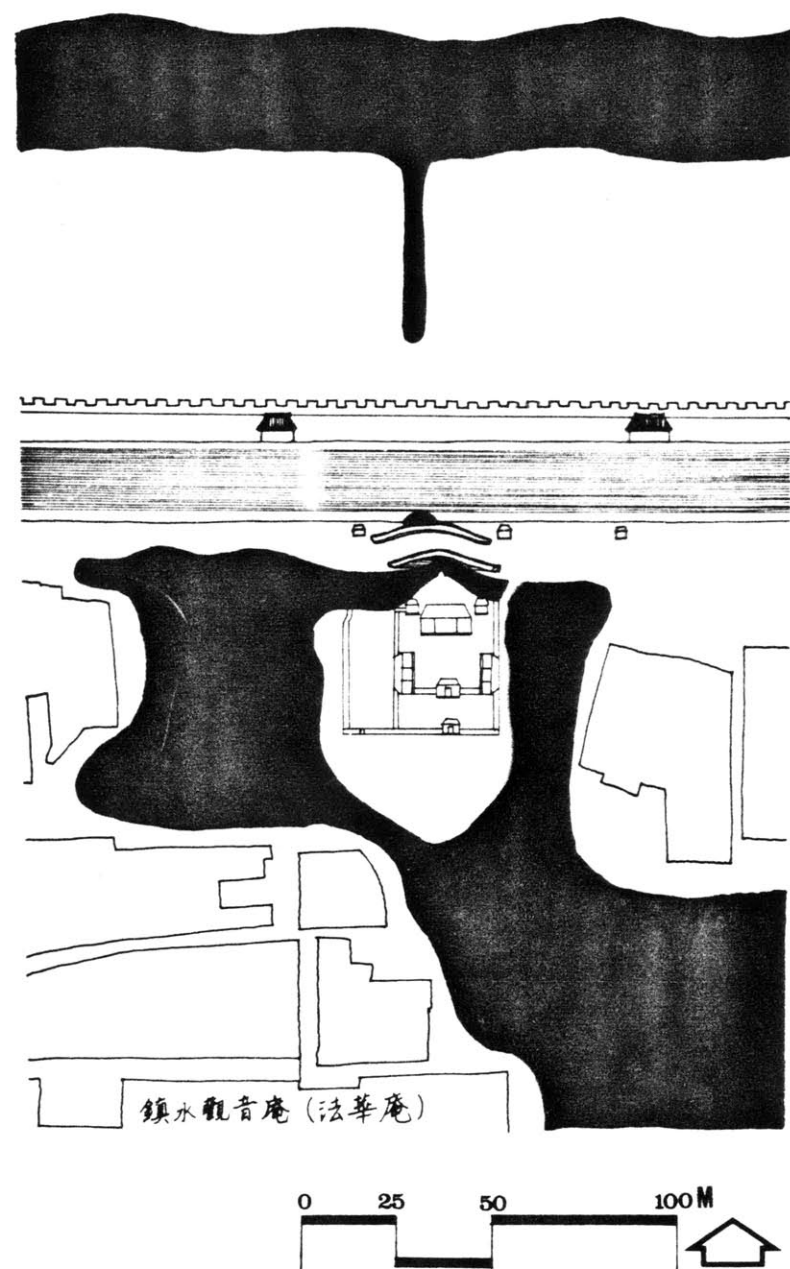
This outlet connected with a water course that went under Xibuliang Bridge (西步量橋) (10 in MAP 5-3) and turned into the Imperial City. It was separated into two courses. The eastern course bypassed Mei Shan (煤山, the Coal Hill) (12 in MAP 5-1), and continued to go southward to the moat of the Forbidden City (紫禁城) (13 in MAP 5-13).

From the moat of the Forbidden City, the stream which distributed into the Forbidden City was Neijinsui He (內金水河, the Inner Gold Water River) (14 in MAP 5-3). From the southeastern corner of the Forbidden City's moat, the water was guided southward through a small stream and met an eastern stream from Zhong Hai. Thus the waters of the west course and the east course met again.

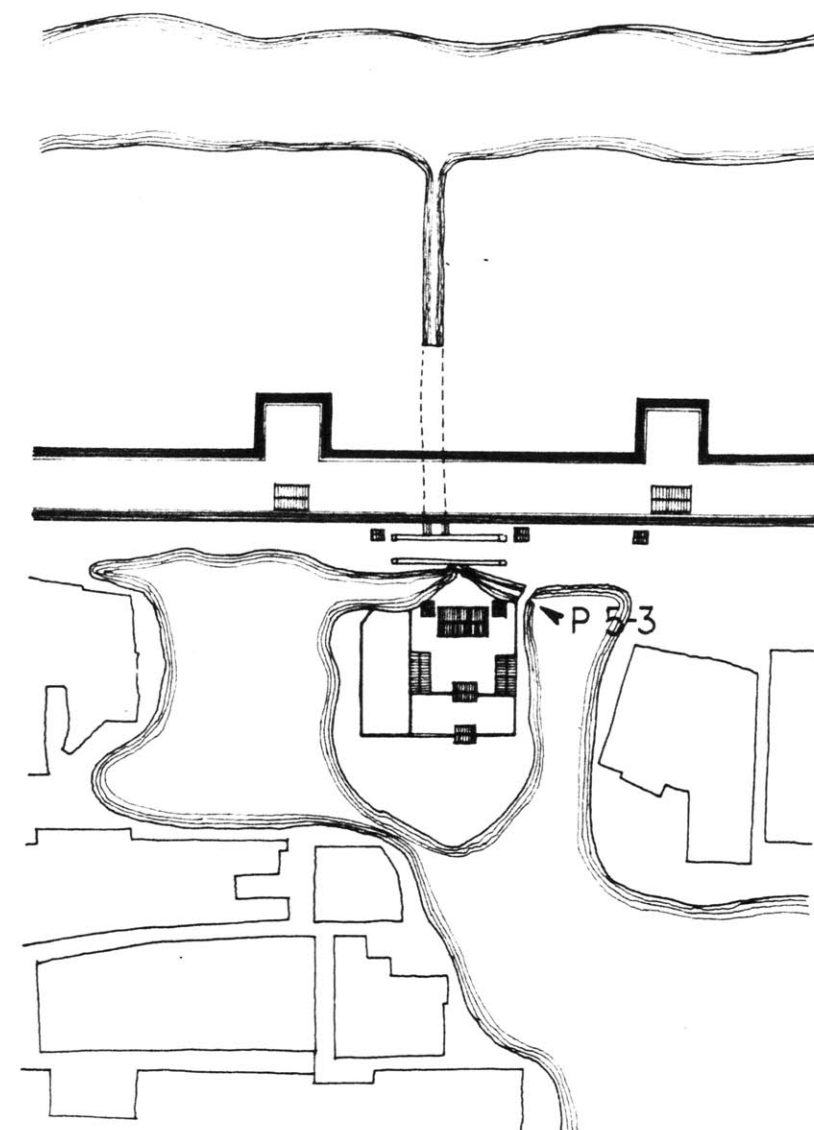
The west course water poured into Bei Hai (北海) (11 in MAP 5-3) and Zhong Hai (中海) (15 in MAP 5-3). Bei Hai and Zhong Hai were one lake separated by a bridge, while Nan Hai (南海) (16 in MAP 5-3) connected with the south shore of Zhong Hai by a short canal. A waterlock was built on the short canal to ensure the stability of water level of Bei Hai and Zhong Hai. Therefore the function of



P 5-3 WATERGATE ON THE NORTH WALL OF
INNER CITY



5-1 WATER GATE AND ZHENSHUI GUANYIN AN
(德勝門水關與鎮水觀音庵)



5-2 WATER GATE AND ZHENSHUI GUANYIN AN
(TOP PLAN)

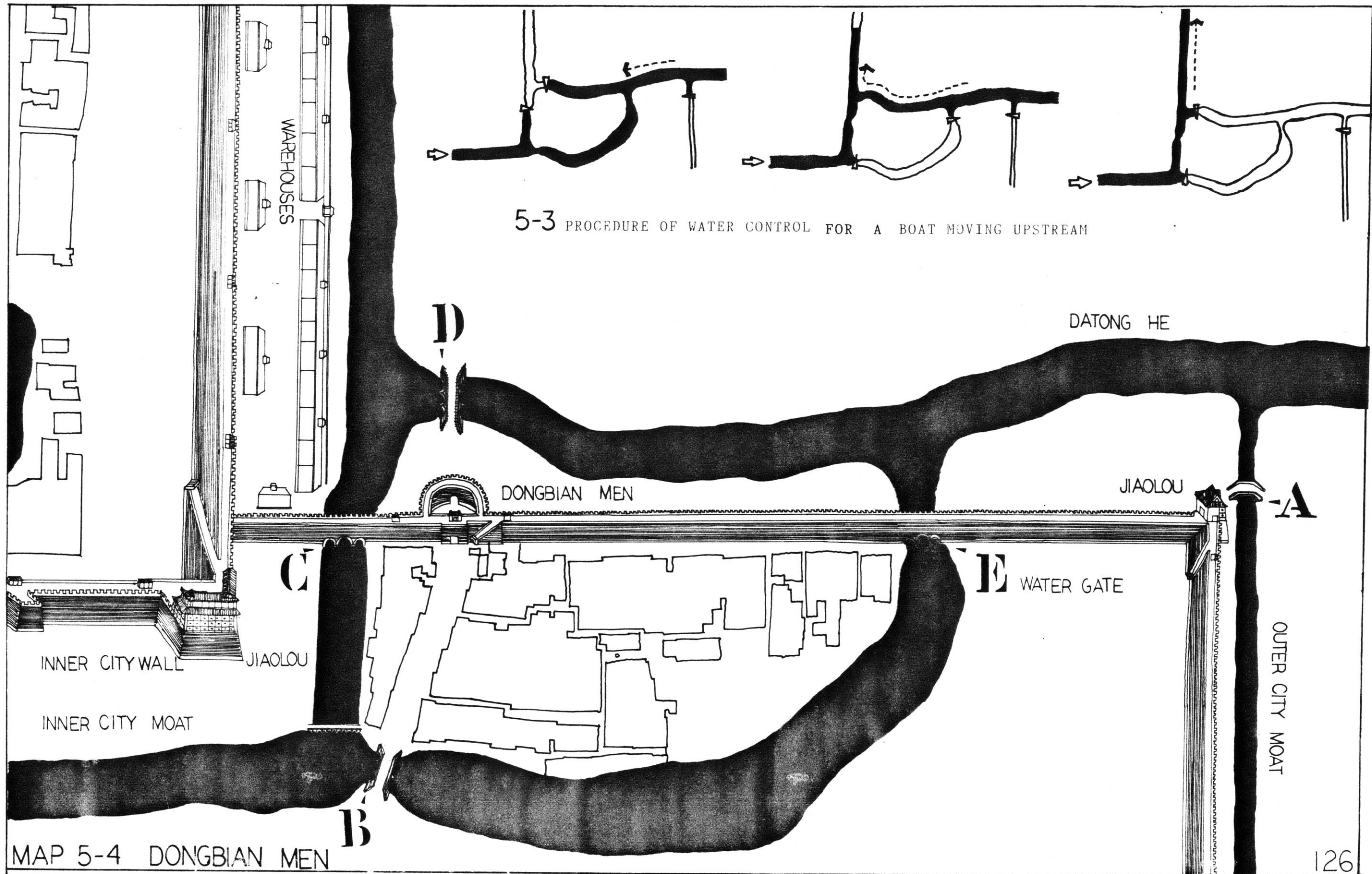
Nan Hai, the same as Shisha Hai, was that of a reservoir for storage of the emergency storm rainwater.

Main stream water went out from the southeastern corner of Zhong Hai. Another waterlock was installed here to maintain the water level. This outlet connected with Waijinsui He (外金水河, Outer Gold Water River)(17 in MAP 5-3). Waijinsui He met the stream coming out from the moat of the Forbidden City after the river passed through the Waijinsui Bridge (外金水橋, at the exact position of 17 in MAP 5-3). Waijinsui He went further toward the east and finally joined Yu He (18 in MAP 5-3). Thus all the courses converged to Yu He.

