

6 · Chinese Cartography among the Arts: Objectivity, Subjectivity, Representation

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Those able to evoke a mood that persists beyond the rendition of physical objects completely understand the art of writing.

—Liu Xie (ca. 465–522)
Wenxin diaolong, chap. 46

“World” does not refer only to scenes and objects; joy, anger, sorrow, and happiness are also a world within the human heart. Thus, those poems that can describe true scenes and objects and true emotions and feelings are said to have a world; otherwise, they are said to lack a world.

—Wang Guowei (1877–1927)
Renjian cihua, sec. 1

Cartography in China did not emerge as a representational practice fully independent from the visual and literary arts until late in the imperial period, under the influence of Western examples. One would expect it to have done so earlier only if one took Western cartography as the standard or norm. Although some would have it otherwise, cartography in China followed a different course. What contributed to its distinctiveness was an idea of representation that went beyond the duplication of physical forms, that stressed its multifaceted function. Neglect of this multidimensional concept of representation has resulted in a distorted view of Chinese cartographic history—as the development and refinement of a practice based on measurement and mathematical techniques. Chinese maps produced before the twentieth century, however, can be said to fall neatly into such a quantitative tradition only if one takes a too narrow view of what qualifies as a map. There is little doubt that maps were important for representing and understanding the physical world. What is at issue is the mode of that representation and understanding. Geometric and mathematical fidelity to observed reality was not an overarching aim: maps were often placed in contexts where they complemented verbal representations of geographic knowledge. As a means of storing geographic information, both verbal and graphic modes of representation were held to have their uses. What is now called cartography thus had its place in a unified conception of the arts.

To extend an argument begun elsewhere (pp. 91 and

101–4), the distinction between word and visual image, so strong in the Western tradition, is not nearly as sharp in China. This difference in traditions can be traced to differing conceptions of representation and its purposes. As a result of this critical difference, historians of Chinese cartography may need to adjust their definitions of what constitutes cartographic representation. The usual oppositions between visual and verbal, cartographic and pictorial, mimetic and symbolic representation may not apply.

THE RELATION BETWEEN ART AND REALITY

An example suggesting that such a change is necessary occurs in the *Zuozhuan* (Zuo’s tradition [of interpreting the *Chunqiu*, or Spring and autumn annals]) and other early texts. The *Zuozhuan*, which perhaps dates from about 300 B.C., states that during the legendary Xia period, visual representations of information useful to travelers were molded into nine cast-bronze caldrons, the *jiu ding*. The historical existence of these caldrons is by no means certain, especially since there is no evidence of Bronze Age culture during the putative period of the Xia.¹ This situation, however, has not stopped previous scholars from speculating on the cartographic nature of the representations on them.² The *Zuozhuan*, written centuries after the caldrons were supposedly made, says that “representations” of objects from the “nine regions”

1. The *Zuozhuan*’s account may be supplemented by one in the *Shi ji* (Records of the grand historian, completed ca. 91 B.C.) by Sima Qian. According to Sima Qian’s account, the nine caldrons were cast during the reign of Yu and handed down to the Chou rulers. When the Zhou’s virtue declined and the Song state’s altars were destroyed, the caldrons “sank into the waters and were seen no more.” Before the time of Yu, the Huang Di (Yellow Lord) made “three precious caldrons, representing heaven, earth, and man.” Sima Qian, *Shi ji*, chap. 28; see the modern edition in 10 vols. (Beijing: Zhonghua Shuju, 1959), 4:1392. The translated excerpts here are based on those in Burton Watson, trans., *Records of the Grand Historian of China*, 2 vols. (New York: Columbia University Press, 1961), 2:49.

2. See, for example, Wang Yong, *Zhongguo ditu shi gang* (Brief history of Chinese cartography) (Beijing: Sanlian Shudian, 1958), 1; and idem, *Zhongguo dilixue shi* (History of geography in China) (1938; reprinted Taipei: Shangwu Yinshuguan, 1974), 16–19.

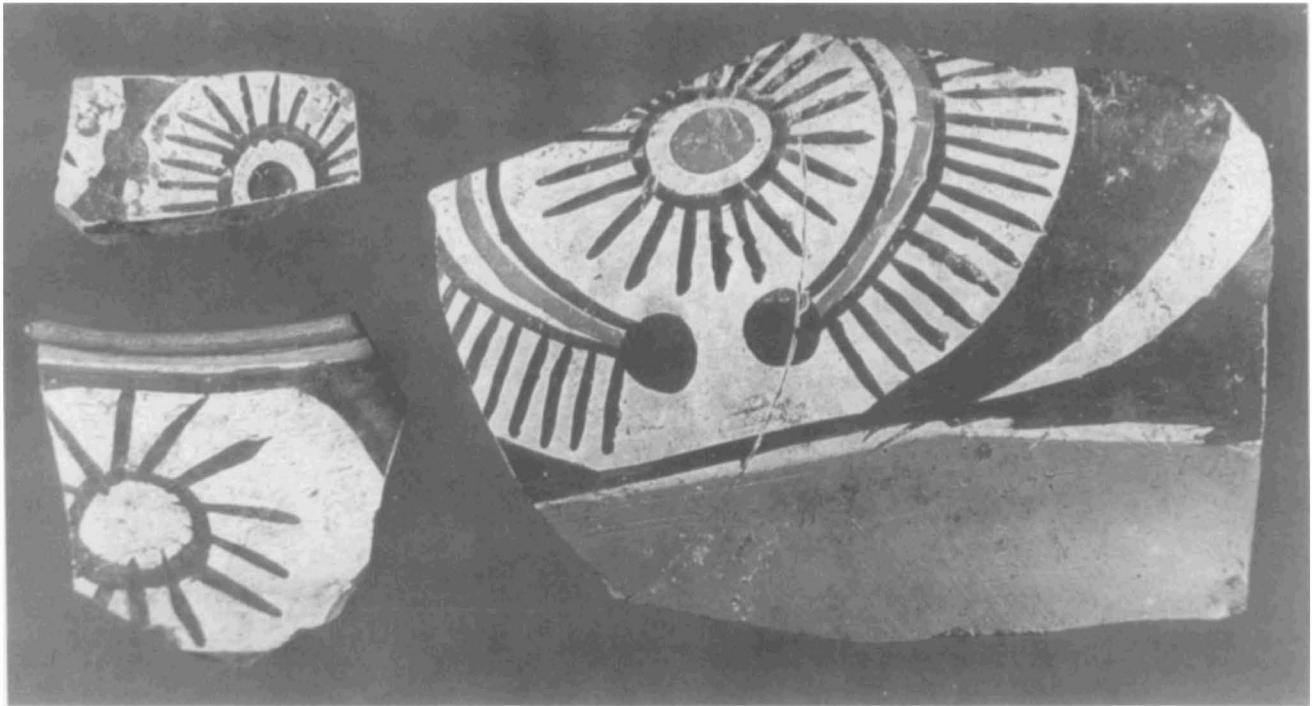


FIG. 6.1. PAINTED POTSHERDS FROM THE YANGSHAO CULTURE. The radiating pattern on these sherds has been interpreted as a representation of the sun. Size of the original: approximately 8.5×13 cm (at the widest

appeared on them. According to the *Zuozhuan*, the caldrons, in addition to securing the favors of heaven, were partly intended to represent knowledge of the nine regions, knowledge that would be useful to travelers. The knowledge imparted by the representations on the caldrons supposedly had magical-religious efficacy. Armed with this knowledge, travelers could ward off evils.³ The *Zuozhuan*, however, gives no details about the representations themselves. It says nothing of the objects or information represented, so we cannot determine whether the caldrons can be considered cartographic artifacts.⁴

Some art historians question whether designs with the degree of formal resemblance attributed to the nine caldrons appeared before the *Zuozhuan* was composed. According to Loehr, art with concrete representations developed in late Bronze Age China, that is, during the late Chunqiu (722–468 B.C.) or during the Zhanguo (Warring States) period (403–221 B.C.), about the time the *Zuozhuan* was composed.⁵ A fully representational art does not develop until the Han (206 B.C.–A.D. 220). Before that time any representational elements—to which early cartography may perhaps be linked—coexisted with the ornamental. In general, Loehr says, art had few references to reality. By implication, artifacts purporting to promote spatial understanding of geographic reality would have been unlikely. Art dating from before the

points). Zhengzhou Municipal Museum. From Zhongguo Shehui Kexueyuan Kaogu Yanjiusuo, *Zhongguo gudai tianwen wenwu tuji* (Album of ancient Chinese astronomical relics) (Beijing: Wenwu Chubanshe, 1980), 3.

Shang (ca. sixteenth to eleventh century B.C.) is generally limited to geometric patterns—for example, spirals, zig-zags, and interlocked Ts. The same lack of references to reality characterized Shang and Zhou (ca. 1027–256 B.C.) art:

Seen in the entire perspective of Chinese art history, most of the decorative designs on Shang and [Zhou] bronzes may be characterized as purely ornamental. They were typical creations of a phase that preceded representational art, the art concerned with, and dependent on, reality. The shift toward representation occurred during the Han period. The moment it occurred, the art of the ornament—heretofore the art of greatest consequence—took second place and began to stagnate. It is a noteworthy fact that at the same time the day of the bronze vessel, too, was over.⁶

3. *Zuozhuan* (ca. 300 B.C.), *Xuan* 3, in *Chunqiu jingzhuàn yinde* (Concordance to the *Chunqiu* [Spring and autumn annals] and its commentaries), 4 vols. (1937; reprinted Taipei: Chengwen Chubanshe, 1966), 1:182.

4. According to the *Shi ji*, the caldrons were used to “boil offerings to Shangdi [Lord on High] and other spirits” (chap. 28 [4:1392]; translation based on Watson, *Grand Historian*, 2:49 [both in note 1]).

5. Max Loehr, *Ritual Vessels of Bronze Age China* (New York: Asia Society, 1968), 12; and idem, “The Fate of the Ornament in Chinese Art,” *Archives of Asian Art* 21 (1967–68): 8–19.

6. Loehr, *Ritual Vessels*, 12 (note 5).



FIG. 6.2. BRONZE HU VESSEL. The surface of the vessel is decorated with Chinese graphs and realistic and abstract designs. Size of the original: 30.7 × 17–22.5 cm. Xinyang District Cultural Relics Administration. From Robert L. Thorp, *Son of Heaven: Imperial Arts of China*, exhibition catalog (Seattle: Son of Heaven Press, 1988), 53.

There are, to be sure, referential elements in pre-Han art, as Loehr recognizes. Certain designs on Neolithic pottery, for example, have been interpreted as early forms of numerals. One symbol in particular may be a representation of the sun (fig. 6.1), and another may be an early cosmographical diagram (fig. 1.12 above).⁷ In addition, certain zoomorphs in Zhou bronzes have been interpreted as representing actual animals (fig. 6.2). Such examples, however, seem sparse in relation to the existing body of artifacts, and they may turn out to be exceptions that prove Loehr's rule.⁸ At any rate, ancient conventions of representation are not well understood—the ritual bronzes were intended for use solely by initiates, who would presumably be versed in any conventions of representation—and before dismissing what seem to be purely decorative designs as nonrepresentational, one should

remember that one may be dealing with a cotradition or coexisting practice of abstract representation.

A case in point is the ancient divination manual *Yi jing* (Book of changes), parts of which may date from the Western Zhou (ca. 1027–771 B.C.). The manual consists of oracle texts (“judgments” or “verbalizations”) that are “attached” to a system of symbols. The symbols, made up of various combinations of unbroken (yang) and broken (yin) lines, fall into two groups: eight trigrams, made up of three lines, and sixty-four hexagrams, each composed of two trigrams. A commentary on the *Yi jing*, the “Xici zhuan” (Commentary on the attached verbalizations), dating from about the third century B.C., explains the hexagrams as representations of natural phenomena: “The holy sages instituted the hexagrams, so that phenomena might be perceived therein.”⁹ In the course of the *Yi jing*'s development, each of the hexagrams was given a name, regarded as encapsulating its significance. One hexagram, Qian (heaven), made up of six unbroken lines, embodies “the strong, light, active creative power, whose symbol is heaven,” and the hexagram Kun (earth), made up of six broken lines, embodies the “dark, receptive, maternal element” symbolized by the earth.¹⁰ From this one could infer that, by the Han, these two hexagrams represent heavenly and earthly phenomena, and the “Xici zhuan” does suggest that the *Yi jing* provides access to astronomical and geographical knowledge: “The *Yi* contains the measure of heaven and earth; there-

7. The representation of the sun appears on pottery dating from about 3000 B.C., and the “cosmographical” symbol appears on pottery dating from about 2900–2400 B.C. See Zhongguo Shehui Kexueyuan Kaogu Yanjiusuo (Archaeological Research Institute, Chinese Academy of Social Sciences), *Zhongguo gudai tianwen wenwu tuji* (Album of ancient Chinese astronomical relics) (Beijing: Wenwu Chubanshe, 1980), 3, 17, and 113; and Kwang-chih Chang, *The Archaeology of Ancient China*, 4th ed. (New Haven: Yale University Press, 1986), 167–69 and 172. On the origins of Chinese graphs, see Cheung Kwong-yue, “Recent Archaeological Evidence relating to the Origin of Chinese Characters,” trans. Noel Barnard, in *The Origins of Chinese Civilization*, ed. David N. Keightley (Berkeley and Los Angeles: University of California Press, 1983), 323–91.

8. For further discussion of representation in Zhou art, see Wen Fong, “The Study of Chinese Bronze Age Arts: Methods and Approaches,” 20–34, esp. 29–33, and Ma Chengyuan, “The Splendor of Ancient Chinese Bronzes,” 1–19, esp. 6–10, both in *The Great Bronze Age of China: An Exhibition from the People's Republic of China*, ed. Wen Fong (New York: Metropolitan Museum of Art, 1980).

9. “Xici zhuan,” A.2, in *Zhou yi yinde* (Concordance to the *Zhou yi* [*Yi jing*]) (1935; reprinted Taipei: Chengwen Chubanshe, 1966), 39. The translation is that in Richard Wilhelm and Cary F. Baynes, trans., *The I Ching or Book of Changes*, 3d ed. (Princeton: Princeton University Press, 1967), 287.

10. Hellmut Wilhelm, *Change: Eight Lectures on the “I Ching,”* trans. Cary F. Baynes (1960; reprinted New York: Harper and Row, 1964), 50, 59. It is not clear whether the names are as early as the hexagrams themselves, which appear in rudimentary form during the Shang, without the Zhou divination texts.

fore it enables us to comprehend the way of heaven and earth. Looking upward, we use it to comprehend the signs in the heavens; looking down, we use it to examine the patterns of the earth.”¹¹ Of course the “Xici zhuan,” compiled centuries after the oldest stratum of the *Yi jing*, does not necessarily reflect the original intentions behind the hexagrams. But the possibility that it is transmitting a much older tradition, though seldom accepted, cannot be completely discounted. The rough dates of the “Xici zhuan” fall slightly after the period Loehr identifies as marking the beginning of concrete representationalism in art—the fourth century B.C. The example of the “Xici zhuan” at least opens the possibility that at the time art with clear references to reality was being produced, conventions of interpreting abstract designs with no resemblance to the empirically observed objects as referring to reality had already been established.

These two broad categories—formal resemblance as a means of representing empirical reality and its counterpart, a “supraempiricism” that sought to go beyond physical appearance—were seen not as opposed, but as complementary. For this reason I have tried to avoid terms such as “realism” and “symbolism.” In European aesthetic discourse these terms have been applied to tendencies often regarded as countercurrents. To emphasize the complementarity of these two tendencies in the Chinese context, I have applied the term “representation” to both. Both are means of depicting what is conceived as being in the world. The two modes of representation described here do differ, however, in the kinds of things they seek to depict, and I use terms such as “concrete” and “abstract,” “objective” and “subjective,” and “material” and “spiritual” in an attempt to render that distinction.

The urge to go beyond material form is not usually associated with maps, but this aesthetic tendency does manifest itself in Chinese cartography. This is not to say that formal resemblance had no part in the Chinese art of mapmaking. It is clear from the artifactual and textual record that such an idea of representation had been formulated by the Qin period (221–207 B.C.).¹² Qin Shihuang’s tomb, for example, reportedly contains replicas of mountains, streams, and buildings. During the Han, artisans were producing bronze censers clearly recognizable as mountains (fig. 6.3), and soon after, if not during, the Han, literary artists were valuing graphic representations for their correspondence to geographic reality.

LITERATURE, MAPS, AND REPRESENTATION OF THE MATERIAL WORLD

The literature of the Han dynasty was marked by the appearance of a form known as the *fu* (rhapsody), characterized by the exhaustiveness of its descriptions, par-



FIG. 6.3. BRONZE INCENSE BURNER—RELIEF MODEL OF A MOUNTAIN FROM THE HAN DYNASTY. Size of the original: height 18.4 cm and diameter of dish 20.3 cm. By courtesy of the Board of Trustees of the Victoria and Albert Museum, London (M. 275–1910).

ticularly of geographic subjects. In light of this geographic emphasis, it is hardly surprising that a number of works refer to mensuration, surveying, and maps. Fidelity to the material world accounts for a large part of the significance of these references, but their importance, as we will see below, extends beyond that aim. An example of the descriptive meticulousness of the Han rhapsody occurs in the literary writings of Zhang Heng (78–139), also known for his work in cartography and astronomy. His “Er jing fu” (Two metropolises rhapsody, ca. 107), bears perhaps a twofold cartographic significance. First is its use of measurement and surveying, often closely associated with cartography, as political metaphor. In a description of how the Han emperor Gaozu established his capital at Chang’an, measurement and surveying are suggestive of the dynasty’s initial political order:

He [Gaozu] measured the diameter and
circumference,
Reckoned the length and breadth.
They built the city walls and moat,

11. “Xici zhuan,” A.3, in *Zhou yi yinde*, 40; the translation is based on that of Wilhelm and Baynes, *I Ching*, 293–94 (note 9). The compound translated as “patterns of the earth,” *dili*, means the morphology of the land and in later texts is often interpreted as meaning “geography.”

12. For more citations of the evidence for this assertion, see Michael Sullivan, *The Birth of Landscape Painting in China* (Berkeley and Los Angeles: University of California Press, 1962), 4–6, 10–15.

Constructed the outer enclosures.
He adopted various patterns from the capitals of
the eight directions,
And never considered following the measures of the
ancient past.¹³

It is doubtful that Zhang Heng's description of the founding emperor, written nearly three centuries after the event, has much basis in literal fact. Zhang is taking advantage of the association, commonplace in much pre-Han and Han political discourse, between measurement and the ideal role of a ruler. As it says in the *Huainanzi* ([Book of the] Master of Huainan), a philosophical text compiled about 120 B.C., "Law is the rule and measure of the empire, and the level and plumb line of the ruler."¹⁴ In the application of law, for example, the ideal ruler is like a suspended plumb line, showing no bias. Zhang uses the trope to suggest that the planning for the new capital reflected a restoration of political order by the founding emperor—order especially welcome after the excesses of the Qin. The emperor's planning followed the example of the ancient sage-kings:

In the past, when a former king planned the city,
He thoroughly examined the nine provinces,
And there was no site that went unsurveyed.
The jade tablet measured the shadow;
It was neither too short nor too long.
They sought a place where all winds and rains
converged,
And then established the Royal City.
They examined curvature, direction, and
topography.¹⁵

But though the emperor had the right idea in his planning, his work, Zhang suggests, did not amount to a complete renewal of the way of the ancient sage-kings. For his capital, the emperor Gaozu selected a site different from, and hence less favorable than, that chosen by the ancients, and as a result the reigns of succeeding rulers were marked by increasing disorder, culminating in the usurpation of power by Wang Mang (45 B.C.–A.D. 23). When the Han returned to power, it established its capital at Luoyang, the same site chosen by the ancients, and as a result, Zhang implies, political order continued up to his time.

Zhang Heng's rhapsody also contains possible evidence for the political as well as literary use of maps. According to Zhang's description, the founding emperor consulted unspecified "patterns" (*cai*) of other capitals when planning his own. Whether the patterns abstracted from those other capitals took the form of verbal descriptions or city plans is unclear, but city plans or maps predating Zhang Heng have been discovered in tombs (see below, p. 147).

Besides a possible description of map use, Zhang's rhapsody contains phraseology suggesting that it could

have been composed with reference to a map. In parts of it, Zhang might be described as constructing a "verbal map." His *fu*'s directional orientation is pronounced, as the account moves left and right, then south and north:

The first capital of the Han house
Lay on the banks of the Wei River. . . .
To the left, there are
The double defiles of the Yao and Han,
The barrier of Taolin,
Connected by the Two Hua peaks. . . .
To the right, there is
The gap of Longdi,
Which partitions China from the barbarian
lands. . . .
At its southern front, there are
Zhongnan and Taiyi,
Twisting upward tall and stately . . .
At its northern rear, there are
High hills and level plains . . .
In the distance, there are
Nine Peaks and Sweet Springs.¹⁶

There is no external evidence that Zhang Heng used maps to compose his rhapsody, but at least one writer, inspired by Zhang's *fu*, did do so—Zuo Si (ca. 250–ca. 305). In his preface to the "San du fu" (Three capitals rhapsody), Zuo Si describes the preparatory research for his *fu*: "When I first thought of writing the 'Three Capitals' in imitation of the 'Two Metropolises,' for the mountains and streams, cities and towns, I consulted maps. Birds and animals, plants and trees, I have verified in gazetteers."¹⁷ The aim of his research is to enhance the credibility of his *fu*: "One who praises an object considers first and foremost its true nature, and one who honors a deed should base himself on the facts. Without the truth and facts, what can the reader believe?"¹⁸ Zuo Si

13. Xiao Tong, comp., *Wen xuan* (Literary selections, completed ca. 526–31), ed. Hu Kejia (1809; reprinted Kyōto: Chūbun Shuppansha, 1971), 2.5a. The translation is that in David R. Knechtges, trans. and annotator, *Wen Xuan; or, Selections of Refined Literature* (Princeton: Princeton University Press, 1982–), 1:187. The "Er jing fu" was completed about 107. See Sun Wenqing, *Zhang Heng nianpu* (Chronological biography of Zhang Heng), rev. ed. (Shanghai: Shangwu Yinshuguan, 1956), 48.

14. *Huainanzi* (ca. 120 B.C.) attributed to Liu An (d. 122 B.C.), in *Huainanzi zhu* (Commentary to *Huainanzi*, third century), ed. Gao You, chap. 9; see the modern edition (Taipei: Shijie Shuju, 1962), 140.

15. *Wen xuan*, 3.6a–b; the translation is that of Knechtges, *Refined Literature*, 1:249 (note 13).

16. *Wen xuan*, 2.2b–3b; the translation is that of Knechtges, *Refined Literature*, 1:183, 185 (note 13). That the south precedes the north in Zhang's description suggests that south was at the top of the map, if there was a map.

17. *Wen xuan*, 4.13a–b; the translation is that of Knechtges, *Refined Literature*, 1:339 (note 13).

18. *Wen xuan*, 4.13b; the translation is that of Knechtges, *Refined Literature*, 1:339 (note 13).

regards maps as reliable representations of geographic knowledge, so much so that he stakes the veracity of his literary work on them. Their authority is equal to that of firsthand observation. We may recall that it was a prime concern of Pei Xiu (223–71) to make maps that conformed to observed reality, and Zuo Si happens to be roughly contemporaneous with Pei.

A similar belief in the verisimilitude of maps is perhaps expressed by Tao Qian (365–427) in two lines from the first of his series of poems on reading the *Shanhai jing* (Classic of mountains and seas). In these lines, Tao describes the *Shanhai jing*, a geographic work, as containing illustrations of some kind: “I glance over the pictures [maps?] of mountains and seas. / In the space of a nod, I completely [comprehend] the universe.”¹⁹ The graph translated as “pictures,” *tu*, can also mean “maps,” but the context of the poem does not make clear whether maps are specified. What is clear is that Tao Qian takes for granted the verisimilitude of the illustrations, their correspondence to reality. In other words, they have mimetic (in a sense closer to Aristotelian as opposed to Platonic usage) and consequently cognitive value. Although much of the material in the *Shanhai jing* is considered mythical, Tao clearly does not treat it as such. He regards the illustrations in the book as providing knowledge of the universe by their ability to convey reality.

From the text of the *Shanhai jing*, it is not difficult to divine why Tao might have been impressed by the work. The *Shanhai jing*, the present text of which was first edited by Liu Xin (ca. 50 B.C.–A.D. 23), describes the hydrography, minerals, fauna, and flora of various mountain systems. The geographic information contained in the text may have served as glosses to illustrations, or perhaps maps.²⁰ These illustrations do not survive; whatever illustrations extant editions may contain are renditions of artists after the Song (960–1279). Nevertheless, as scholars since the Song have observed, some passages in the book read much like the descriptive notes found on a map, or like captions pointing to items in an illustration.²¹ The following excerpt—besides exemplifying the kind of mineralogical, botanical, and zoological information to be found in the *Shanhai jing*—reads as if one were moving eastward across a map or illustration drawn on a scroll:

[The head of the Que mountain range] overlooks the western sea. It produces much cinnamon and much gold and jade. There is a plant there whose shape resembles scallions and that has blue blossoms. Its name is *zhuyu*, and if one eats it, one will not starve. . . . And 300 *li* to the east is the mountain called Tangting, which has many *yan*-fruit trees, many white gibbons, much crystal, and much gold. Another 380

li to the east is the mountain called Yuanyi. In it there are many strange beasts, and in its waters are many strange fish. . . . Another 370 *li* to the east is the mountain called Niuyang.²²

Tao Qian, however, in his poetic sequence, is not responding specifically to the text, but is commenting on accompanying illustrations. The poet’s response to the illustrations implies a shared interest in verisimilitude between illustrator (perhaps mapmaker) and poet. Such a common interest would not have been entirely coincidental. During the Liuchao (Six Dynasties) period (222–589), verisimilitude, *xingsi*, was a technical term in Chinese aesthetics and literary criticism, particularly in discussions of landscape poetry. The prevalence of geographic topics in literature—in rhapsodies and poems—may have prompted the literary theorist Liu Xie (ca. 465–522) to link the land with poetic creation: “Mountain forests and river banks are actually the deep repository of literary thought.”²³ Liu Xie also asserts that verbal art can reproduce the effects of visual art:

Poets respond to things, endlessly associating ideas. They flow among the ten thousand things, completely submerged in visual and aural sensations. They depict the atmosphere and paint the appearance of things, following their changing aspects. . . . Recently literature has been valued for verisimilitude [*xingsi*]. Writers perceive the true form of landscape, and penetrate the appearance of grass and plants. . . . Thus this technique of apt expression for form can be likened to the ink used for imprinting seals, for an impression made reproduces the seal to the smallest detail with-

19. Tao Qian, “Du *Shanhai jing*” (Reading the *Shanhai jing*, ca. 400), in *Tao Yuanming juan* (Collected materials on Tao Yuanming [Tao Qian]), 2 vols. (Beijing: Zhonghua Shuju, 1962), 2:286–87.