Yu He flowed further southward and exited the Inner City

through a culvert, then poured the water into the South Moat of the Inner City. From the South Moat, the water went eastward to the southeastern corner of Inner city. This corner was another major node for water flowing control (MAP 5-4).

Datong He and the South Moat of the Inner City were parallel but not on the same line. At the joint of these two water courses, an island was devised to reduce the speed of water flow, and a few waterlocks were built around this island to control water flow. Working together, these watergates controlled the water level of the west section of Datong He and the East Moat of the Inner City for the moving of flat bottom boats (5-3).



WELLS - WATER SUPPLY SYSTEM

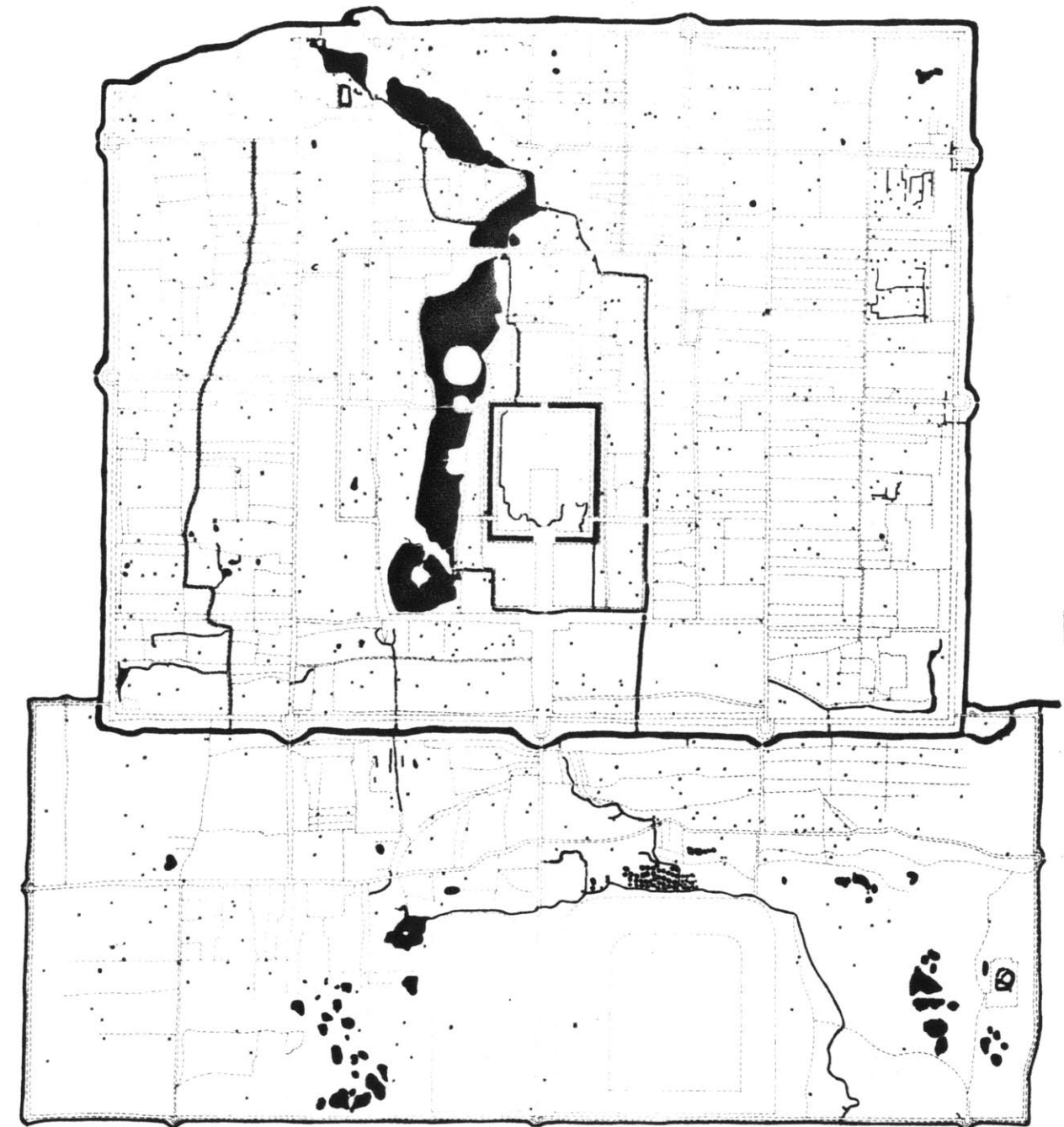
SECTION 2

Before the introduction of the modern water supply system, nearly all of the daily water usages in Beijing, such as drinking, washing, and showering as well as sprinkling of water on streets and drinking water for pack animals, all relied on the supply of well water. Thus, the well system was an important urban facility system. However, unlike the cases of other facility systems, the government did not have a comprehensive plan to deal with this water supply problem. They took care of only some public functions in the well system, such as the drinking water for pack animals and the sprinkling of water on streets.

This does not mean that the

government completely ignored this problem. For example, one reason why the Yuan Dynasty rulers decided to move their capital to a new site was considering the deteriorating quality of well water in the old city. In the Qing Dynasty, some officially published geographic accounts, such as *Shuntianfu Zhi* (順天府志) in 1885, record all wells on streets and alleys simply because these wells were so important to the lives of people.

In this section, we will discuss two aspects of the water supply system: the modes of taking water, and activities and settings of wells.



1750 M (1750)

- * WELL
- OPEN WATER
- DRAIN

MAP 5-5 DISTRIBUTION OF WELLS IN BEIJING 127

THE MODES OF TAKING WATER

From the well distribution map (MAP 5-5), we know that there were very few wells in Beijing considering its high density and large population. The major reason was that, because the groundwater table is 9 - 20 M below ground level, it was economically unfeasible for a normal family to have their own well. Thus, taking water became more important to people's everyday lives. Certain professions even developed to serve the demand for water to some families, such as to bring water to specific families.

There were two kinds of wells in Beijing. One was sweet wells (甜水井), which had not been polluted. The water from these wells tasted sweet and was used as drinking water. The other kind was bitter wells (苦水井). Bitter wells were

more common, thus the water from them was free. Bitter water could only be used to wash clothes, take showers, and water plants. It could not be used for drinking nor for cooking.

Since the bitter wells were more evenly distributed, in general, family would send their servants or youngsters to carry water from the nearest bitter well. Though bitter water was free, residents in Beijing still had to use the water very economically, for carrying water was never an easy task.

As to the sweet well, there would always be a "well master" (井窝子主人) to draw water for people and charged a fee for the water. Wells were usually kept on a two-feet-high base. Normally, the wells were not sheltered by buildings. However, sometimes a well was covered by a booth (P 5-4, P 5-5).

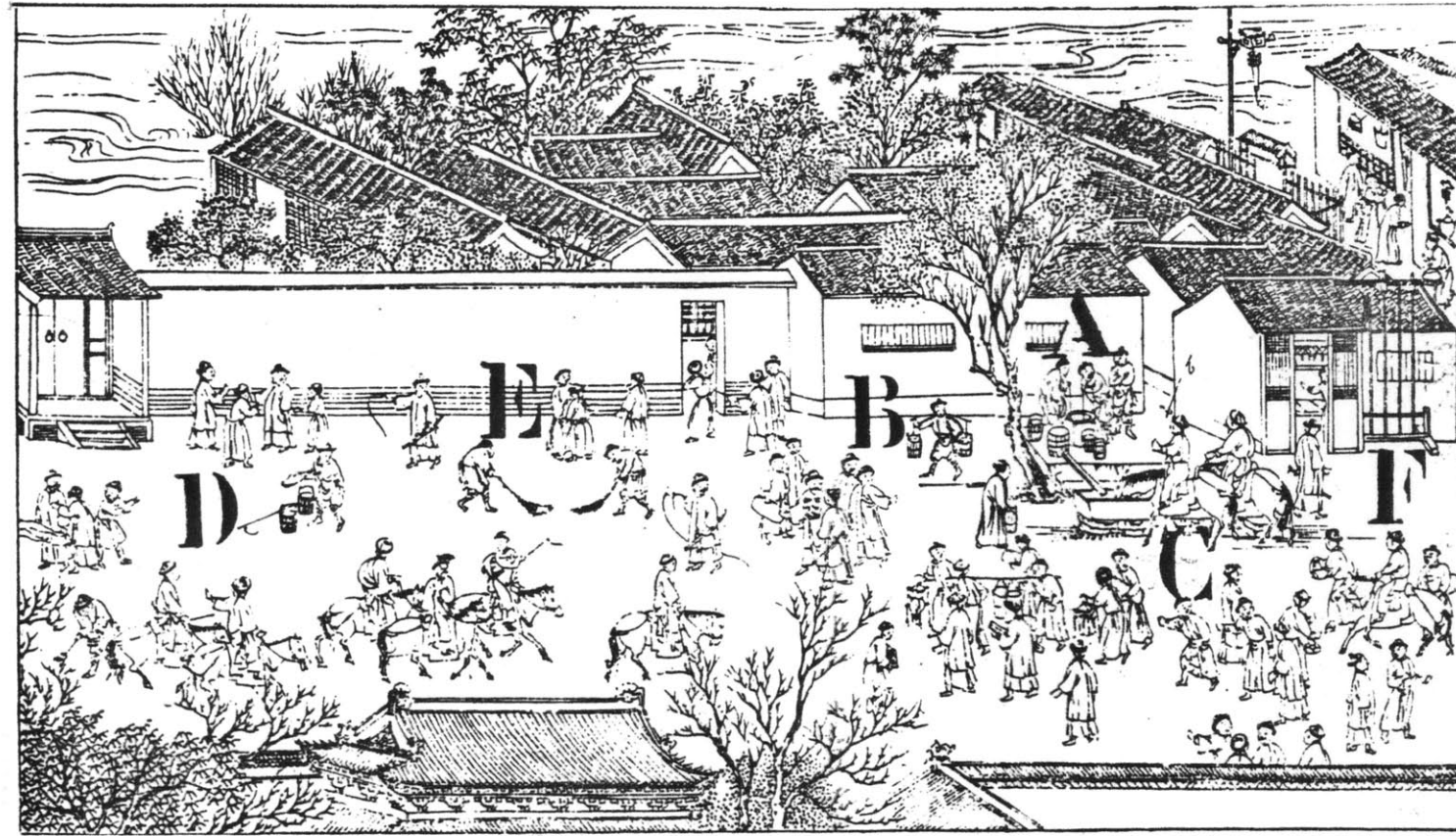
On the base there was a wooden barrel, then a hose connected to this barrel's bottom ring. The well master took water from the well and poured it into the barrel. The hose channels water into customers' containers (P 5-4, P 5-5).

Since the number of sweet wells was small, only those who live near a sweet well could carry the water by themselves. Normally there were water carriers who carried sweet water to the other families. They went to a sweet well to buy water, and brought it to their customers' houses (P 5-6). Customers could order a certain amount of water for everyday use and pay by the month, or buy water when they saw or heard the water carrier in the street and pay cash for the deal.

The water carrier carried water on a monocycle cart with water containers on both sides. The cart was heavy when filled with water, therefore it required good balancing skill and strength to operate the cart. These water carriers mostly came from the Shangdong province. They had certain regulations within their profession.