20. Wang Yong speculates that the book was known by at least two other titles, both of which imply the inclusion of illustrations: *Shanhai tu* (Maps/illustrations of mountains and seas) and *Shanhai jing tu* (Illustrated classic of mountains and seas). See Wang’s *Zhongguo ditu shi gang*, 1 (note 2). There is little evidence to support Wang’s surmises. The first known reference to the *Shanhai jing* occurs in a Han work, the *Shi ji*, which makes no mention of maps, illustrations, or even alternative titles. It calls attention to the “strange things” described in the *Shanhai jing*. See *Shi ji*, chap. 123 (10:3179) (note 1).

21. See Zhang Xincheng, *Weishu tongkao* (Comprehensive study of forged books) (1939; reprinted Taipei: Hongye Shuju, 1975), 575–76.

22. *Shanhai jing* (Classic of mountains and seas, compiled ca. second century B.C.), chap. 1, in *Shanhai jing jiaozhu* (Edited and annotated *Shanhai jing*), ed. Yuan Ke (Shanghai: Shanghai Guji Chubanshe, 1980), 1–3.

23. Liu Xie, *Wenxin diaolong* (The literary mind and the carving of dragons, ca. 500), chap. 46, in *Wenxin diaolong yizhu* (*Wenxin diaolong* interpreted and annotated), ed. Lu Kanru and Mou Shijin, 2 vols. (Jinan: Qilu Shushe, 1981–82), 2:345. A complete English translation of the *Wenxin diaolong* is *The Literary Mind and the Carving of Dragons*, trans. Vincent Yu-chung Shih (Hong Kong: Chinese University of Hong Kong, 1983).

out further carving and cutting. Thus we can perceive appearances by looking at words, or know the season from the graphs.²⁴

Liu Xie's comments affirm the importance of language as a means of representing physical reality: language, Liu suggests, functions not just as a means of preserving utterances, but also as a way of seeing. After all, the Chinese written language, with its pictographic elements, constitutes the basis of calligraphy, traditionally the most highly regarded of the visual arts. A painter's training, in fact, traditionally began with writing. "Learning painting," says a Song dynasty theoretician of landscape art, "is no different from learning calligraphy."²⁵ Calligraphy and painting both emphasized brushwork, and by practicing calligraphy a painter strengthened hand-eye coordination and gained a sense of arrangement and proportion. In a sense, painting was an extension of language. The interconnections among poetry, calligraphy, and painting were felt to be so strong that the three arts became known as the "three perfections" (*san jue*).

THE DUAL FUNCTION OF REPRESENTATION IN LITERATURE

Part of the reason for this strong association among the arts may have been a shared physical medium—the scroll—on which all three arts came to share the same space. Another, and perhaps more important, reason for the unified view of the arts is that language and painting were regarded as having similar representative powers—a notion that contrasts with modern ideas about the primacy of visual modes in representing reality.²⁶ At the root of this Chinese belief in shared modes of representation is not a simple assertion that linguistic art is like painting, in the manner of the Horatian tag *ut pictura poesis* (as is painting, so is poetry).²⁷ The idea of representation, or mimesis, in the arts, as it developed during the Han and later, does not end with fidelity to external or empirical reality. Thus, representational value is imparted to designs as seemingly abstract as the trigrams and hexagrams in the *Yi jing*. The artist Wang Wei (415–43), for example, refers approvingly to a statement by the poet-official Yan Yanzhi (384–456) that "a painting should not be merely for the exercise of craft, but when perfected should correspond in form to the images in the *Yi [jing]*."²⁸ That is, a painting would not necessarily look like a hexagram, but it would represent configurations of reality underlying the material world. Similarly, in the case of Zhang Heng's rhapsody, the physical descriptions suggest an abstract political principle. Physical descriptions are a means to another end, that of penetrating appearances to reach underlying realities, an aim attainable through language as well as through the visual arts.

Insofar as the arts strove for formal resemblance, literary artists could learn much from the cartographer or illustrator, as examples cited previously suggest. The attainment of formal resemblance alone did not satisfy Chinese art theorists, and this, as we will see below, had some effect on cartographic representation. The relationship between the literary and visual arts was not one-sided. From literature, the visual artist might come to appreciate another aspect of representation—that representation also has a subjective element.

"Poetry expresses intention," says the *Shu jing* (Book of documents); objective representation, though considered an important aspect of literary art, does not completely account for its value. In the "Wen fu" (Rhapsody on literature), the literary critic Lu Ji (261–303) makes this point clear, using imagery associated with mensurational science:

[The writer] engages heaven and earth in form; he grinds the ten thousand things against the tip of his brush. . . . Forms have a thousand variations; things do not have a single measure. Various and fleeting, forms are hard to delineate. Words display talent and show one's skill. . . . In the midst of being and nonbeing, one struggles; facing the shallow and the deep, one does not yield. Although one leaves the square and discards the compass, one hopes to probe forms and exhaust appearances.²⁹

To paraphrase Lu Ji, even with instruments useful for objective measurement, the square and compass, the forms of the phenomenal world are difficult to capture: there is "no single measure." In trying to capture reality, a writer must do more than faithfully render the objective

24. Liu, *Wenxin diaolong yizhu*, chap. 46 (2:341–45) (note 23). For a detailed discussion of verisimilitude and Chinese poetry, see Kang-i Sun Chang, "Description of Landscape in Early Six Dynasties Poetry," in *The Vitality of the Lyric Voice: Shih Poetry from the Late Han to the T'ang*, ed. Shuen-fu Lin and Stephen Owen (Princeton: Princeton University Press, 1986), 105–29.

25. Guo Xi, *Linquan gaozhi ji* (Lofty aims in forests and springs, eleventh century), in *Hualun congkan* (Collection of treatises on painting), ed. Yu Anlan (Haiyan), 2 vols. (Beijing: Renmin Meishu Chubanshe, 1962), 1:16–31, esp. 18.

26. Manifestations of the visual emphasis in modern culture, especially in the United States, include the importance of television and the decline in the status of the spoken (and written) word. On the primacy of vision in modern culture, see Walter J. Ong, *Orality and Literacy: The Technologizing of the Word* (London: Methuen, 1982).

27. For an account of the history of this tag in the European tradition, see Jean H. Hagstrum, *The Sister Arts: The Tradition of Literary Pictorialism and English Poetry from Dryden to Gray* (Chicago: University of Chicago Press, 1958).

28. Zhang Yanyuan, *Lidai minghua ji* (Record of famous painters through the dynasties, completed 847), chap. 6; see the modern edition (Beijing: Renmin Meishu Chubanshe, 1963), 132.

29. Lu Ji, "Wen fu" (third century), in *Wen xuan*, 17.3b–4b (note 13).

appearance of things: a writer must give up the square and compass. A literary work also represents something of its author. This idea is elaborated by Liu Xie, who, as we saw above, also asserted the power of linguistic art to render objects in the physical world: “The writer is moved emotionally and produces words. Readers open the literary work and enter the writer’s sensibility; they follow the waves to trace the source, so that even though it is secluded, it will be manifest. An age may be remote so that we cannot see its face, but reading its literature, we can always see its heart.”³⁰ Representation in literature thus fuses the rendering of physical reality with that of subjective experience. This differs from traditional Western art criticism, which tends to polarize, not unite, objectivity and subjectivity, preferring to limit representation to the former and to regard the rendering of subjective experience as a separate phenomenon—expression.

PAINTING AND REPRESENTATION

Representation in Chinese painting ultimately serves a dual function similar to that of literature. To be sure, formal resemblance, as I noted above, was an important aim in the visual arts. But as an artistic standard, it was often paired with another: *qiyun*, or “breath-resonance.” The use of this compound dates back to at least the sixth century when the critic Xie He (fl. ca. 500–535?) used it to refer to personal and representational vitality, or “breath,” and harmoniousness, “resonance,” of execution.³¹ By striving for *qiyun*, a painter could achieve the purpose of painting, “to express the spirit through form,” in the words of Gu Kaizhi, a fourth-century painter.³² The “breath” that painters tried to express involved two senses of innerness: the innerness of the objects represented and the innerness of the painter. In aesthetic theory the two were inseparable: recognition of the innerness, the underlying essence, of external phenomena required the active perception of an artist. In this way painting could be linked more closely with calligraphy. As one art theoretician expresses it, the two arts “arise in thoughts and feelings and are transferred to silk and paper”: “Painting is like calligraphy . . . ‘words are the sounds of the mind; calligraphy is the delineation of the mind’; when the sound and delineation take form, whether one is a superior man or an ignoble one is revealed.”³³ In theory, then, the visual arts could not only express the artist’s emotions, but also reveal the artist’s moral quality—both were bound up with the notion of vitality, breath-resonance in the personal sense. An emphasis on subjectivity in representation would naturally lead to deviation from formal resemblance.

In practice, however, the complementarity of the verisimilitude and breath-resonance—or, if one prefers, the dialectic of objectivity and subjectivity—does not express

itself so unequivocally. The history of Chinese artistic practice in painting can be viewed as a series of pendulum swings between formal likeness and expression or, in terms taken from Chinese art criticism, between the artisanly and the scholarly. Here artisanly implies professionalism, being supported by and having to satisfy someone else—thus an outward orientation. Scholarly implies amateurism, in its best sense: art performed not as one’s livelihood or main pursuit, but at leisure, to satisfy only oneself—thus an inward orientation. At any one time, one tendency might be dominant, but the other would not be entirely forgotten.³⁴ From the Tang (618–907) to the Northern Song (960–1126), formal resemblance seems to have been dominant, prompting a number of critics of the period to remind artists of the necessity for expressiveness in art—reminders that, as will be seen below, were heeded by mapmakers. The Tang dynasty art historian Zhang Yanyuan, for example, remarked that paintings of his day lacked breath-resonance because artists focused too narrowly on formal resemblance. He advised painters to strive for breath-resonance, for “if a painter sought for only breath-resonance in a painting, formal likeness would be achieved.”³⁵ In the Northern Song, Su Shi (1037–1101), who achieved a lasting reputation in poetry, calligraphy, and painting, helped to initiate a reaction against the emphasis on formal verisimilitude, a reaction that became dominant in succeeding periods as painters increasingly explored the possibilities of self-expression with a less rigid adherence to the observed world. In Su’s view, the attainment of formal likeness was hardly the primary end of art: “To discuss painting in terms of formal resemblance / Is a view similar to a child’s.”³⁶ According to Su, artists should sub-

30. Liu, *Wenxin diaolong yizhu*, chap. 48 (2:390) (note 23).

31. Xie He, *Gu huapin lu* (Classification of ancient painters, ca. sixth century), ed. Wang Bomin (Beijing: Renmin Meishu Chubanshe, 1962), 1.

32. See Zhang, *Lidai minghua ji*, chap. 4 (118) (note 28).

33. Guo Ruoxu, *Tuhua jianwen zhi* (Record of experiences in painting, 1074), seventeenth-century edition, chap. 1; reprinted in *Songren huaxue lunzhu* (Song treatises on painting), ed. Yang Jialuo (Taipei: Shijie Shuju, 1962), 30–31.

34. A number of scholars have proposed oscillating models for Chinese art history. See, for example, Max Loehr, “Some Fundamental Issues in the History of Chinese Painting,” *Journal of Asian Studies* 23 (1964): 185–93; and Wen C. Fong, “Archaism as a ‘Primitive’ Style,” in *Artists and Traditions: Uses of the Past in Chinese Culture*, ed. Christian F. Murck (Princeton: Art Museum, Princeton University, 1976), 89–109. For a discussion of the problem of periodization in the arts, see Maureen Robertson, “Periodization in the Arts and Patterns of Change in Traditional Chinese Literary History,” in *Theories of the Arts in China*, ed. Susan Bush and Christian Murck (Princeton: Princeton University Press, 1983), 3–26.

35. Zhang, *Lidai minghua ji*, chap. 1 (3) (note 28).

36. Su Shi, *Dongpo shi jizhu* (Poetry of Dongpo [Su Shi] with collected annotations, compiled twelfth century), ed. Wang Shipeng, *Siku quanshu* edition, 27.22b.

ordinate the attempt to render appearance to the attempt to go beyond appearance: “The artisans of the world may be able to completely render its forms, but as far as its principles are concerned, unless one is a superior person with outstanding talent, one cannot discern them.”³⁷

Su Shi’s sentiments are echoed by one of his contemporaries, Guo Ruoxu (fl. ca. 1075), whose *Tuhua jianwen zhi* (Record of experiences in painting, 1074) was accepted as an authoritative treatise as early as the twelfth century. Most of the precious works of the past, Guo observes, were painted by those of noble character who imparted to their works their “elevated and fine emotions.” The lesson to be learned is this: “In general, a painting must encompass breath-resonance in order to be called a treasure of the age.”³⁸ In short, painting, like poetry, is an “imprint of the mind” (*xinyin*). The similarity between the powers of the two arts was not lost on Song dynasty artists. Interartistic comparisons were commonplace. Bush has generalized aptly: “Chinese painting always strove for the status of poetry. . . . Despite changing evaluations of painting’s function, most Chinese art critics remained consistent in their low estimate of formal likeness. For them painting like poetry could fuse mood and scene, joining the subjective and objective worlds.”³⁹ Thus Su Shi states, “Poetry and painting are at root the same: / Effortless craft and clear freshness.” Because of their common nature, it is possible, as Su Shi suggests elsewhere, to conceive of poems as “paintings without forms” and paintings as “unspoken poems.”⁴⁰ One of Su’s acquaintances, the landscape master Guo Xi (ca. 1010–ca. 1090), suggested that the comparison of poetry and painting was conventional wisdom: “Just as people previously have said, poems are paintings without form; paintings are poems with form.”⁴¹ He also discerns a human element in landscape painting, anthropomorphizing one of its major subjects—mountains: “A mountain has streams as blood vessels, grass and trees as hair, mist and clouds as its countenance.”⁴² By focusing merely on reproduction of form, a painter risks sacrificing the vitality beneath external appearances.

The breath-resonance seen here as uniting painting and poetry also joins art and science. The term *qi*, “breath” or “pneuma,” a constituent of the compound *qiyun*, pervades traditional Chinese scientific thought. The link between art and science can also be seen in Guo Xi’s passage on mountains, quoted above, where he draws on an idea common in traditional Chinese medical texts: that of body as microcosm. Understanding for artist and scientist involved seeing the resonance or correspondence between human being and nature. Human understanding could lead to natural understanding, and vice versa. Artist and scientist both dealt with vital processes.⁴³

Thus Shen Kuo (1031–95), noted for his scientific writing, also demonstrates an understanding of aesthetic the-

ory. Here he expresses the belief that pictorial representation must do more than reproduce external forms:

The wonders of calligraphy and painting should be sought through spiritual understanding; it is difficult to seek them through material forms. Many of those who look at paintings in this day and age can pick out the flaws in formal likeness, arrangement, and color, and no more. It is rare to see those able to discern the abstruse principles and hidden structures.

According to Shen, a painter could give up adherence to material reality and still communicate something true. For example, a painting in his own home, Shen writes in the *Mengxi bitan* (Brush talks from Dream Brook, ca. 1088), shows a plantain tree in a snowy landscape. The scene is improbable but is one that, in Shen’s words, “creates pattern, penetrates the spirit, and is so different

37. Su Shi, *Jingjin Dongpo wenji shilue* (Arranged and presented prose collection of Dongpo [Su Shi] with brief commentary, presented 1191), ed. Lang Ye, *Sibu congkan* edition, 54.9a–b. Su Shi’s use of the word *li*, or “principle,” in this and other passages has prompted discussions of Song dynasty aesthetics in terms of Neo-Confucian thought, in which *li* functioned as a basic metaphysical term. The devaluation of formal likeness, expressed by Su Shi and others, however, is not necessarily a consequence of a Neo-Confucian outlook. It is possible to detect ideas and terminology from diverse sources in the same aesthetic writings. Chinese art criticism, Pauline Yu has noted, is highly syncretistic, so that one can find support for just about any philosophical position in a particular critical work (see her “Formal Distinctions in Chinese Literary Theory,” in *Theories of the Arts in China*, ed. Susan Bush and Christian Murck [Princeton: Princeton University Press, 1983], 27–53, esp. 27). A problem with this syncretist view is that in the Song and after, it is hard to locate texts outside explicitly religious writing that can be identified as “purely” Buddhist or “purely” Daoist. Thus it may be more reasonable to regard the conventional views of the literate elite as inseparably combining ideas from a number of traditions for a thousand years before the Song. It has been, however, a standard scholarly exercise to identify particular influences or allusions in art. Examples of studies exploring particular philosophical contexts of Chinese art are James F. Cahill, “Confucian Elements in the Theory of Painting,” in *The Confucian Persuasion*, ed. Arthur F. Wright (Stanford: Stanford University Press, 1960), 115–40; Richard Mather, “The Landscape Buddhism of the Fifth-Century Poet Hsieh Ling-yün,” *Journal of Asian Studies* 18 (1958): 67–79; and Lothar Ledderose, “Some Taoist Elements in the Calligraphy of the Six Dynasties,” *T’oung Pao* 70 (1984): 246–78.

38. Guo, *Tuhua jianwen zhi*, chap. 1 (30) (note 33).

39. See Susan Bush, *The Chinese Literati on Painting: Su Shih (1037–1101) to Tung Ch’i-ch’ang (1555–1636)* (Cambridge: Harvard University Press, 1971), 23.

40. Su, *Dongpo shi jizhu*, 27.22b (note 36); Bush, *Chinese Literati on Painting*, 25, 188 (Chinese text) (note 39). Su Shi’s comparison resembles that of Simonides of Ceos, who said that poetry is a speaking picture, and painting silent poetry.

41. Guo, *Linquan gaozhi ji*, 1:24 (note 25).

42. Guo, *Linquan gaozhi ji*, 1:22 (note 25).

43. For a detailed treatment of the terminology and ideas of Chinese science, particularly those of traditional Chinese medicine, see Manfred Porkert, *The Theoretical Foundations of Chinese Medicine: Systems of Correspondence* (Cambridge: MIT Press, 1974).

that it attains divine meaning—this is difficult to discuss with common people.”⁴⁴

Shen Kuo’s writings on art are rarely discussed in relation to his ideas on cartography. In histories of cartography, Shen is usually seen as exemplifying a quantitative tradition. But the evidence is not so univocal.⁴⁵ Shen’s own writings and other sources suggest that the distinction between map and painting may not have been as clearly demarcated as previous historians have suggested—that what is now considered to be cartography participated in the same “economy” of representation as poetry and painting. Because of this participation, one would expect cartographic artifacts to fall within a representational complex accommodating both rigid adherence and no adherence to material forms.

THE ARTISTIC ECONOMY: COMMON TECHNOLOGIES OF PRODUCTION

At a more basic level than theory of representation, the interrelatedness of calligraphy, painting, and cartography would have been reinforced by their shared technology of production and common physical media: for example, silk, paper, wood, and stone. Silk was often used as a medium because of its elegance, resilience, and light weight, which made it preferable to wood; wood was used for maps as early as the late Zhanguo period. Despite silk’s desirability as a base material for artistic works, its expensive production process and social value precluded using it to satisfy ordinary demands. An alternative, inexpensive medium, however, was available from the second or first century B.C.⁴⁶ Like silk, paper was held in esteem—even sent to the imperial capital as tribute—but it was less expensive to produce than silk.

On silk, paper, and even wood, maps—like paintings and calligraphic works—were drawn with brush and ink. The Han silk maps discovered at Mawangdui, for example, seem to have been drawn with brush and pigments, though those who have studied these maps firsthand have said little about how they were made. The Tang mapmaker Jia Dan (730–805) is also known to have painted maps, but virtually nothing is known of his drafting methods.⁴⁷

Stone was used as a medium because of its permanence.⁴⁸ Engraving a map on stone was a three-stage process, beginning with the drawing of a rough draft, normally on perishable material such as paper, followed by the transfer of the image or text to the stone surface. This image took the form of a provisional outline to guide the hand of the stonecutter. Creating the outline involved two simultaneous processes: incising thin, rectilinear guidelines with a chisel, and incising the image itself. Distinctions were usually made between sections for

image or decoration and sections for text. Finally, the carving of the image itself took place: a rounded or V-shaped chisel was used to broaden and rectify the initial cuts.

Paper could be pressed on the engraved image, then tamped with a soft, ink-soaked cloth to produce a reproduction. This aspect of the artifacts engraved in stone allies them technically with those printed from woodblocks, in use in China from at least the eighth century. Both printing and engraving required that an image be transferred from paper to a prepared surface and then cut out with chisels and other cutting tools.⁴⁹ Stone surfaces were typically engraved in intaglio, whereas woodblocks were typically, though not always, carved in relief. As a result, their corresponding images would be quite distinct, the woodblock producing a black mirror image on a white background and the stone engraving producing a white-on-black image oriented in the same way as the original.

Although the techniques for reproducing images from

44. Shen Kuo, *Mengxi bitan* (ca. 1088), chap. 17, par. 280, in *Xin jiaozheng Mengxi bitan* (Newly edited *Mengxi bitan*), ed. Hu Daojing (1957; reprinted Hong Kong: Zhonghua Shuju, 1975), 169. The same paragraph number (280) can be used to locate this passage in *Mengxi bitan jiaozheng* (*Mengxi bitan* edited), 2 vols., ed. Hu Daojing, rev. ed. (1960; reprinted Taipei: Shijie Shuju, 1961).

45. The idea that Shen exemplified a quantitative tradition is only partly true for his scientific work in areas other than cartography. For example, Shen was aware of the limits of systematic observation and computation for attaining an understanding of the cosmos. See Nathan Sivin, “On the Limits of Empirical Knowledge in the Traditional Chinese Sciences,” in *Time, Science, and Society in China and the West*, Study of Time, vol. 5, ed. J. T. Fraser, N. Lawrence, and F. C. Haber (Amherst: University of Massachusetts Press, 1986), 151–69, esp. 159–61.

46. Joseph Needham, *Science and Civilisation in China* (Cambridge: Cambridge University Press, 1954–), vol. 5, pt. 1, by Tsien Tsuen-hsuei, *Chemistry and Chemical Technology: Paper and Printing* (1985), 1–2, 38–40.

47. According to his biography in the *Jiu Tang shu*, Jia Dan painted numerous maps. In one instance, because of the press of official duties, he engaged an artisan to paint a map for him. See Liu Xu et al., *Jiu Tang shu* (Old history of the Tang, compiled 940–45), chap. 138; see the edition in 16 vols. (Beijing: Zhonghua Shuju, 1975), 12:3784 and 3786.

48. Unlike stone, other documentary media such as paper, silk, bamboo, and wood were vulnerable to fire and water.

49. Nicolas Trigault’s 1615 published version of Matteo Ricci’s diaries includes a description of the transfer of image from paper to woodblock: “The text is written in ink, with a brush made of very fine hair, on a sheet of paper which is inverted and pasted on a wooden tablet. When the paper has become thoroughly dry, its surface is scraped off quickly and with great skill, until nothing but a fine tissue bearing the characters remains on the wooden tablet. Then, with a steel graver, the workman cuts away the surface following the outlines of the characters until these alone stand out in low relief.” See *China in the Sixteenth Century: The Journals of Matteo Ricci, 1583–1610*, trans. Louis J. Gallagher from the Latin version of Nicolas Trigault (New York: Random House, 1953), 20–21.

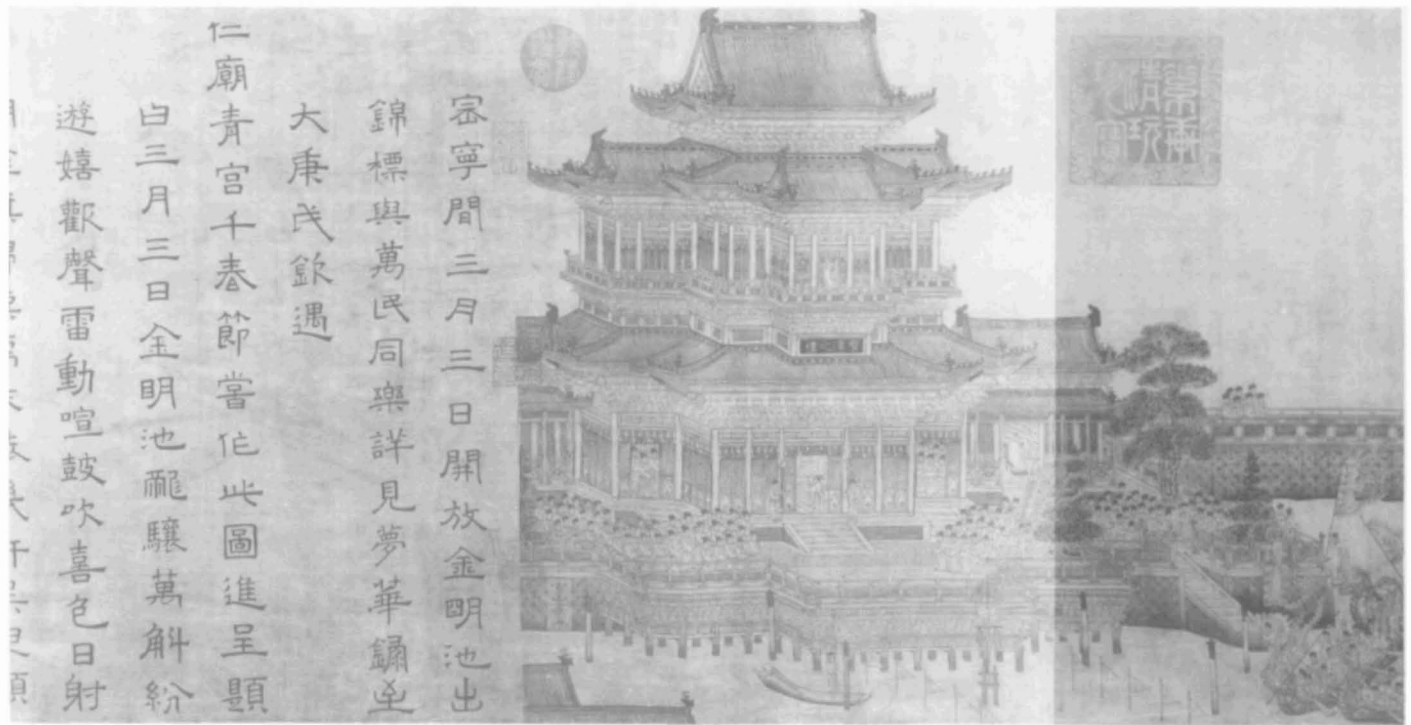


FIG. 6.4. *JIEHUA*, OR RULED-LINE PAINTING. This is a detail from the hand scroll *Longchi jingdu* (Dragon boat regatta on Longchi, 1323), ink on silk, by Wang Zhenpeng.