ACTIVITIES AND SETTINGS AROUND WELLS

Drawing from a simple statistic by counting the wells on "The Complete Map of Beijing", 90 percent of the wells in Beijing were located in public or semi-public territories. There is no doubt that wells were shared urban facilities in Beijing. It is intriguing then for us to see what the surrounding environment of a well was like, and what would be the kind of activities



P5-4

WAN SHOU SHENG DIAN TU

(萬壽盛典圖)

A: taking water

B: carry water

C: drinking horses

D: sprinkling water

E: sweeping street

F: a police station

(堆撥)

G: Longwang Miao

(龍王廟)

H: a monocycle cart



P5-5

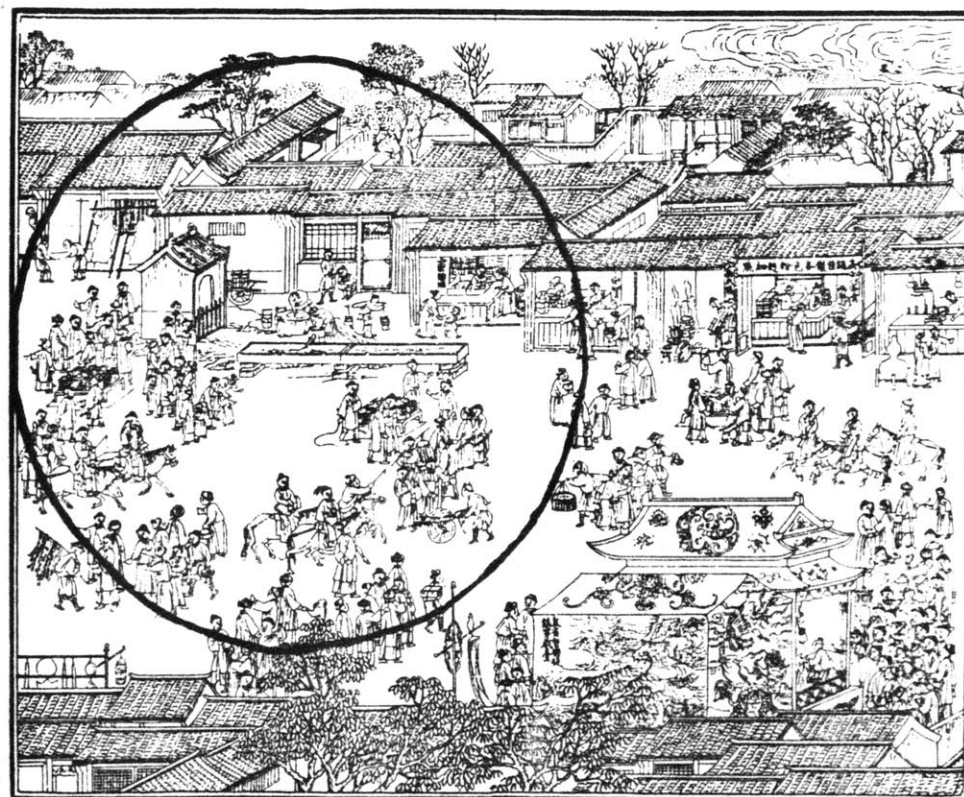
P5-6 WATER CARRIER



that happened in these spaces.

Observing from the randomly picked examples (5-4, 5-5, 5-6, 5-7, 5-8, 5-9), we are able to categorize the spaces around a well into five different types. The typology suggests that these may not have had meaning to the city dweller of Beijing. The categorization is based on my own observations.

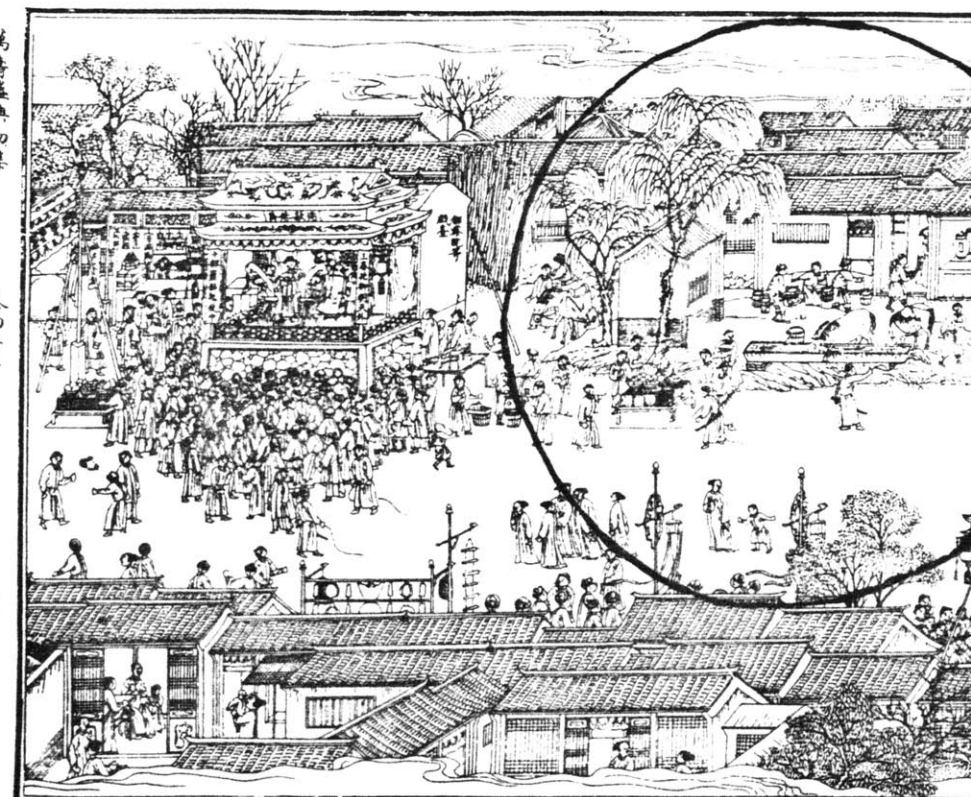
In the first type, wells were located aside a "dajie." There were certain characteristics that appeared in every case. The wells sit on one side of a street. A small temple or sometimes a security pavillion (堆撥 - police pavillions) sits on the north side of the well in order to protect the well from the sandy north wind. The small temple, usually a Longwang Miaos (龍王廟, Temples for Emperor of Dragon),



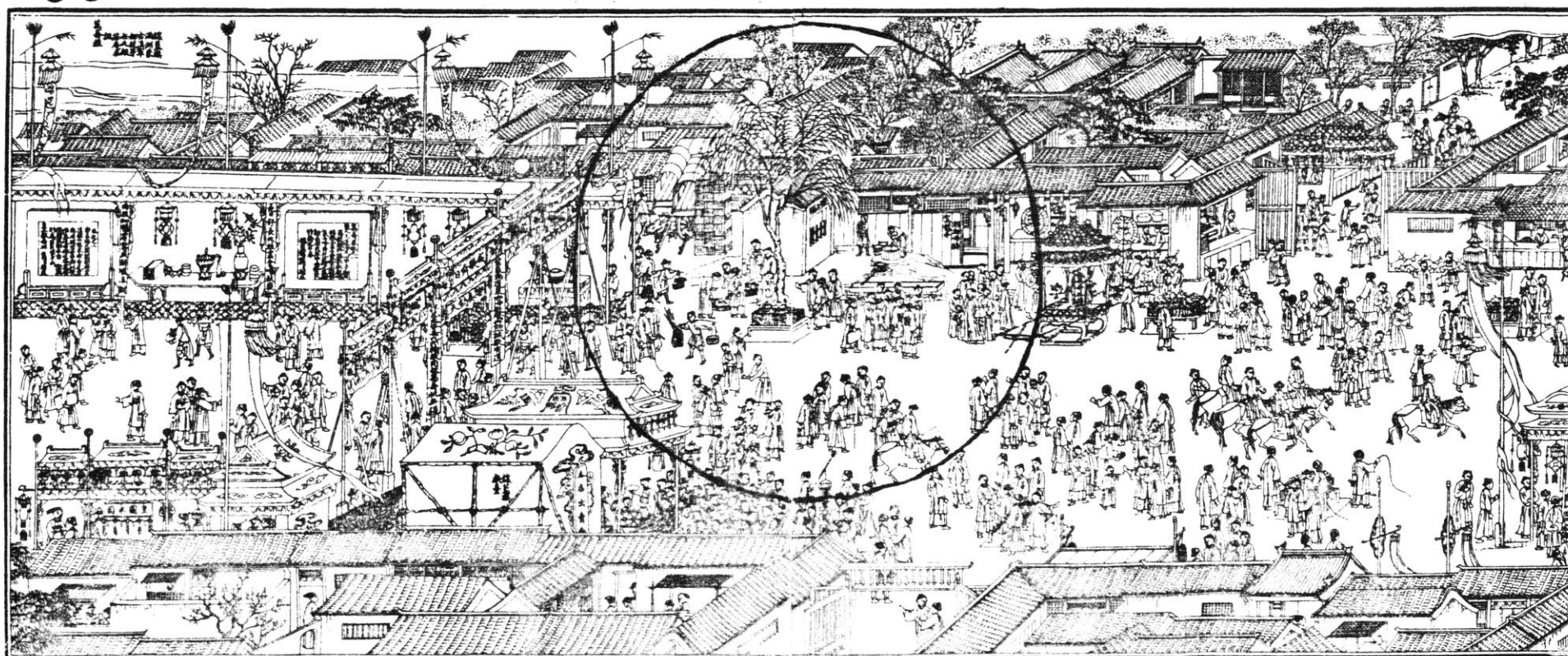
P5-7 WAN SHOU SHENG DIAN TU

P5-9 (萬壽盛典圖)

Three examples of well on streets



P5-8



was set up to worship the gods of water supply. In many cases, on the north side of these wells there were willow trees to protect the well too (5-4, P 5-7, P 5-8, P 5-9).

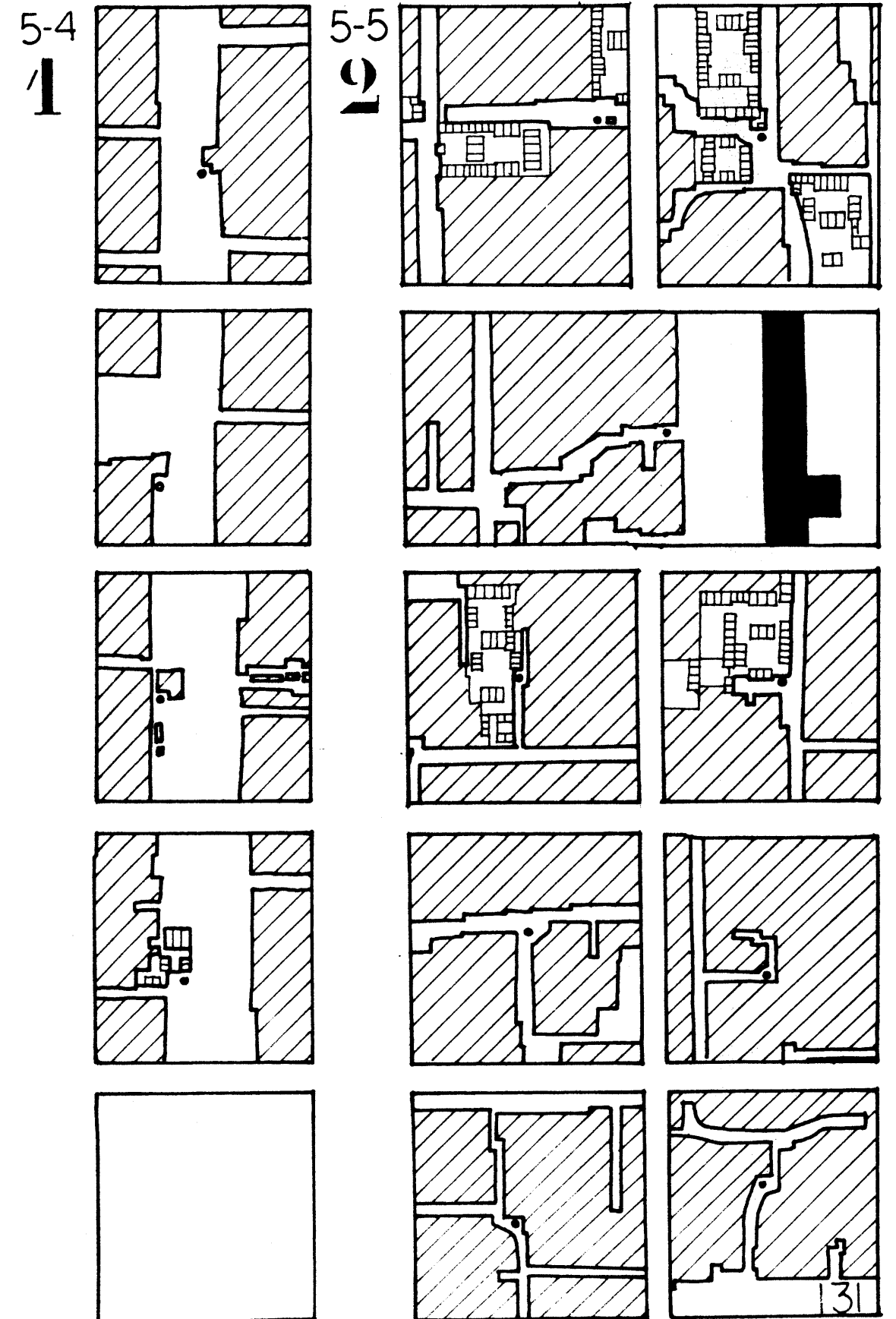
This type of well has a long history. In the Yuan Dynasty, wells are made available in many spots of Dadu and Zhongdu by semi-public powers to water the thirsty pack animals. They were called - Shisui Tang (施水堂, pavilions of supplying water). Inheriting this tradition, on the major streets there was a series of wells and troughs in Ming and Qing Dynasty Beijing to water animals.