Size of the entire original: 30.2 × 243.8 cm. By permission of the National Palace Museum, Taipei.

stone and from wood are similar, stone and woodblock maps seem to have assumed distinct functions. Tsien describes the distinction using an apt spatial metaphor: documents on perishable materials were intended primarily for “horizontal” communication among contemporaries, and those on more durable materials were for “vertical” communication across generations.⁵⁰ Stone stele maps implied permanence, an expression of cultural heritage to be passed down through the ages: “Bronze and stone are engraved on,” a Song dynasty writer notes, “because one wants to transmit what is lasting.”⁵¹ Thus the difficult and time-consuming task of engraving on a durable material like stone was reserved for only the most authoritative maps. This attitude may offer at least a partial explanation of why the Song stone maps were more carefully drawn than printed gazetteer maps made centuries later. In contrast, the comparatively simpler process of woodblock engraving was intended foremost for duplication. It seems to have implied immediacy: wood was inexpensive; it was softer than stone and thus easier to carve; a woodcut could be carved quickly, as Jesuit missionaries witnessed in the late Ming (1368–1644).⁵² Making corrections was a simple matter of recutting or inserting plugs. Stone engravings could also be used for duplication, but their bulk and weight made them

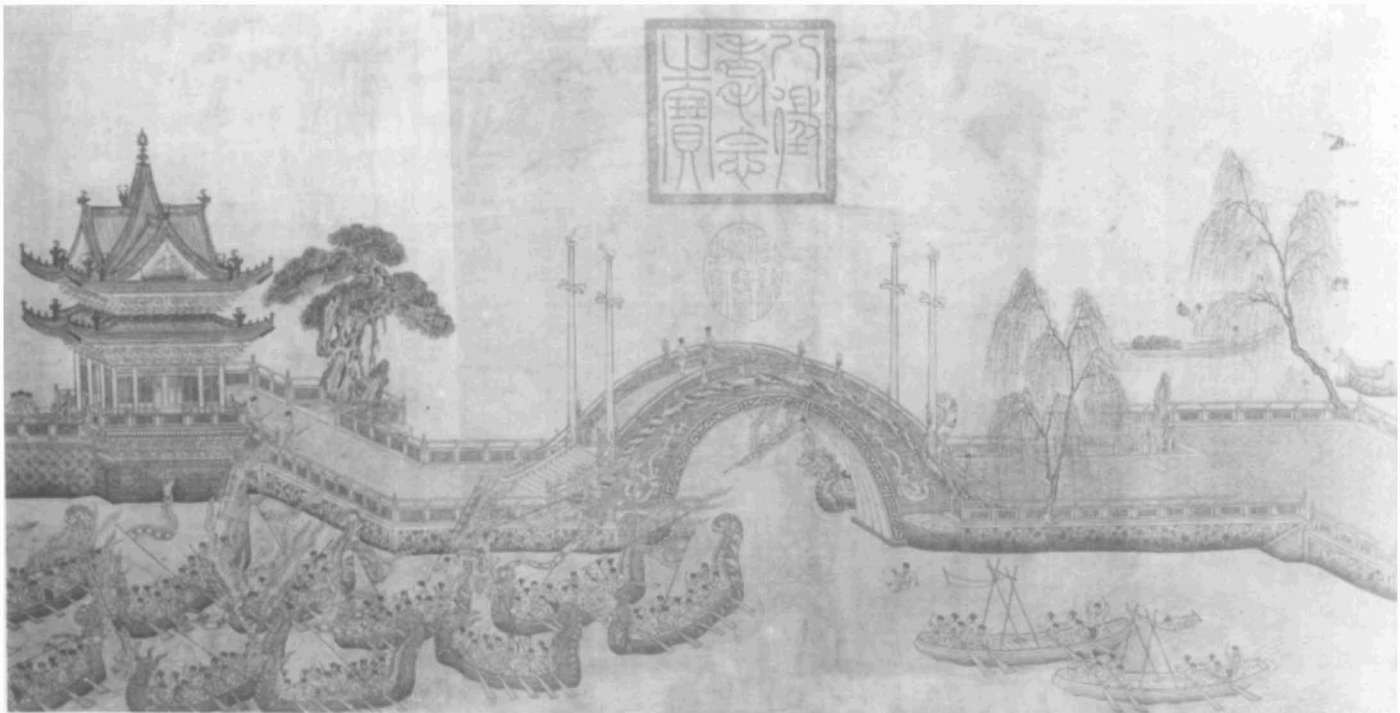
impractical for reproduction in large quantities. In addition, “rubbing” stone was much slower and trickier than printing from an inked block.

The aesthetic qualities of woodblock maps compared with those on stone often seem to reflect their distinct communicative roles. Woodblock maps generally lack the attention to arrangement and design, the pictorial detail, and the fine line work often lavished on stone images. One reason for this was that woodblock maps were most often part of gazetteers, where they served primarily as illustrative accompaniments to a text. Their incorporation into text, furthermore, determined their format. Whereas stones and silk scrolls could be cut to a desired size, woodblock maps were restricted to the dimensions of the printed page. Limitations of space may account for some of the “faults” observed in gazetteer maps.

50. Tsuen-hsuei Tsien, *Written on Bamboo and Silk: The Beginnings of Chinese Books and Inscriptions* (Chicago: University of Chicago Press, 1962), 179.

51. Zhao Yanwei, *Yunlu manchao* (Random jottings at Yunlu, 1206), *Siku quanshu* edition, 4.17a.

52. See *China in the Sixteenth Century*, 20–21 (note 49).



CARTOGRAPHY AND THE VISUAL ARTS: CONCEPTUAL AND STYLISTIC CONNECTIONS

Beyond their shared media, there is theoretical justification for the linkage between cartography and visual art, since both maps and paintings present informational content in the form of visual representations. In other words, map content, like pictorial content, often takes the form of analogues meant to reproduce certain characteristics of the objects represented—characteristics that are apprehended visually. Because of this shared mode of representation, historians of art and cartography have previously speculated about connections between cartography and the visual arts but have felt hampered by a lack of map artifacts.⁵³ In recent years artifacts for the Han have been discovered, but even without artifacts the evidence for connections between maps and painting is compelling. Like Liu Xie's conception of literature, the idea of painting also has links to geography—it is perhaps connected etymologically to land configuration. According to the Han dictionary *Shuowen jiezi* (Explanation of writing and explication of graphs), the graph *hua* (to paint, painting) means “boundary” and “represents the four boundaries of a field [*tian*].”⁵⁴ The *Shuowen* may not be a reliable guide to etymology, but it at least serves

as a useful indicator of Han opinion and misconceptions about it. In the case of painting, the *Shuowen's* opinion seems to have been influential. Since at least the Song dynasty, landscapes have constituted the most highly valued genre of painting, and maps by Zhang Heng and Pei Xiu appear in Zhang Yanyuan's catalog of paintings.⁵⁵ Zhang Yanyuan provides another indication that Zhang Heng enjoyed some repute as a painter: he records an anecdote in which Zhang Heng paints a strange beast with his toes.⁵⁶

53. See, for example, Sullivan, *Birth of Landscape Painting*, 35–37 (note 12); Wang, *Zhongguo ditu shi gang*, 25–28 (note 2); and Alexander C. Soper, “Early Chinese Landscape Painting,” *Art Bulletin* 23 (1941): 141–64, esp. 149. Soper states that it is unlikely that Han mapmaking “had any important effect on the development of a landscape art,” but he seems to leave open the possibility of influence in the opposite direction.

54. Xu Shen, comp., *Shuowen jiezi* (Explanation of writing and explication of graphs, compiled ca. 100), s.v. *hua*, in *Shuowen jiezi gulin* (Collected glosses to the *Shuowen jiezi*), 12 vols., ed. Ding Fubao (Taipei: Shangwu Yinshuguan, 1959), 3:1275a.

55. See Zhang, *Lidai minghua ji*, chap. 3 (76) (note 28).

56. Zhang, *Lidai minghua ji*, chap. 4 (102) (note 28). For a translation of this anecdote, see William Reynolds Beal Acker, trans. and annotator, *Some T'ang and Pre-T'ang Texts on Chinese Painting*, 2 vols. (Leiden: E. J. Brill, 1954–74), 2.1:12–13.

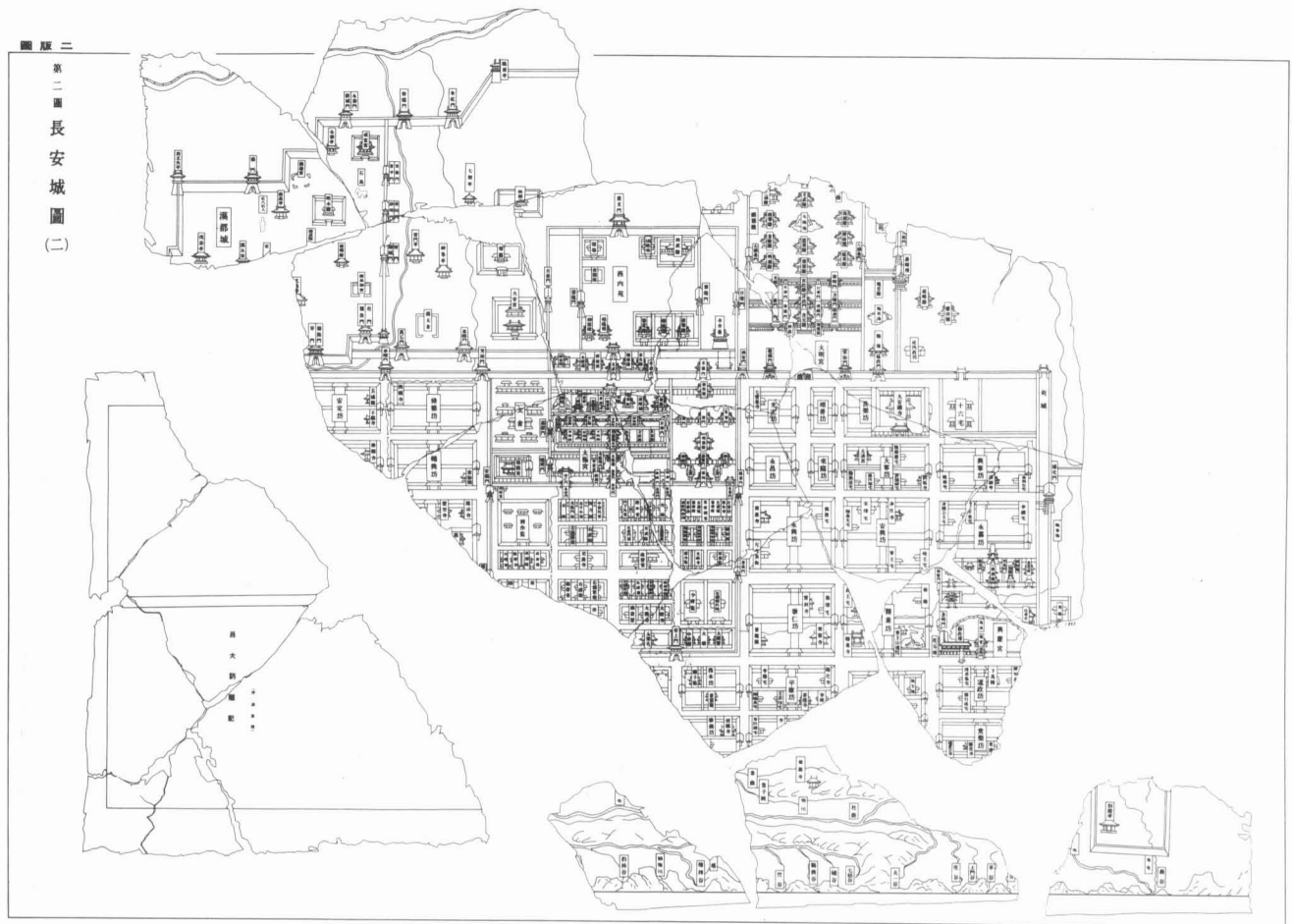
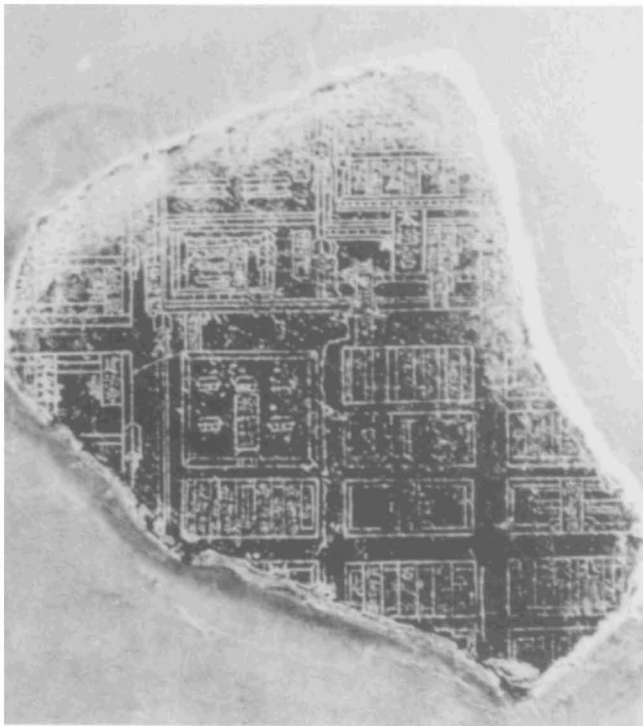


FIG. 6.5. DETAIL OF A MAP OF CHANG'AN, 1080. This detail of a lithographic copy of a rubbing of a stone map of Chang'an, by Lü Dafang (from a modern reproduction of the copy), appears to use ruled lines. To the left is a fragment of the stone map.

Size of the entire original: estimated to have been 200 × 136 cm. Kyōto University Humanities Research Institute. From Hiraoka Takeo, *Chōan to Rakuyō: Chizu* (Chang'an and Luoyang: Maps), T'ang Civilization Reference Series, no. 7 (Kyōto: Jinbunkagaku Kenkyūsho, Kyōto University, 1956), map 2. Photograph of the fragment courtesy of Cao Wanru, Institute for the History of Natural Science, Academia Sinica, Beijing.



Another anecdote, besides illustrating the military significance attached to maps, suggests that mapmaking called for the skills of a visual artist:

Lady Zhao in the court of the lord of Wu was the younger sister of the prime minister Zhao Da. She was skilled in painting; her technique had no peer. Between her fingers, using colored silk, she could weave brocades with clouds and dragons. The large ones were a full *chi* in size; the small ones were one *cun* square. In the palace she was called the matchless weaver. Sun Quan [r. 228–48, first emperor of Wu] often lamented that the states of Wei and Shu had not been con-

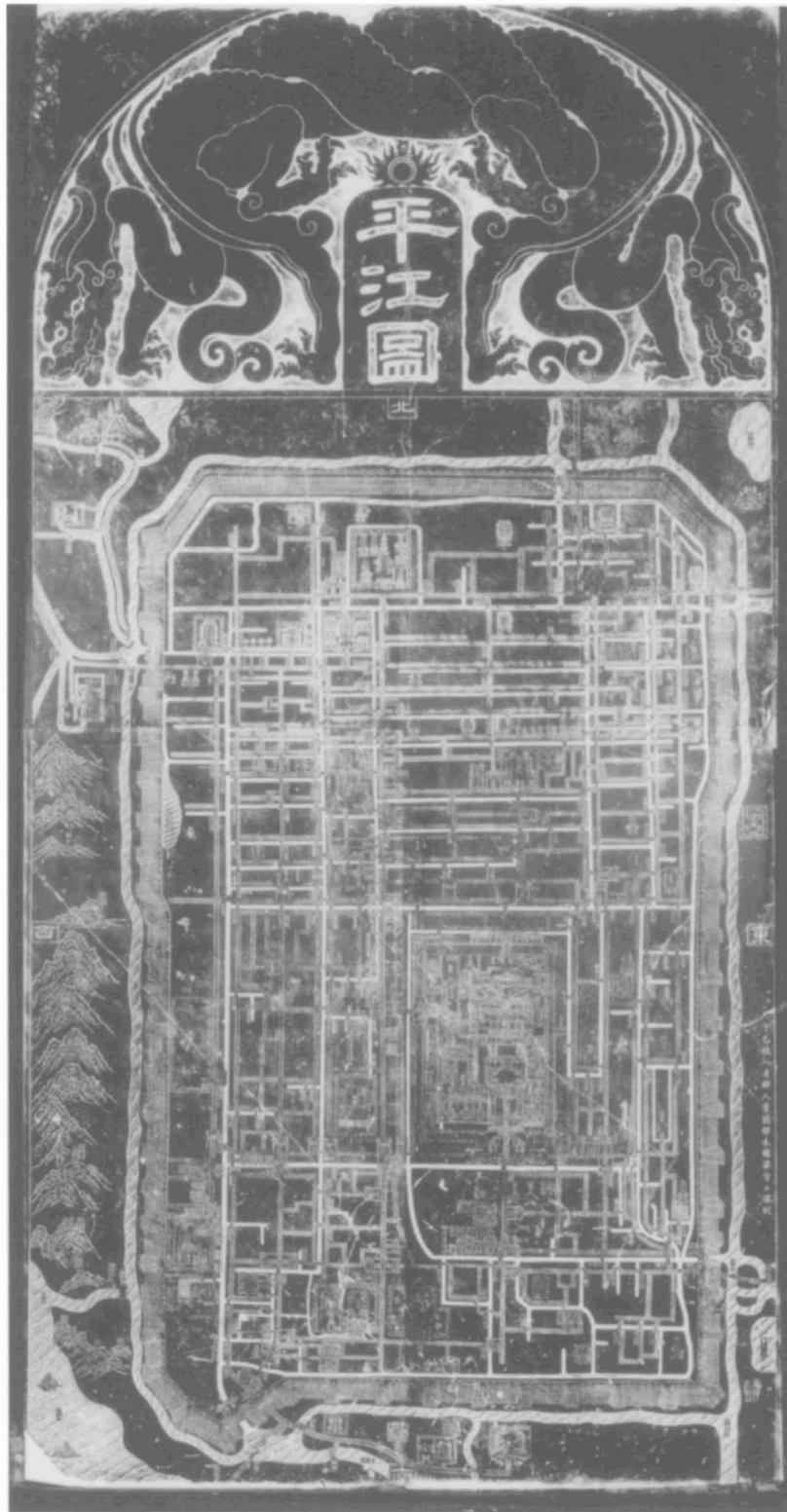


FIG. 6.6. THE *PINGJIANG TU* (MAP OF PINGJIANG PREFECTURE [PRESENT-DAY SUZHOU, JIANGSU PROVINCE]). This is a rubbing of the *Pingjiang tu*, carved on stone in 1229 and seeming to use ruled lines. The map depicts more than 640 features of the landscape, both human and natural. Human features include temples, administrative and military organizations, workshops, bridges, and roads. Natural features

include hills and mounds, rivers, lakes, marshes, and streams. Directions are marked on the map; north is at the top. Compare figures 6.5, 6.7, and 6.8.

Size of the original: 279 × 138 cm. Photograph courtesy of Cao Wanru, Institute for the History of Natural Science, Academia Sinica, Beijing.

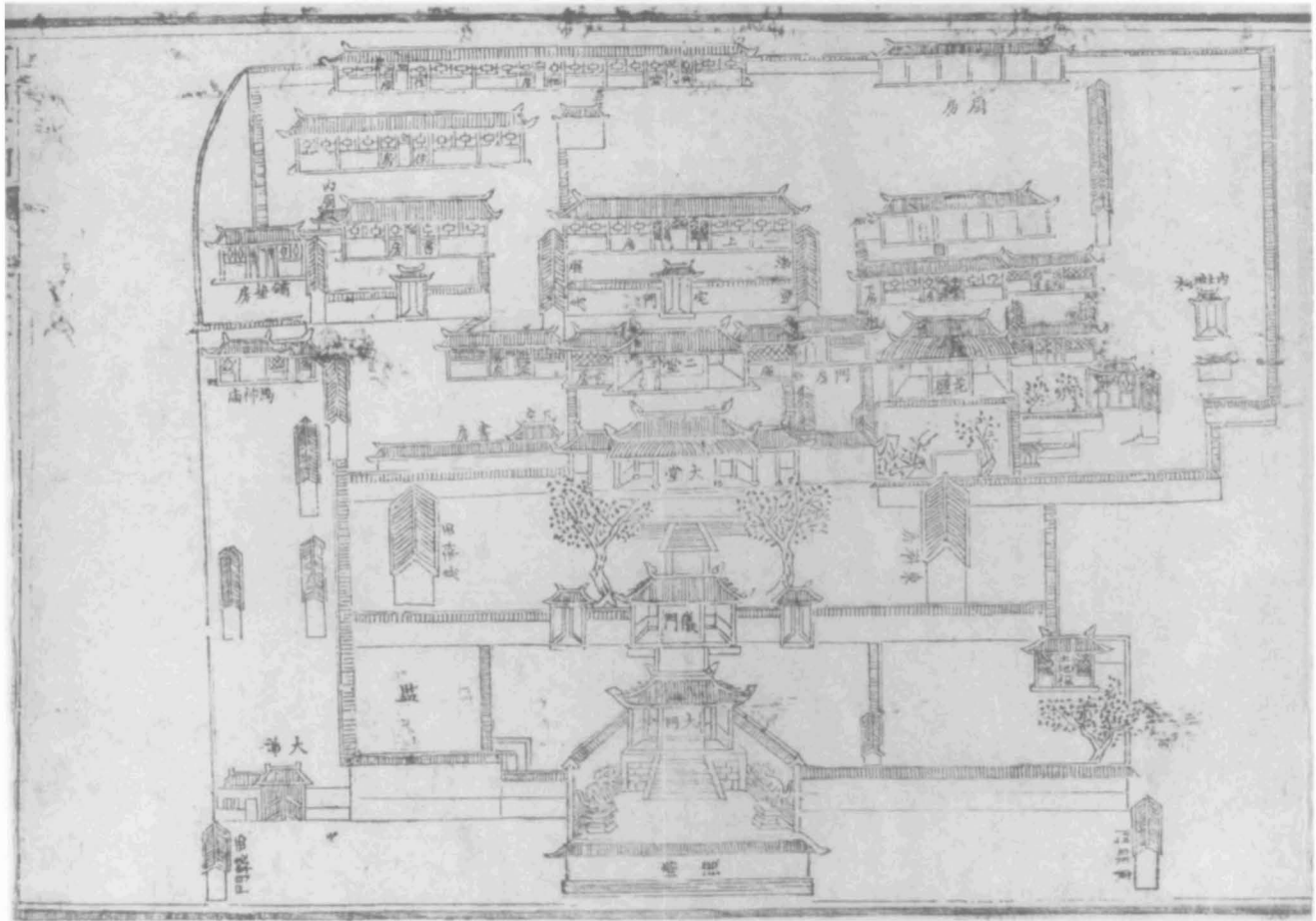


FIG. 6.7. WOODBLOCK MAP OF THE SEAT OF LOCAL GOVERNMENT AT JIZHOU IN PRESENT-DAY HEBEI PROVINCE. Besides its use of what appear to be ruled lines, this example is notable for its variable perspective, used on city

maps since the Han dynasty. Compare figures 6.5, 6.6, and 6.8. Size of the original: 19.5 × 29 cm. From *Jizhou zhi* (Gazetteer of Jizhou, 1831), 1.25b–26a. Reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.

quered. To facilitate troop movements, he was thinking of getting someone skilled in painting to make maps of their mountains, streams, topography, and military positions. Zhao Da then presented his younger sister, and Sun Quan asked her to draw the rivers and lakes of the nine regions and their mountains. The Lady said: “It is extremely easy for pigments to fade; they cannot be preserved for long. But I am able to embroider a map.” She made the various principalities on a square piece of silk, and drew the five peaks, the [Yellow] River and the sea, and cities, as well as the disposition of troops. When the map was finished and presented to the king of Wu [Sun Quan], people called her the “wonder of needlework.”⁵⁷

One style of painting seems particularly close to the drafting style often associated with mapmaking: *jiehua* (ruled-line painting), the only category of painting that involved tools other than the brush. It was used for detailed and scaled depiction of objects, especially architectural subjects (see fig. 6.4). Practitioners of this style

of painting were skilled not only with drafting tools such as the calibrated ruler, compass, and square, but also with surveying instruments such as the water level and plumb line and with building calculations (*mujing suanfa*).⁵⁸

Although the use of rules and compasses in drawing dates back to antiquity, the category *jiehua* and its terminology seem to have developed in the Song. In fact, one source credits Guo Zhongshu, a painter of the Northern Song, with mastering and defining the measured drawing or “boundary” style. In the beginning, *jiehua* seems to have been somewhat of a pejorative term among

57. Wang Jia, *Shiyi ji* (Gleanings, fourth century), *Baibu congshu jicheng* edition, 8.2a–b. A less detailed account of Lady Zhao’s map appears in Zhang, *Lidai minghua ji*, chap. 4 (105–6) (note 28).

58. More detailed discussions of *jiehua* can be found in Robert J. Maeda, “Chieh-hua: Ruled-Line Painting in China,” *Ars Orientalis* 10 (1975): 123–41; and Joseph Needham, *Science and Civilisation in China* (Cambridge: Cambridge University Press, 1954–), vol. 4, pt. 3, with Wang Ling and Lu Gwei-djen, *Physics and Physical Technology: Civil Engineering and Nautics* (1971), 104–7.

the scholarly elite; it derived from an artisanal craft with tools borrowed from the carpenter's trade—tools that Lu Ji, one will recall, had urged artists to discard. *Jiehua*, like many maps, seems to have occupied a zone between fine art and practical craft, and a number of maps seem to have been produced with the aid of straightedges: for example, city plans and gazetteer maps (figs. 6.5 to 6.8).