Another function of setting up these wells on street sides was to provide water for the water-sprinkling soldiers (洒水卒) who sprinkled water onto the streets. In one of our

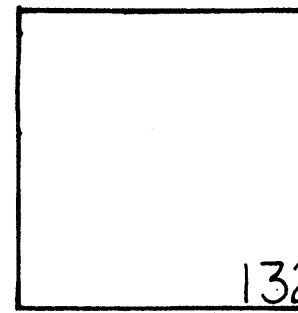
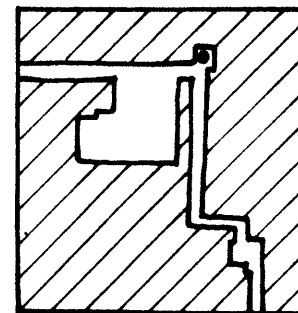
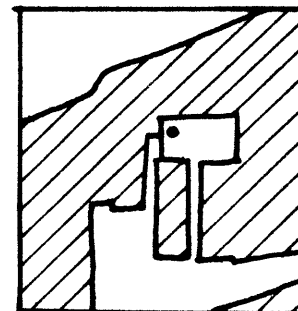
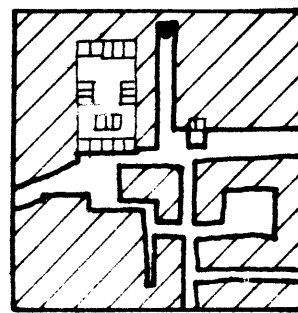
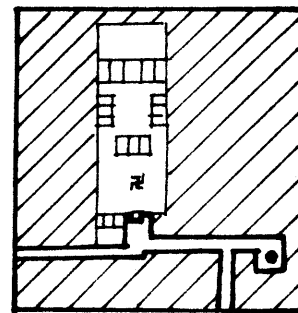
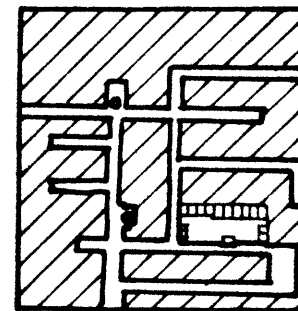
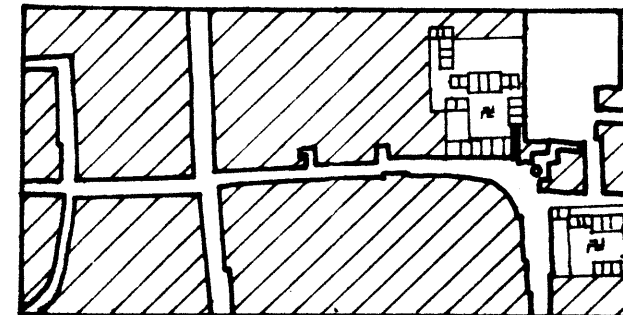
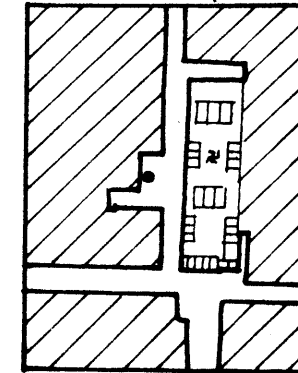
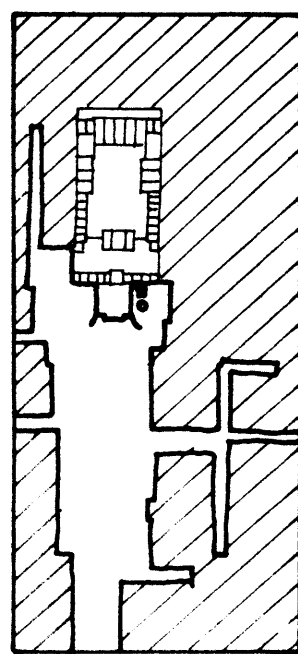
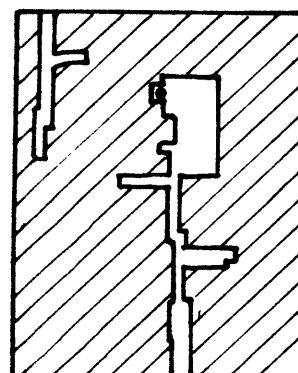
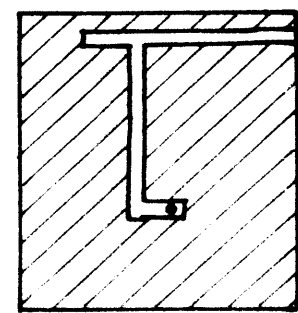
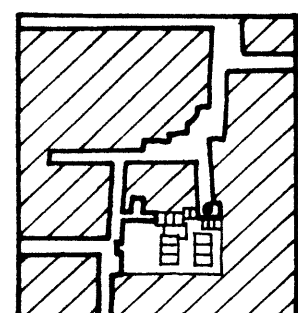
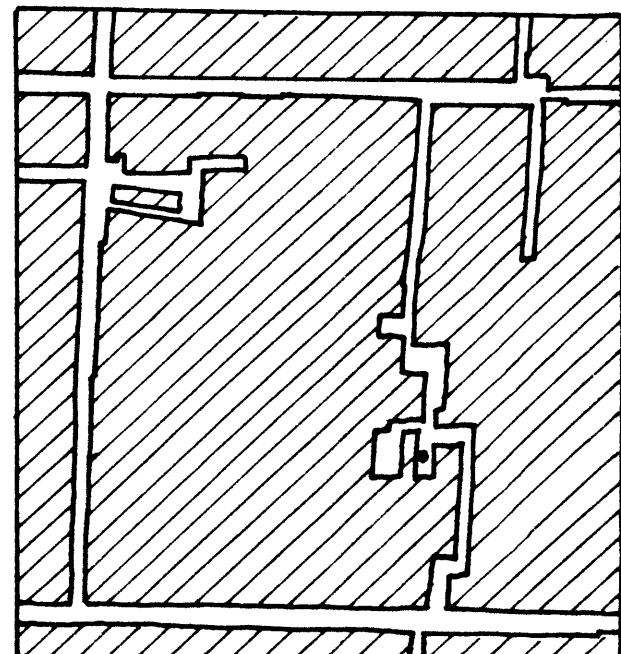
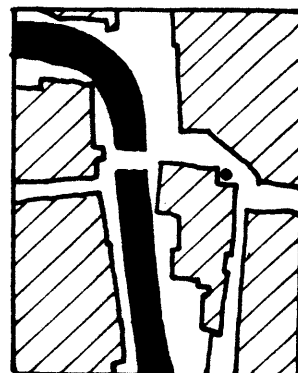
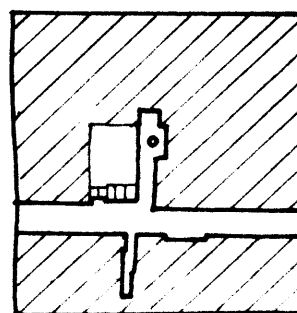
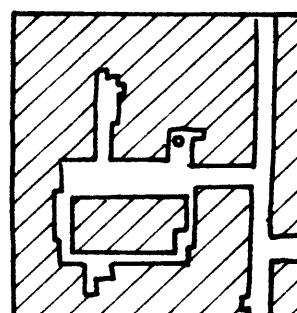
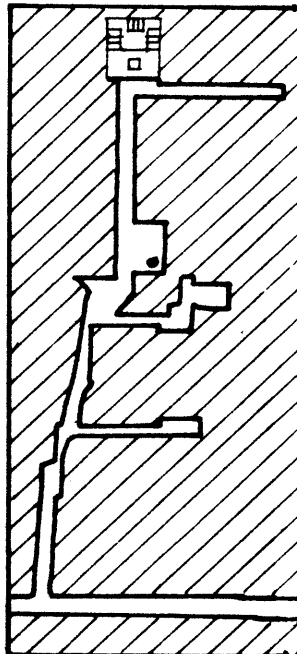
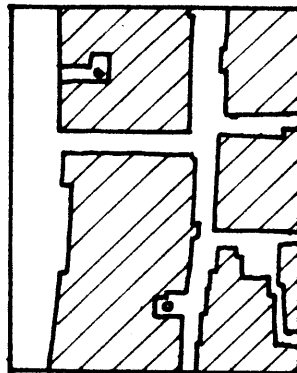
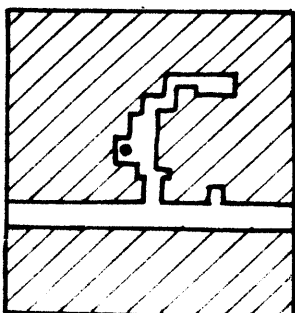
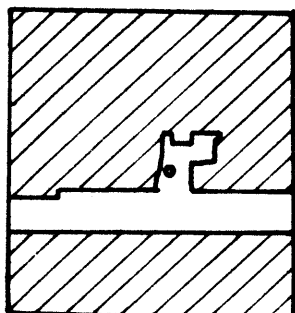
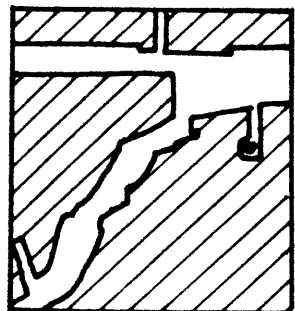
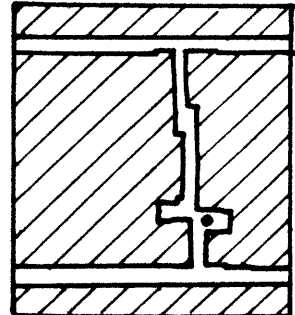
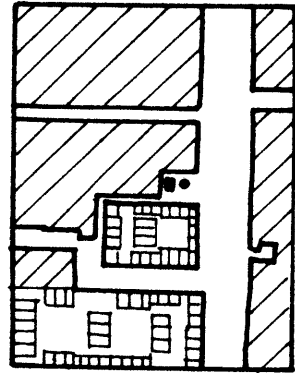
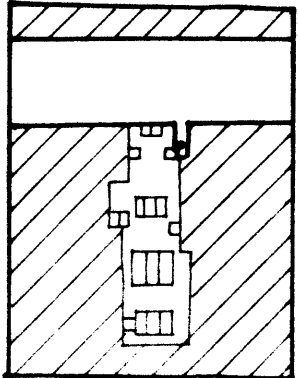
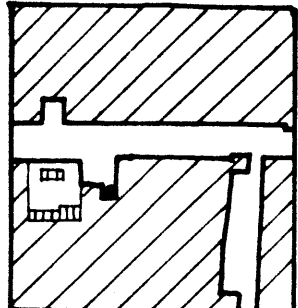
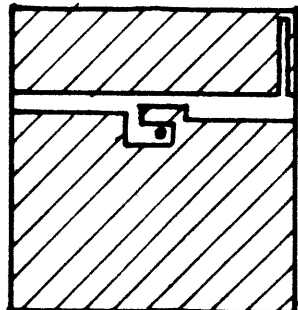
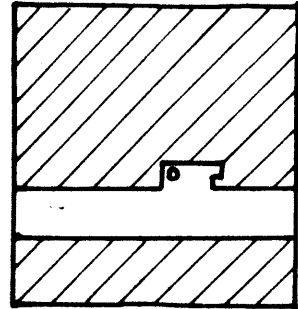
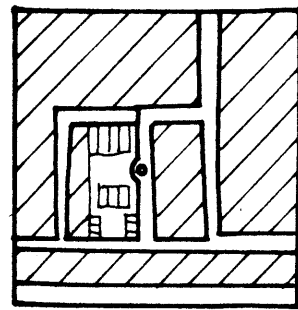
illustrations, we find a soldier sprinkling water and two others sweeping the street (P 5-4).