The links between painting and cartography seem to have gone beyond technique. There is also some evidence of a conjunction between painting theory and cartographic theory. Pei Xiu's emphasis on correspondence, as I mentioned previously, parallels an emphasis on verisimilitude in aesthetics. Xie He, for example, formulated six principles of painting, two of which are "correspondence to objects, that is, resemblance to forms," and "division and planning, that is, placement and arrange-

ment."⁵⁹ Xie He does not elaborate on these principles, but correspondence and arrangement are concerns that Pei Xiu shares. Even before Xie He, Zong Bing (375–443) had thought about the idea of scale in relation to landscape painting: "Now, if one spreads thin silk to capture the distant scene [of the Kunlun Mountains], the form of Kunlun's Lang Peak can be encompassed in a square *cun*. A vertical stroke of 3 *cun* will equal a height of thousands of *ren* [equal to 80 *cun* or 8 *chi*], and a horizontal stretch of several *chi* will form a distance of 100 *li* [equal to 1,800 *chi*]."⁶⁰

59. Xie, *Gu huapin lu*, 1 (note 31). For a translation of Xie's six principles, see Susan Bush and Hsio-yen Shih, comps. and eds., *Early Chinese Texts on Painting* (Cambridge: Harvard University Press, 1985), 40.

60. Zong Bing, *Hua shanshui xu* (Preface to painting landscape, ca. fifth century), in Zhang, *Lidai minghua ji*, chap. 6 (131) (note 28).

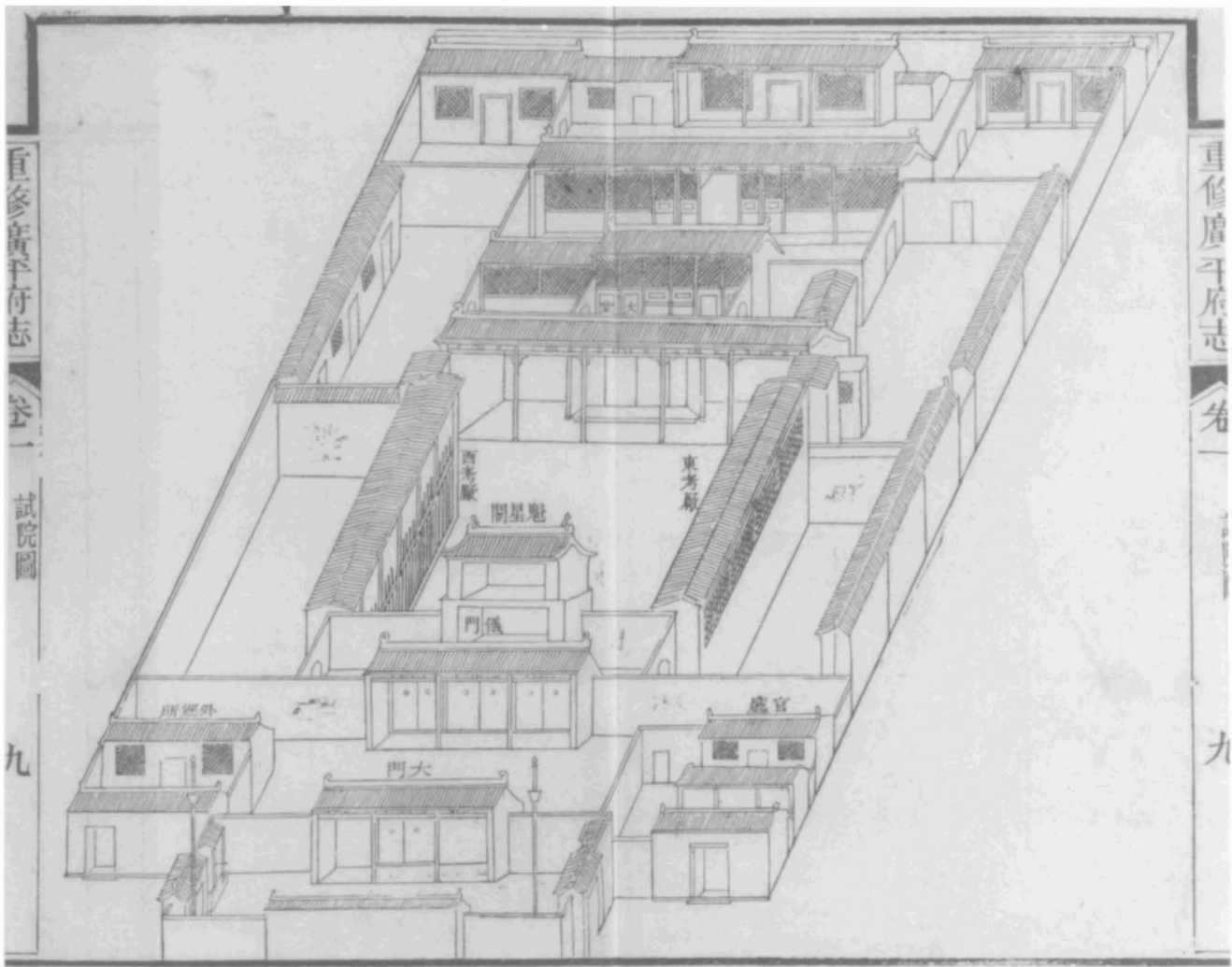


FIG. 6.8. WOODBLOCK ILLUSTRATION OR MAP, 1894. This image is of the examination hall in Guangping Prefecture in present-day Hebei Province (compare figs. 6.5 to 6.7). Size of the original: 23 × 27 cm. From *Guangping fu zhi* (Gaz-

etteer of Guangping Prefecture, 1894), chap. 1, map 9. Reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.

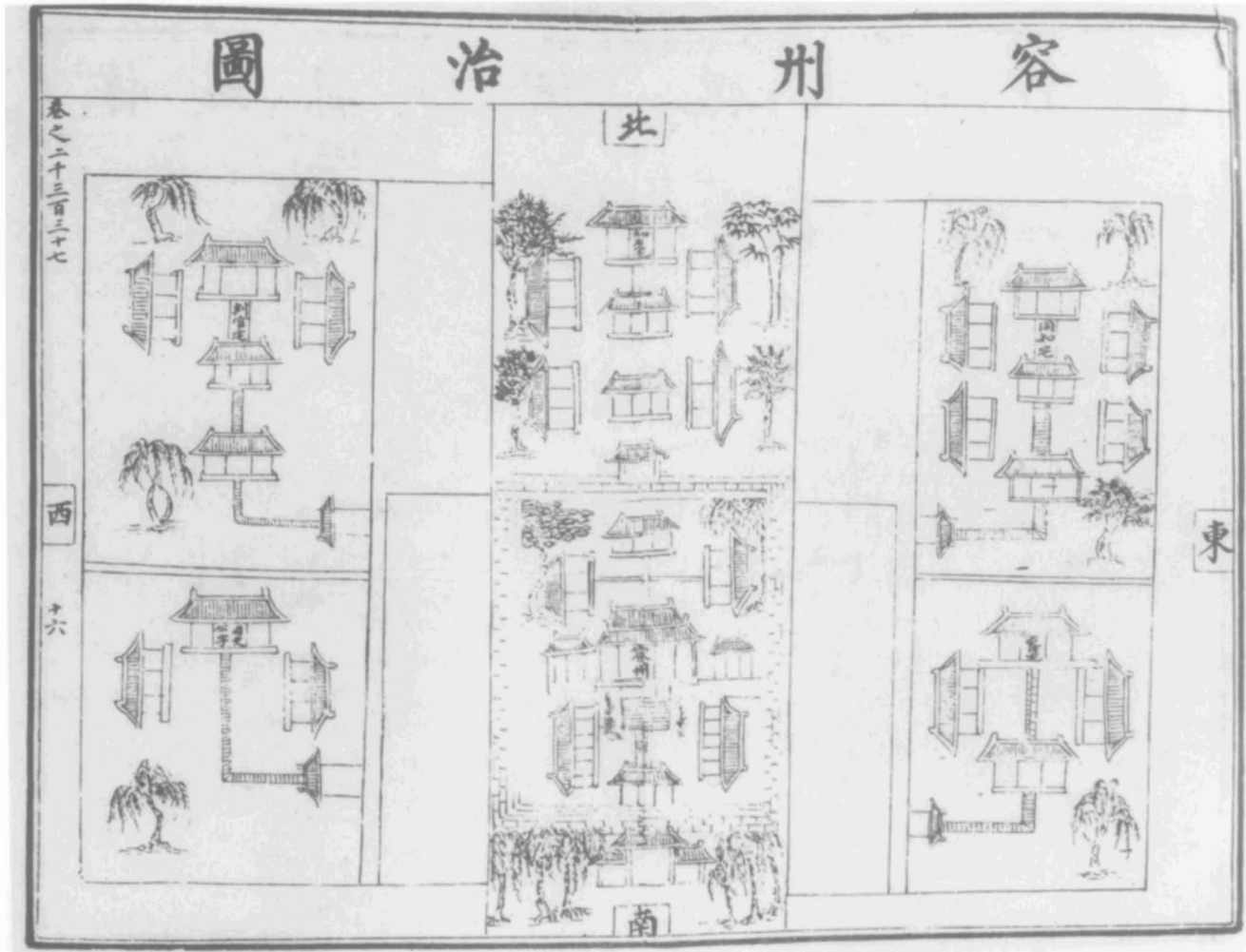


FIG. 6.9. WOODBLOCK MAP OF THE SEAT OF LOCAL GOVERNMENT AT RONGZHOU IN PRESENT-DAY GUANGXI PROVINCE. Here and in figure 6.10 one must change the orientation of the map to view the objects correctly. Size of the original: 15 × 19.5 cm. From *Yongle dadian* (Grand

encyclopedia of the Yongle reign period [1403–24], presented 1409), photo-reprint edition (Taipei, 1962), chap. 2337.16ab. Reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.

In Chinese painting, however, pictorial scale tends to dominate natural scale; that is, the size of an object depicted was determined by needs of design and not rules of geometric perspective. Foreground features might be diminished to avoid obstruction and overemphasis, while distant objects might be enlarged to act as counterpoint to the middle distance and foreground. The practice of variable scale obviously conflicts with Pei Xiu's insistence on consistent map scale to "preserve actualities." Many mapmakers, however, apparently chose to adhere to the pictorial technique of variable scale well into the Ming and Qing (1644–1911), as suggested by an artifactual record containing an abundance of maps that do not maintain a consistent scale. This and other examples of the conjunction between painting and mapmaking per-

haps help explain the ambiguity of the graph *tu* in its application to drawings and pictures or to charts and maps.

A shared conception of space also strengthens the bond between mapmaking and painting. To state some broad generalizations, the experience of space was dynamic and fluid, intimately related to one's experience of time. Space, emptiness, was regarded almost as an entity in itself—as such it was boundless and unlimited. Objects could be measured and defined; space could not be so fixed, since it changed with vantage point and time. As a result, no abstract geometrical system governed space, and points within it were not definable or delimitable in any absolute terms. This conception of space, consonant with what Needham has described as an organismic and



FIG. 6.10. WOODBLOCK MAP OF NANNING PREFECTURE IN PRESENT-DAY GUANGXI PROVINCE. Compare figures 6.9 and 6.11. Size of the original: 14.3 × 19 cm. From *Yongle dadian* (pre-

sented 1409), photo-reprint edition (Taipei, 1962), chap. 8506.2ab. Reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.

processual worldview, differs from the one that has prevailed among European cartographers and artists since about the fifteenth century—a conception that defines space abstractly, as an entity that is bounded, static, and therefore organizable and measurable. Under this conception, which accords with the scientific tendency toward what Pepper has called “discrete mechanism,” space can be viewed as particulate rather than as a continuum and can be represented as a mathematical equation. It is conceived as being made up of a coordinate system of points, each of which has its own discrete identity and can be treated objectively from a single vantage point.⁶¹

The difference in the two treatments of space leads to differences in the graphic treatment of perspective, the projection of three-dimensional space on a plane surface.

In European Renaissance art, depth was represented as a continuously receding ground plane directed toward a vanishing point on the horizon, with a correlative diminution in the height of verticals. The geometry essential to the European artist’s use of convergent perspective, however, was generally unknown to, or at least unused by, traditional Chinese painters. The problem of perspective, or *yuanjin* (far-near), in the graphic arts was resolved by different conventions.

61. On the Chinese organismic worldview, see Joseph Needham, *Science and Civilisation in China* (Cambridge: Cambridge University Press, 1954–), vol. 2, with Wang Ling, *History of Scientific Thought* (1956); on discrete mechanism, see Stephen C. Pepper, *World Hypotheses: A Study in Evidence* (Berkeley and Los Angeles: University of California Press, 1942); on the mathematization of space in Europe, see Samuel Y. Edgerton, Jr., *The Renaissance Rediscovery of Linear Perspective* (1975; reprinted New York: Harper and Row, 1976).



FIG. 6.11. RUBBING OF A STONE MAP, *TAI SHAN QUAN TU* (COMPLETE MAP OF TAI SHAN [MOUNT TAI]), PROBABLY QING DYNASTY. Tai Shan, in central Shandong Province, is one of the five sacred mountains of China. This map was apparently meant as a guide for pilgrims to the mountain: it shows the route from the temple of the god of Tai Shan at the foot to the shrines at the summit and identifies places and buildings. The mountain and buildings are presented in elevation, while temple grounds and walls are presented in plan, which creates a multiplicity of ground planes. In addition to this variable perspective, the map makes use of variable scale: the temple complex at the foot of the mountain is disproportionately large, apparently to permit the buildings within it to be represented.

Size of the rubbing: 110 × 62 cm. By permission of the Field Museum of Natural History, Chicago (235581).