The second type of well stands in the middle of a small alley. In these cases, the alleys are narrow enough to protect the well from the sandy wind. We also find that most wells of this type are located at a joint of several alleys (5-5).

Almost one-third of the well spaces are classified as the third type. The wells in this type are contained in a small alcove and faced other larger open spaces such as streets, alleys, or squares. The dimension of these alcoves is about 10 meters by 10 meters. It is wide enough to contain the activity of taking water as well as other accessory activities. Vendors or eateries usually set up their stalls, tents, and



5-6
3



tables and chairs nearby. Some of the alcoves of this type were public; some of them were located at the end of an alley and were thus more private (5-6).

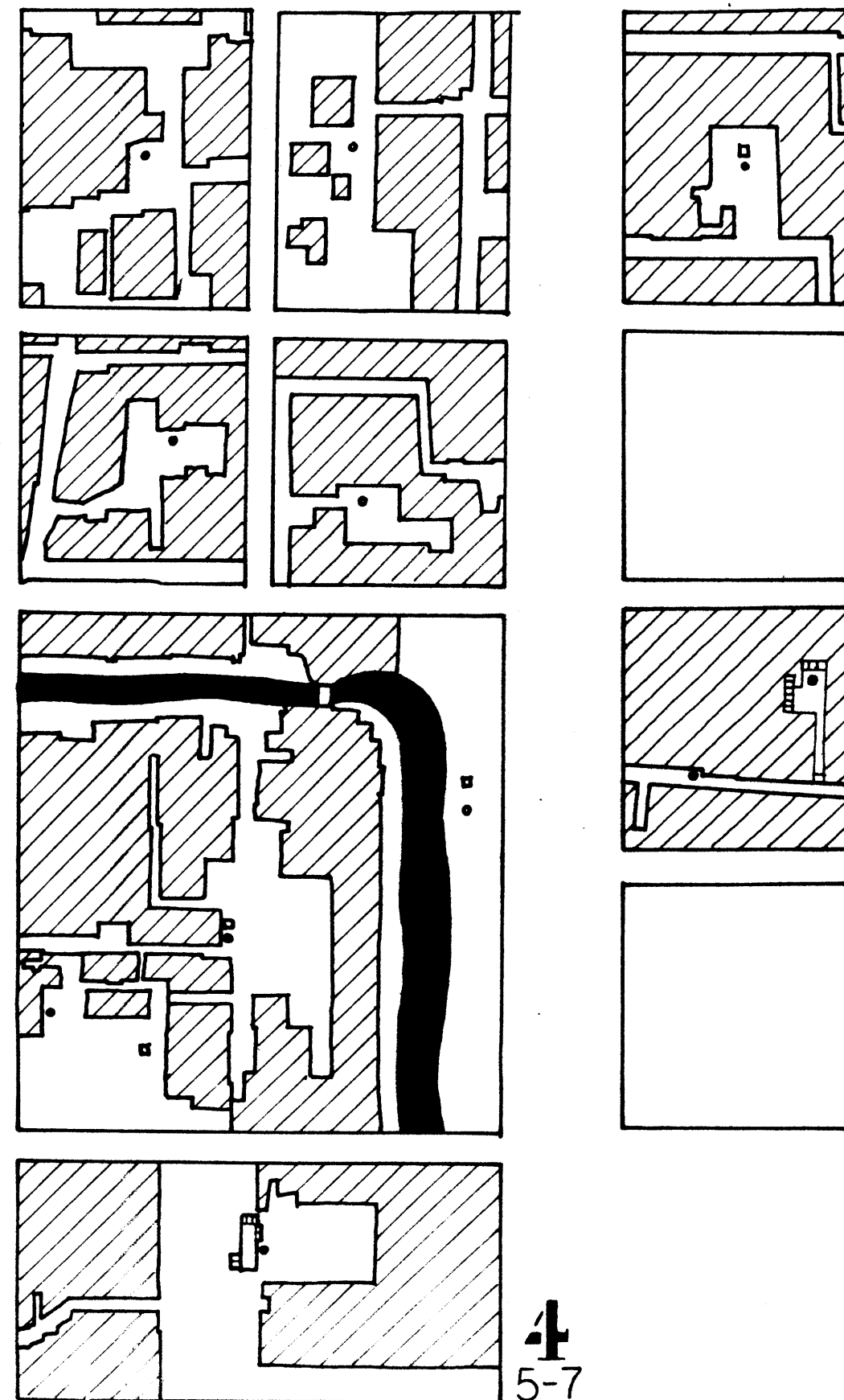
Wells of the fourth type are located in a large open space. The enclosures for these wells are different case by case. Some of them are securely enclosed, some of them have buildings scattered around. Another situation is that of a well located in a space where not many buildings are around. Most of these situations are in the southwest and southeast part of Outer City (5-7).

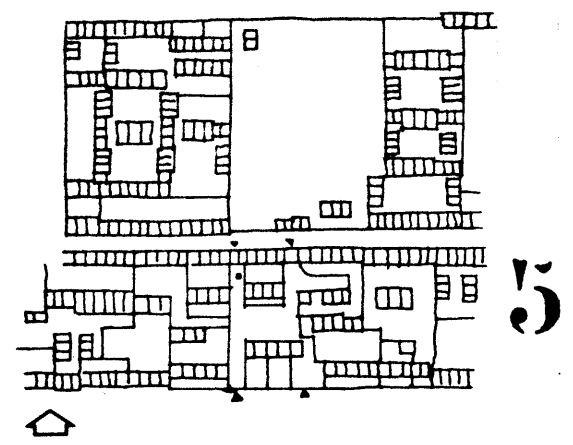
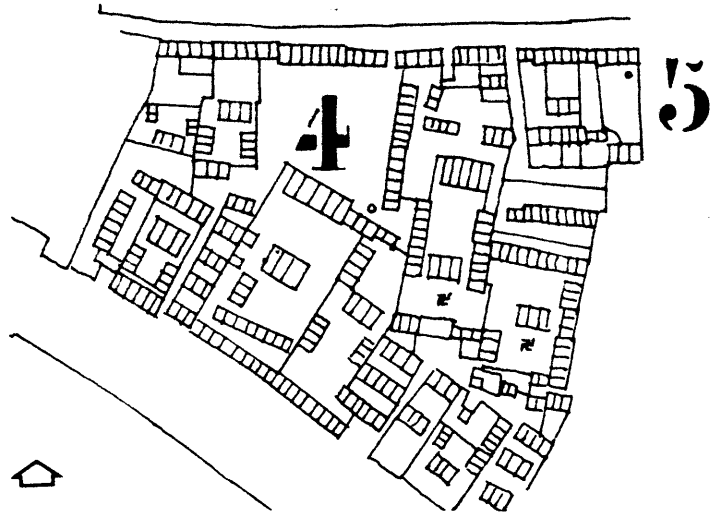
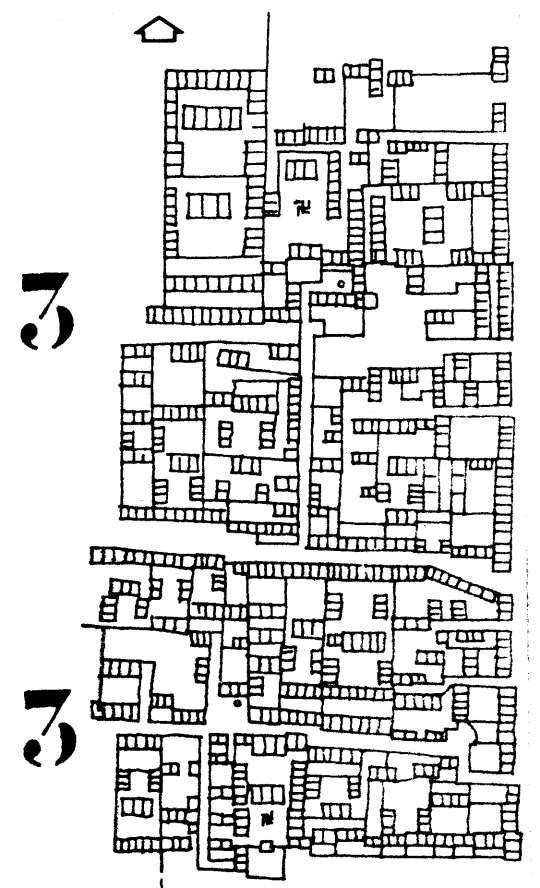
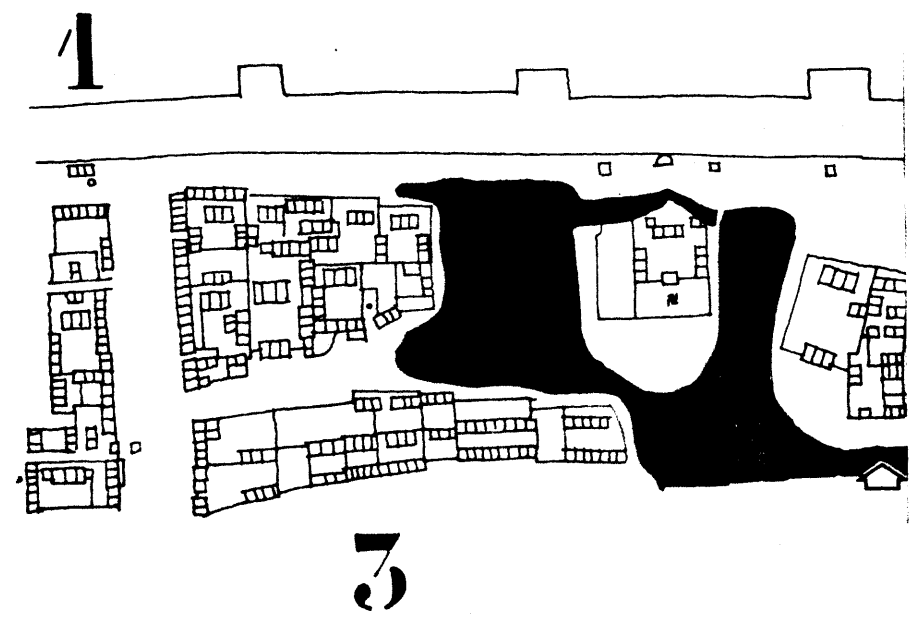
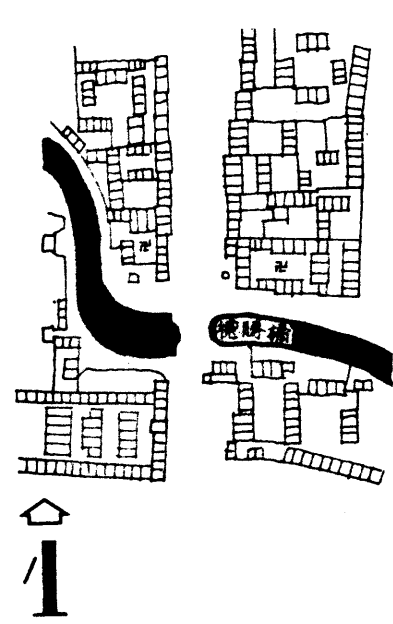
The fifth type of well is located in a courtyard. Some of the courtyards are private; however, in many cases courtyards are semi-public (5-8, 5-9).

An issue important to the environment is that almost thirty percent of the wells were directly or indirectly related to the locality of a temple. The combination of temple, well, and open space creates a special atmospheric urban space.

Some people came to the temple for religious reasons, some people came to the wells to take water. With these two attractions, these spaces became important meeting places, this brought in vendors. The vendors in turn drew more people to these places.

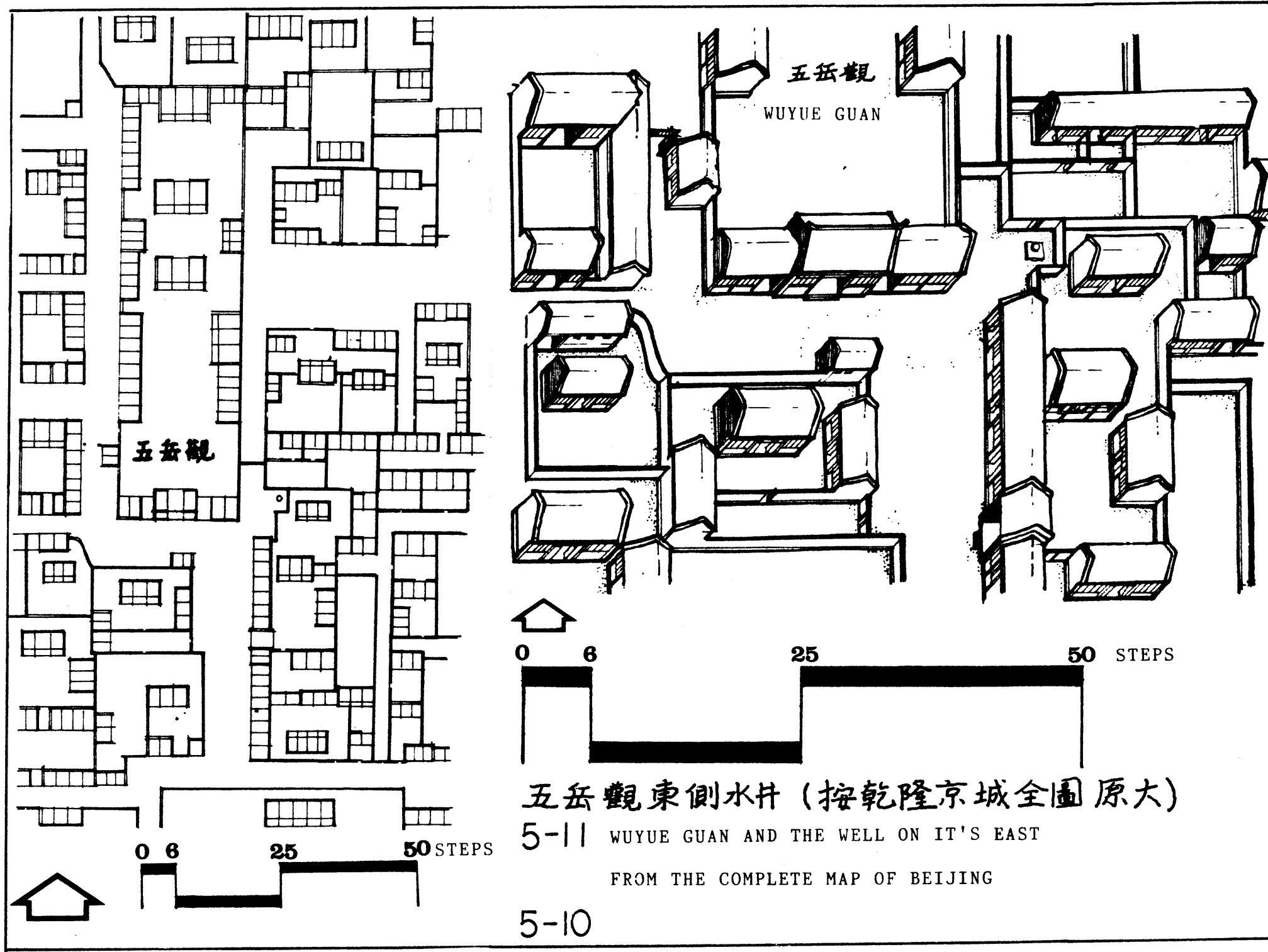
In order to get a clearer image, the author has chosen one well on the northeast corner of the city as an example to show the relationships among well, the temple, and surrounding urban spaces (5-10, 5-11).





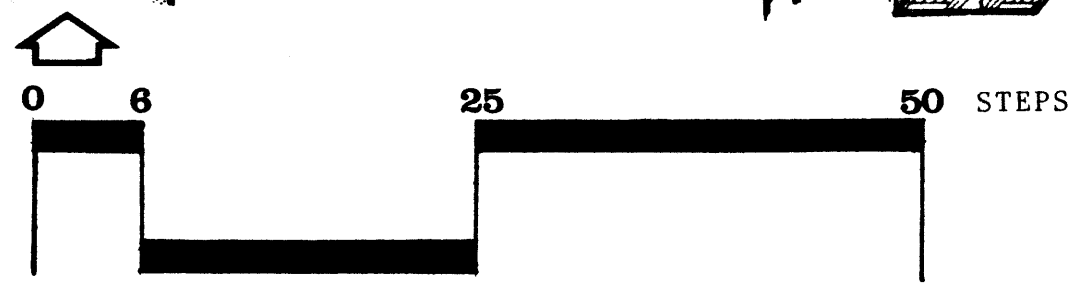
- well
- ▣ houses
- ▲ entrance to well
- water
- ⊠ temple

5-9 DIFFERENT TYPES OF WELLS



五岳觀
WUYUE GUAN

五岳觀



五岳觀東側水井 (按乾隆京城全圖原大)

5-11 WUYUE GUAN AND THE WELL ON IT'S EAST

FROM THE COMPLETE MAP OF BEIJING

5-10

DRAINAGE SYSTEM

SECTION 3

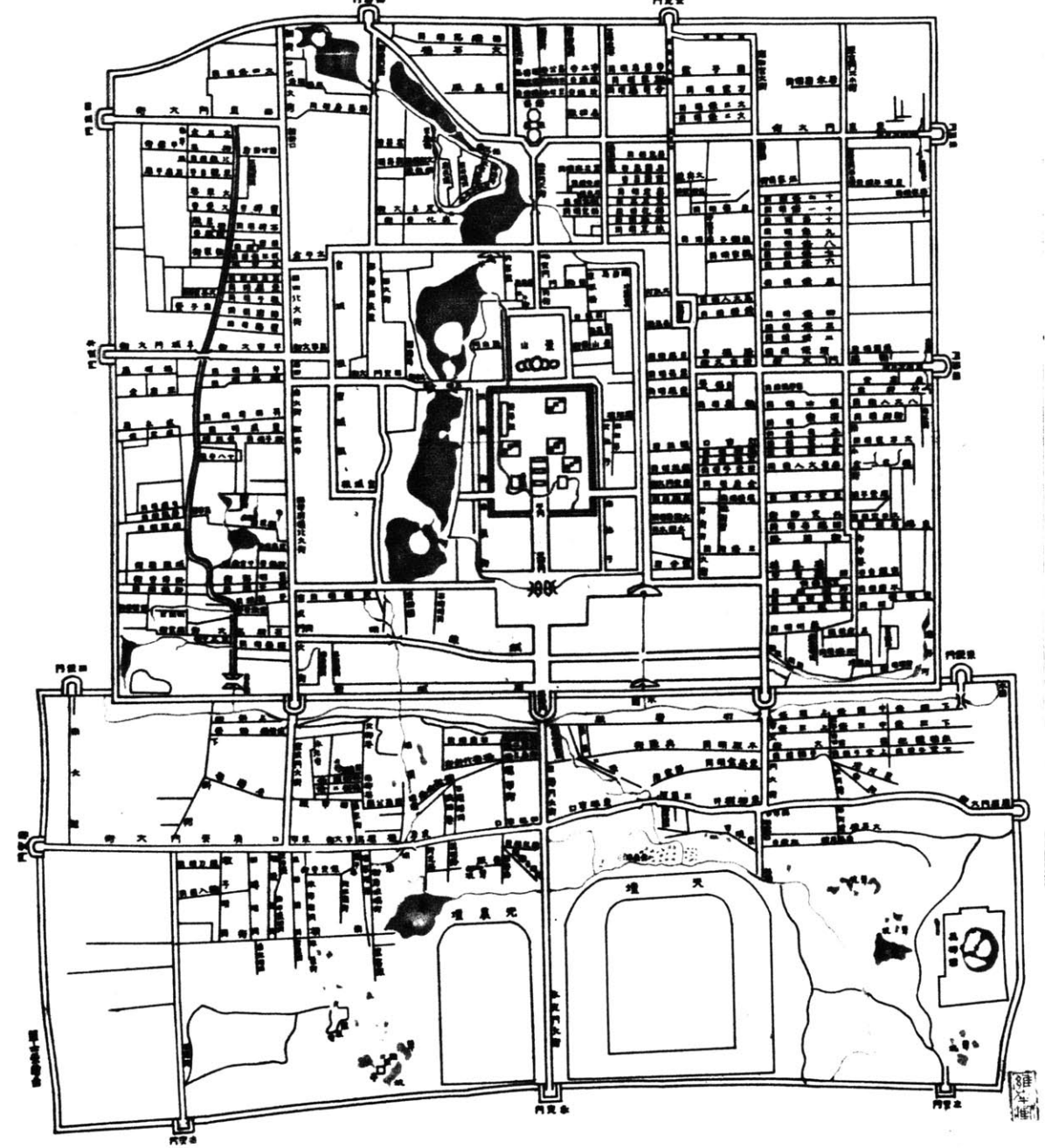
In Chinese urban design history, the drainage system had always been of major concern in designing a new city. Both Zongdu of the Jin Dynasty and Dadu of the Yuan Dynasty installed their own drainage system. The drainage system of Zongdu had never been repaired after the abandonment in the Yuan Dynasty, therefore, there is almost no trace that can help us to find its abandoned drains. On the contrary, most parts of the drainage system in Dadu were inherited and repaired by the government of the Ming and Qing Dynasties and later redesigned as part of the modern drainage system.

HISTORICAL RESOURCES ON DRAINAGE SYSTEM

"The Complete Map of Beijing" sketches only the open channels of the water system. Thus, we can gather information about the drainage system only from other sources.

There is another map which appeared in the appendix of a book - "Jin Shi Chengnei Hedao Guoqu Tushuo" (京師城內河道清渠圖說) - which mainly describes the drainage system of Beijing in the late Qing Dynasty. However, this map - "QienLong Dai Beijing Hedao Guoqu Tu" (乾隆代北京河道清渠圖), is claimed to be a drainage system map from the QienLong period.

圖渠溝道河京北代隆乾



MAP 5--6 QIENLONG DAI BEIJING HEDAO GUOQU TU (1743)

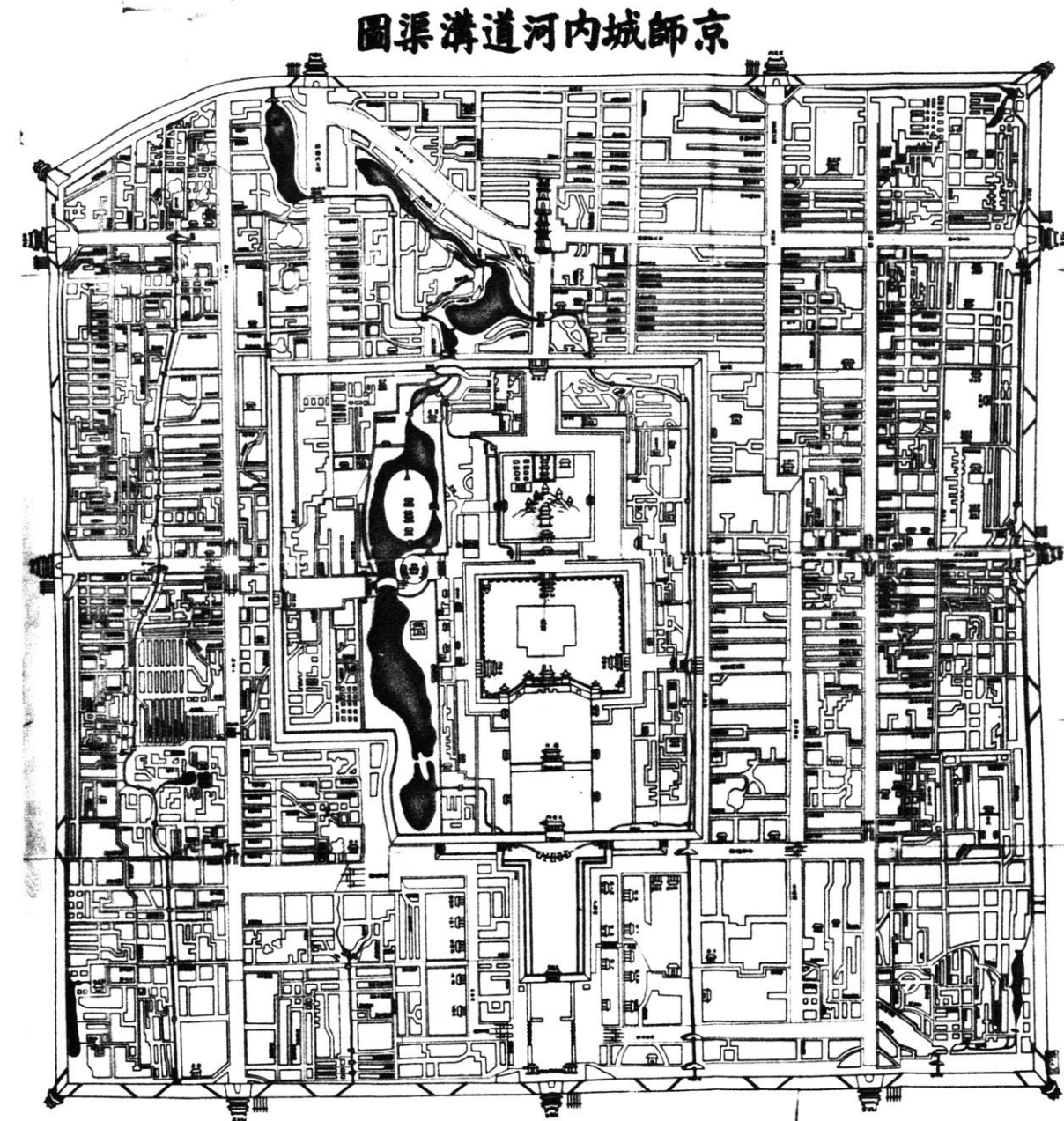
There is no description about this map in the book. The only information we are given is that the map was originally reserved in the Map Room of the Imperial Workshop. It is very possible that this map is the same as the 1743 map called "He Dao Guoqu Tu" in mentioned in chapter one, or at least that it has very close relationship with the "He Dao Guoqu Tu" (Table 1-1).

The characteristic of this map is that it is a plan instead of an image, which means no building facades are shown, and which is rare in Chinese maps. Compared with "The Complete Map of Beijing," the proportion of "QienLong Dai Beijing Hedao Guoqu Tu" is not accurate. However, all the alleys on this map can be identified in "The Complete Map of Beijing." The information given in this

section is based mainly on "QienLong Dai Beijing Hedao Guoqu Tu" (MAP 5-6).

There is another map in the same book described above - "Jin Shi Cheng Nei Hedao Guoqu Tu" (京師城內河道溝渠圖), produced in the Guangxu Period (1879 - 1908) of the Qing Dynasty. It carries lots of useful information about the drainage system, such as how the drains crossed the streets (MAP 5-7). It could serve to help clarifying some of the unclear details of the Qienlong period drainage system map.

A book published in 1921 by Sidney Gamble - "Peking: A Social Survey" - also carries information about the drainage system of Beijing around 1920. The short description provides the conditions of the drainage system in the early years of



MAP 5-7 JING SHI CHENG NAI HEDAO GOUQU TU (1875-1908)

this century, can be used for a comparative study (MAP 5-8).

DRAINAGE SYSTEM

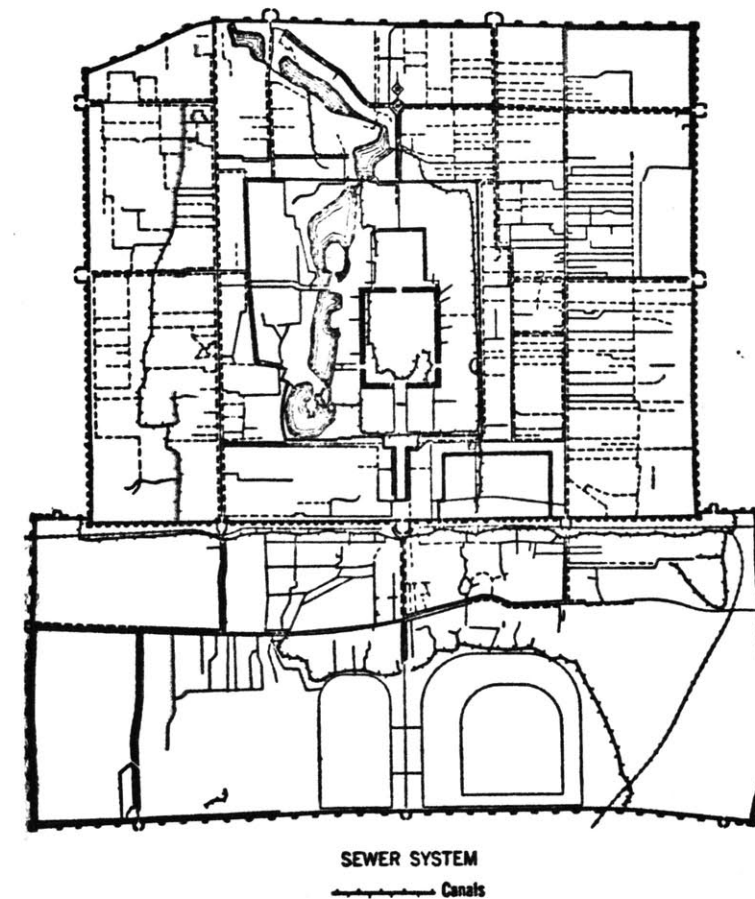
The drainage system on the overlap area of the Inner City of the Qing Dynasty and Dadu had kept the original layout from the Yuan Dynasty. Each alley had its own covered drain which collected rain water from drain-eyes on the alley (5-12). These drains connected with larger drains on both sides of a north-south street ("dajie" or "xiaojie"). These larger drains on "dajie" or "xiaojie" then led to the outlet on nearby open channels.

The system kept its original shape except that the latter installed institutions, warehouses, and workshops were built after the Yuan Dynasty and interrupted the alley system and its counterpart - the drainage

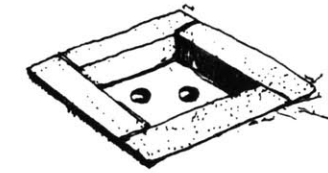
system. After the interruption, these institutions might move elsewhere or be canceled, thus creating new available spaces. Those who moved into the new area developed their alley system incrementally without planning in advance.

The southern part of the Inner City was not incorporated into the Inner City until the early Ming Dynasty. Before then, only a few institutions and houses had been built. The Ming Government did not completely reorganize the city's infrastructure in the YungLe period's reconstruction. Thus, the drainage system of the southern part of Inner City was similar to that of the Outer City because it was once outside the city.

The developing process of the drainage system of the Outer



MAP 5-8 DRAINAGE SYSTEM MAP (1920)
FROM GAMBLE: PEKING A SOCIAL SURVEY



5-12 DRAINAGE EYES
FOR THE COLLECTION
OF STORM WATER



MONOCYCLECART
TO COLLECT
EXCREMENT

P 5-10

City was similar to that of its streets system. It also combined drains built in different times and on different locations. The pattern of drain distribution was different from one area to another.

The drainage system collected only rain water. The waste water and excrement were not allowed to go into the drainage system. They were collected by the farmers who live near the city, and used for compost. The collectors of waste water and excrement used a monocyclecart with large barrels on both sides of the wheel (P 5-10).

MAINTENANCE

The Qing government maintained the drainage system very carefully. The Imperial Army took the responsibility for the ordinary works of maintenance, and the Engineering Ministry in the administration set up a branch

to take care of the inspections in March every year, and to repair serious damage after the storm season. Other than these, the government had a budget to renew part of the drain every year. In this way all drains were renewed every five years. The renewed work was assigned to a family that had hundreds of years of experience in repairing and renewing the drainage system. The old maps of drainage system pictured here are all from this family.

REFERENCES

CHINESE REFERENCES PUBLISHED AFTER 1911

- Bai, Teizheng (白鐵錚), Lao Beiping Chui Er Pang Feng (老北平吹耳旁風), Taichung 1977.
-- Lao Beiping De Gugudianer (老北平的故古典兒), Taichung 1979.
- Cao, Zong Ru (曹宗儒), Qing Nei Fu Cang Qian Long Jing Cheng Quan Tu Nian Dai Kao (清內府藏乾隆京城全圖年代考), Wen Xian Te Kan (文獻特刊), Beijing 1935.
- Chen, Cheng-Siang (陳正祥), Zhong Guo Di Tu Xue Shi (中國地圖學史), Hong Kong 1979.
-- Zhong Guo Wen Hua Di Li (中國文化地理), Hong Kong 1981.
- Chen, Gao Hua (陳高華), Yuan Da Du (元大都)- Beijing Shidi Congshu (北京史地叢書), Beijing 1982.
- Chen, Hong Nien (陳鴻年), Gudu Fengwu (故都風物), Taipei 1968.
- Chen, Wen Liang (陳文良), Beijing Ming Yuan Qu Tan (北京名園趣談), Beijing 1983.
- Chen, Zong Fan (陳宗藩), Yendu Congkao (燕都叢考), Beijing 1931.
- Cheng Jing Qi (程敬琪), Yang Ling Yu (楊玲玉), Beijing Chuantong Jiefang Di Baohu Zhangyi - Nanlougu Xiang Siheyuan Jiefang (北京傳統街坊保護爭議-南鑼鼓巷四合院街坊), Jienzhu Lishi Yen Jiu (II) (建築歷史研究), Beijing 1984.
- Feng, Kuan (奉寬), Yenjing Gucheng Kao (燕京故城考), Yengjing Xuebao (燕京學報) No.5 p. 833-911, Beijing June 1940.
- Huo, Ren Zhi (侯仁之), Bei Hai Gongyuan Yu Beijing Cheng (北海與北京城), Wen Wu (文物) No.4, 1980 Beijing.
-- Lishi Dili Xue Di Lilun Yu Skijian (歷史地理學的理論與實踐), Shanghai 1979.
- Hou, Ren Zhi & Jin, Tao (金濤), Beijing Shihua (北京史話), Shanghai 1980.
- Imanishi, Shunju (今西春秋), Qienlong Jing Cheng Quan Tu Jie Shuo Ji Suo Yin (乾隆京城全圖解說及索引, in Japanese) Beijing 1940.
-- Jing Shi Cheng Nai Hedao Gouqu Tu Shuo (京師城內河道溝渠圖說, in Chinese and Japanese), Beijing 1941.
- Jienzhu Gongcheng Bu Jienzhu Kexue Yenjiuyuan Jienzhu Lilun Ji Lishi Yen Jiu Shi (建築工程部建築科學研究院建築理論及歷史研究室), Beijing Gu Jienzhu (北京古建築), Beijing 1959.

- Jin, Ying Chun (金應春), & Qiu, Fu Ke (丘雷科),
Zhongguo Ditu Shihua (中國地圖史話),
Beijing 1984.
- Li, Jia Rui (李家瑞), Beiping Fengshu Leizheng (北平
風俗類徵), Nanjing 1937.
- Li, Jing Wu (李景武), Beiping Fengtu Zi (北平風土
記), Taipei 1967.
- Liu Dun Zhen (劉敦楨), Zhong Guo Gu Dai Jienzhu Shi
(中國古代建築史), Beijing 1980.
-- Qing Huang Cheng Gong Dian Ya Shu Tu Niendai Kao
(清皇城宮殿符璽圖考), Ying Zao Xueshe Huikan
(營造學社彙刊) No.2 Vol.6 1935.
- Liu, Guan Er (劉官誥), Neiwufu Yutufang Cang Tu Jiyao
(內務府與圖書藏圖記要), Wenxian Lun
Cong (文獻論叢) Beijing 1935.
- Liu, Zhi Ping (劉致平), Dianmian Jian Shuo (店面簡
說), Beijing 1935.
- Lu, Jie (盧傑), Jingshi Cheng nei Hedao Gouqi Tukao (京師
城內河道溝渠圖考), Zhong He Yuekan (中和
月刊) No.2 Vol.1 1939.
- Shan, Shi Yuan (單士元), Beijing Ming Qing Gu Gong De
Lantu (北京明清宮的藍圖), Kejishi
Wenji (科技史文集) No. 5 July 1980.
-- Gong Wang Fu Yen Ge Kao Lue (恭王府沿革考
略), Fu Ren Xue Zi (輔仁學誌) Vol.7
No.1 & 2 Beijing 1937.
- Sun, Dien Qi (孫殿起), Liu Li Chang Xiao Zi (琉璃廠
小志), Beijing 1962.
- Tan, Yong Bin (湯用彬), Jiudu Wenwu Lue (舊都文物
略), Beijing 1935.
- Tong Ji Da Xue, Research and Teaching Group in City Planning
(同濟大學教研組), Zhongguo Chengshi Jian She Shi
(中國城市建設史), Beijing
1982.
- Wang, Bi Wen (王璧文), Feng Huang Zhui Tu Cheng (鳳凰
嘴土城), Wen wu Cen Kao Zi Liao (文物參考
資料), Beijing 1958.
-- Yuan Dadu Chengfang Kao (元大都城坊考), Yin
Zao Xue She Hui Kan Vol. 6 No. 3 1936.
-- Zi Jin Cheng Di Cong Ping Mian Bu jue (紫禁城的
總平面佈局), Gu Gong Yue Kan (故宮月刊)
No. 3 1980 Beijing.
- Wang, Hong Jun (王宏鈞), Fanying Ming Dai Beijing She Hui
Sheng Huo Di Huang Du Ji Sheng Tu (反應明代社
會生活的皇都積勝圖), Lishi Jiaoxue
(歷史教學) July 1962.
- Wang, Pu Zi (王玉璞子), "Yen Wang Fu" Yu "Zi Jin Cheng"
(燕王府與紫禁城), Gu Gong Bo Wu Yuan Yuan Kan
(故宮博物院院刊) Jan. 1979.
-- Yuan Da Du Ping Mian Gui Hua Shu Lue (元大都平面規
劃述略) Gu Gong Bo Wu Yuan Yuan Kan 1960.
- Wang Zhi Qui (王治秋), Liu Li Chang Shi Hua (琉璃廠
史話), Hong Kong 1979.

- Yang, Nei Ji (楊乃濟), QienLong Jing Cheng Quan Tu Kao Lue (乾隆京城全圖考略), Gu Gong Bo Wu Yuan Yuan Kan No. 3 1984.
- Yen, Wen Ru (閻文儒), Jin Zhong Du (金中都), Wenwu (文物) No.1 1958.
- Yin, Jun Ke (尹鈞科), Ming Dai Beijing Jiaoqu Cunluo Di Fazhan (明代北京郊區村落的發展), Lishi Dili (歷史地理) No. 3 1983.
- Yu, Zhuo Yun (于倬雲), The Palace City of Beijing (紫禁城宮殿), Hong Kong 1982.
- Yuan Dadu Kaogudui (元大都考古隊), Yuan Dadu Di KanCha He FaJuui (元大都的堪察和發掘), Kaogu (考古) No.1 1972.
- Zhang, Zhe Lang (張哲郎), Qing Dai Di Cao Yun (清代的遭運), Taipei 1969.
- Zhao, Zheng Zhi (趙正之), Yuan Dadu Ping Mian Guihua? Fuyuan Di Yanjiu (元大都平面規劃復原的研究) Kejishi Wenji (科技史文集) No. 5, JienZhushi Zhuanji (建築史專集) No. 2 Shanghai 1979.
- Zhang, Jiang Cai (張江裁), Beiping Sui Shi Ji (北平歲時志), Beiping 1936.
- Zhang, Zhu Gang (張租剛), Cong Beijing Cheng Di Lishi Lai Yen Jiu Beijing Jiu Cheng Di Bao Hu Gui Hua (從北京城的歷史來研究北京舊城的保護規劃), Jienzhu Lishi Yu Lilun (建築歷史與理論) No.3/4 1982-1983 Shanghai.

- Zhu, Qi (朱僂), Beijing Gongque Tu Shuo (北京宮闈圖說), Shanghai 1938.
- Jin Zhong Du Gong Dian Tu Kao (金中都宮殿圖考), Wen Wu Can Kao Zi Liao No. 7 1955.
- Yuan Dadu Gongdian Tu Kao (元大都宮殿圖考), Shanghai 1936.
- Ming Qing Liangdai Gong Yuan Jian Zhi Yen Ge Tu Kao (明清兩代宮苑建置沿革圖考), Shanghai 1947.

CLASSICAL CHINESE REFERENCES

- E, Er Tai (鄂爾泰), Ba Qi Tong Zhi, First Edition (八旗通志初集), Beijing 1738.
- Fan, Cheng Da (范成大), Lan Pei Lu (輟轡錄), 1170
- Fucha, Duan Chong (富察敦崇), Yenjing Shui Shi Ji (燕京歲時記), Beijing 1906.
- He, Kun (和坤), Da Qing Yi Tong Zhi (大清一統志), Beijing 1764.
- Ji, Yun (紀昀), Da Qing Hui Dian (大清會典), Beijing 1747.
- Kun, Gang (崑崗), Da Qing Hui Dian (大清會典), Beijing 1899.
- Li, Wen Zao (李文藻), Liu Li Chang Shu Si Ji (琉璃廠書肆記), Beijing 1730-1778.
- Liu, Tong (劉侗), Di Jing Jing Wu Lue (帝京景物略), Beijing 1635 (Ming Dynasty).

Lou, Yao (樓鑰), Bei Xing Ri Lu (北行日錄), 1167.

Lu, Zheng (陸振), Cheng Tiao Lu (乘輅錄), 1008.

Miu, Quan Sun (繆銓孫), Liuli Cheng Shu Si Hou Zi (琉璃廠書肆後記), Beijing 1844.

Okada, Gyokuzan (岡田玉山), Todo Meisho Zue (唐土名勝圖會), in Japanese, 1806

Pan, Rong Bi (潘榮陛), Dijing Sui Shi Ji Sheng (帝京歲時紀勝), Beijing 1758.

Tei, Bao (鐵保), Qinding Baqi Tong Zhi (欽定八旗通志), Beijing 1799.

Unknown (佚名), Bei Ping Kao (北平考), Beijing 1368-1402.

Wang, Yuan Qi (王原祁), Wan Shou Sheng Dian (萬壽盛典), Beijing 1712.

Wei, Yuan (魏源), Yuan Shi Xin Bian (元史新編), Beijing.

Wu, Chang Yuan (吳長元), Cen Huan Shi Lue (宸垣識略), Beijing 1788.

Wu, Zhen Yu (吳振棫), Yang Ji Zai Cong Lu (養吉齋叢錄), Beijing 1894.

Xiao, Xun (蕭洵), Qu Gong Yi Lu (故宮遺錄), Beijing 1368.

Xiong, Meng Xiang (熊夢祥), Xi Jing Zi (析津志), 1350-1368, Xi Jing Zi Dei Ji (析津志輯佚), Edited by Beijing Tu Shu Guan Shan Ben Zhu (北京圖書館善本組), Beijing 1983.

Xu, Kang Zong (許亢宗), Feng Shi Xing Cheng Lu (奉使行程錄), 1124.

Yang, Jing Ting (楊靜亭), Zhao Shi Cong Zai (朝市叢考), Beijing 1885.

Yu, Ming Zong (于敏宗), Ri Xia Jiu Wen Kao (日下舊聞考), Beijing 1782.

Yuwen Mao Zhao (宇文懋昭), Da Jin Guo Zi (大金國志), Biangjing 1234.

Zhang, Jue (張節), Jing Shi Wu Cheng Fang Xiang Hu Tong Ji (京師五城坊巷同集), Beijing 1560.

Zhen, Jun (震鈞), Tian Zhi Ou Wen (天咫偶聞), Beijing 1907.

Zhi, Cao Zi (枝巢子), Jiu Jing Suo Ji (舊京瑣記), Beijing 1908.

Zhou, Hui (周暉), Bei Yuan Lu (北華表錄), 1176.

Zhu, Ke Ji (朱克己), Jing Tian Tu Kao (井田圖考), Jinan, Shandong 1890.

Zhu, Yi Xin (朱一新), Jing Shi Fang Xiang Zi Gao (京師坊巷志稿), Beijing 1885.

Zhu, Yi Zun (朱彝尊), Ri Xia Jiu Wen (日下舊聞), Beijing 1688.

WESTERN REFERENCES

Beers, Burton : China in Old Photographs 1860-1910 , New York
1978.

Boerschmann, Ernst : Picturesque China - Architecture and
Landscape, New York 1925.

Cameron, Nigel & Brake, Biran : Peking- A Tale of Three Cities,
New York 1965.

Gamble, Sidney D. : Peking : 'A Social Survey , New york 1921.

Goodrich L. Carrington & Cameron Nigel : China as seen by
photographers and
travellers 1860-1912
New york 1978.

Harvey, P. D. A. : The History of Topographical maps- Symbols,
pictures and surveys , London 1980.

Hoa, L'eon : Reconstruire La Chine - Trente ans 'D'urbanisme
1949 - 1979 , Paris 1981.

Perckhammer, Heinz V. : Peking , Berlin 1928

: Von China und Chinesen , Berlin 1930

Siren, Osvald : Histore des Arts Anciens en Chine. Vol. IV :
Architecture, Paris & Brussels 1924.

: The Imperial Palaces of Peiking, Paris & Brussels
1925.

: The Walls and Gates of Peiking, London 1924.

Steinhardt, Nancy Shatsman : The Plan of Khubilai's Imperial City
Artibus Asiac XLIV 2/3 P.137- 158
1983

Thomson, John : China and Its People in Early Photographs - An
Unabridged Reprint of the Classic 1873/4 Works ,
New york 1982.

Worswick, Clark & Spence Jonathan : Imperial China, Photographs
1850- 1912.

Wulf, Pieter : Graf Zu Castell Der Chinaflug (飛行中國)
Berlin 1938.

PHOTOGRAPHS AND DRAWINGS BY THE COURTESY OF:

- Boerschmann, Ernst : P 3-5.
- * Cameron, Nigel, 1965 : P 3-16.
- Cheng, Jing Qi, 1984 : 2-1 (part)
- * Goodrich L. Carrington, 1978 : P 3-1, P 3-8, P 4-8, P 4-10,
P 4-13.
- Gamble, Sidney D., 1921 : MAP 5-8, P 4-11, P 4-12, P 5-6, P 5-10.
- * Hoa, Leon, 1981 : P 4-3, P 4-4, P 4-5, P 4-7.
- Liu, Dun Zhen, 1980 : 3-3.
- Okada, Gyokuzan, 1806 : P 3-7.
- Perckhammer, Heinz V. 1928 : P 4-18, P 4-19, p 4-23, P 4-26,
P 5-1.
1930 : P 4-24, P 4-25.
- Siren, Osvald, 1924 a : P 4-1, P 4-2.
1924 b : P 3-9, P 3-11, P 3-12, P 3-13, P 3-14,
P 3-16, P 5-2, P 5-3, 3-13, 3-14.
1925 : P 3-3, P 3-4.
- Thomson, John, 1873-4 : P 4-6, P 4-14, P 4-15, P 4-16, P 4-17.
- Wang, Yuan Qi, 1712 : P 3-6, P 4-9, P 5-4, P 5-5, P 5-7, P 5-8,
P 5-9.
- * Worswick, Clark, 1850-1912 : P 4-20, P 4-21, P 4-22.
- Wu, Chang Yuan, 1788 : MAP 4-2, P 3-2.
- Wulf, Pieter, 1938 : P 3-17.
- Yu, Zhou Yun, 1982 : MAP 3-2, P 3-2.
- Zhu, Ke Ji, 1890 : 3-1