One was the use of variable viewpoint (see figs. 6.9 to 6.11 for examples of variable perspective in maps). The standpoint of the observer, instead of being fixed, is mov-

able without restriction or else multiple.⁶² Each portion of the composition is drawn with its own viewpoint perpendicular to it at some distance. This convention was useful for composing a spatially dynamic sequence of scenes on, for example, scrolls, one of the traditional media for Chinese painting and maps. Unlike paintings in frames, scroll paintings are often too long to be viewed all at once. A moving viewpoint seems well suited for a medium in which the image passes before the observer section by section as it is unrolled. On sheet maps of restricted length, this technique could be adapted to create multiple ground planes: one might have to imagine oneself rotating, instead of moving laterally, in order to view the depicted objects correctly.

There were, however, exceptions to the general application of variable perspective. Shen Kuo recognized the merits of certain experiments that pointed toward convergent perspective. He says that painters who employed a stationary viewpoint were able to diminish heights and distances accurately but attached too much importance to this diminution. Shen advocates the use of a large viewing area in which the artist combines the vantage points of multiple observers:

In general, the method of landscape painting is to take a large view of the small, as when a person observes an artificial mountain. If it were the same as the method for [viewing] a real mountain, looking up from below, one would see only a single layer of the mountain; how can one see layer on layer, or its valleys and gorges and other details? Similarly in the case of dwellings and houses, one would not see what was happening in their courtyards and in the lanes behind them.⁶³

Elsewhere the idea of multiple viewpoint is described in terms of three depths or perspectives: *gao yuan* (high “distance” or perspective), *shen yuan* (deep distance or perspective), and *ping yuan* (level distance or perspective). The three perspectives are also explained in a Qing dynasty manual of painting:

Mountains have three perspectives: looking at a peak from below is called *gao yuan*; looking from a mountain in front to one in back is called *shen yuan*; and looking from the near to the far is called *ping yuan*. The effect of high perspective is a precipitous view; the effect of deep perspective is the repetition of layers [or planes]; the effect of level perspective is of an expanse. These principles govern the overall composition. If it is deep but without perspective, it will seem

62. This mode of presentation can also be observed in pre-Renaissance European art and in the art of other cultures. See, for example, Edgerton, *Renaissance Rediscovery*, 7–10 (note 61).

63. Shen, *Xin jiaozheng Mengxi bitan*, chap. 17, par. 283 (170) (note 44).

shallow. If it is level but without perspective, it will seem too close. If it is high but without perspective, it will seem low.⁶⁴

Distance is represented by height so that objects behind or beyond another object are placed above it on a two-dimensional surface. The resulting composition is a series of plane ground surfaces or terraces, each with its own vanishing point.⁶⁵

MAPS AS PAINTINGS/PAININGS AS MAPS

The parallels between maps and paintings in the use of perspective seem too striking to be a case of independent development—a suspicion supported by textual sources already cited. To judge from Zhang Yanyuan's lists of paintings, maps were considered a genre of painting during the Tang. Existing artifacts suggest that this view of maps as painting may have been prevalent well before then. This is not to say that purely planimetric representation was unknown. The mausoleum map (*zhaoyu tu*) and wooden maps dating from the Zhanguo period, stone maps from the Song, and some manuscript and printed maps from later periods do seem to employ an essentially planimetric mode. But Chinese maps characteristically present a mixed mode of representation. For example, a tomb mural from the Former Han dynasty (206 B.C.–A.D. 8) discovered at Horing (Holingol), Inner Mongolia, presents a city plan of Fanyang (present-day Chuwang village in Henan Province) (fig. 6.12). All the structures depicted are presumably on the same horizontal plane, as suggested by the representation of the surrounding walls in plan. The depiction of buildings in elevation, however, creates the impression that there are several horizontal planes. The human figures also seem to be exaggerated in size; they are as large as buildings. The plan may perhaps be taken as an illustration of a technique of variable scale.

A more complex example (fig. 6.13) comes from the same tomb as the Fanyang city plan. This is a city plan of Ningcheng. All the objects represented in the plan are on the same ground plane, but some are depicted obliquely, some in plan, and some in elevation, so that they seem to occupy different ground planes. In the upper left quarter of the plan, the facade of a building is presented in elevation. The scene inside the building is also depicted, and the artist recognizes that a different perspective would allow a fuller representation of that interior scene. Thus, in accordance with what Shen Kuo would write centuries later on variable perspective, the interior of that same building is presented obliquely so that everything inside can be seen.

The use of variable perspective is not restricted to artifacts from the tomb at Horing. It also appears on two



FIG. 6.12. CITY PLAN OF FANYANG FROM THE HAN DYNASTY. This is a copy of the Fanyang city plan discovered in a Han tomb at Horing, Inner Mongolia. According to Jan Fontein, comparison of photographs of the original murals at Horing with photographs of the modern copies shows that the copies are extremely faithful. The copies are important because the originals have begun to deteriorate. See Jan Fontein and Wu Tung, *Han and T'ang Murals Discovered in Tombs in the People's Republic of China and Copied by Contemporary Chinese Painters* (Boston: Museum of Fine Arts, 1976). Size of the original: 94 × 80 cm. Photograph courtesy of Cao Wanru, Institute for the History of Natural Science, Academia Sinica, Beijing.

of the silk maps discovered in one of the Han tombs at Mawangdui in 1973. One depicts buildings in a manner that forces a viewer to rotate in order to maintain proper orientation (see fig. 3.7 above). The same style of rendering can be seen at the center of the other map in a representation of a military headquarters (plate 8). This map has been described as a garrison map because of the centrality of the headquarters and the map's depiction of various military installations. The scholars responsible for the initial reports on which almost all subsequent work

64. Wang Gai, *Jiezi yuan huapu* (Mustard seed garden manual of painting, 1679) (Taipei: Wenguan Tushu Gongsu, 1967), *chuiji* (pt. 1) 19.

65. For more detailed treatment of perspective in Chinese painting, see Benjamin March, "Linear Perspective in Chinese Painting," *Eastern Art* 3 (1931): 113–39; and George Rowley, *Principles of Chinese Painting* (Princeton: Princeton University Press, 1959).

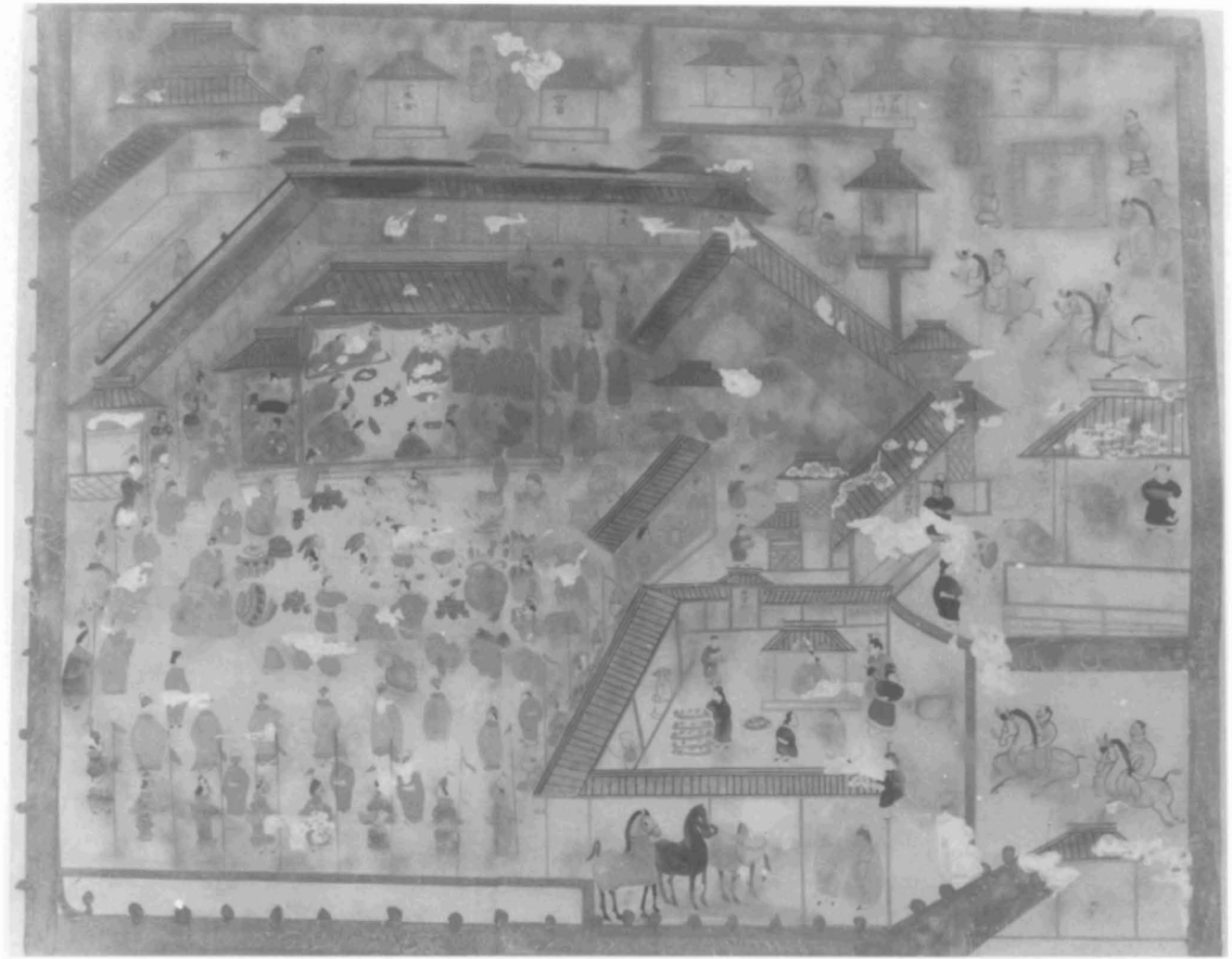


FIG. 6.13. MAP OF NINGCHENG FROM THE HAN DYNASTY. This is a copy of the map of Ningcheng discovered in a Han tomb at Horinger, Inner Mongolia (see also fig. 6.12).

Size of the original: 129 × 159 cm. By permission of Wenwu Chubanshe, Beijing.

on this map has been based have argued that this map was drawn to scale and would therefore have been useful in planning strategy. The map bears no scale indications, but based on comparison with a modern map of the area depicted, it was claimed that the silk map was drawn to a fairly consistent scale. This conclusion, however, seems somewhat tenuous: scale in the most consistent portion of the map was found to vary from 1:80,000 to 1:100,000, with greater variance in other portions.⁶⁶ A variation of 25 percent may not seem large, but it is not difficult to imagine military situations in which it would be significant—for example, in directing reinforcements to particular locations. Rather than demonstrating that Han map-makers already practiced Pei Xiu's first principle of consistent scale, the map seems to exemplify the practice of variable scale. This and other evidence to be adduced below suggests that the map may have more in common

with painting than with the quantitative cartography advocated by Pei Xiu.

One curious feature of this map lies in its treatment of curved lines, which represent mountains and streams in the same manner that curved lines represent hills, waves, and clouds in late Zhou art. The regularity of the curvature is also striking. If Pei Xiu had seen a map like this, it probably would have raised his ire for its lack of correspondence to observed reality. A tendency toward idealization of landscape, however, has long been recognized as a characteristic of Chinese art. In addition, the pointed and trefoil motifs on the mountain con-

66. Mawangdui Han Mu Boshu Zhengli Xiaozu (Study Group on the Han Silk Manuscripts from Mawangdui), "Mawangdui sanhao Han mu chutu zhujun tu zhengli jianbao" (Preliminary restoration report on the military map found in Han tomb 3 at Mawangdui), *Wenwu*, 1976, no. 1:18–23.



FIG. 6.14. LACQUERED WINE CUP. Cups of this type were discovered in the Han tombs at Mawangdui. Size of the original: 4.5 × 17.3 × 17.8 cm. By permission of the Hunan Provincial Museum.

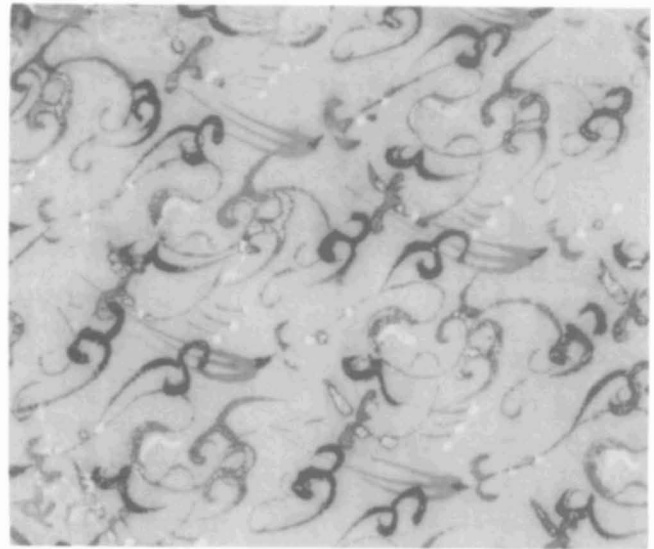


FIG. 6.15. SILK GAUZE FROM THE HAN DYNASTY. This is a small part of a piece of fabric discovered in a Han tomb at Mawangdui. The designs in five colors were painted onto the fabric. By permission of the Hunan Provincial Museum (no. 340-32).



FIG. 6.16. MANOR MAP FROM THE HAN DYNASTY. This is a copy of a manor map mural discovered in the Han tomb at Horiger, Inner Mongolia (see also fig. 6.12)

Size of the original: ca. 191 × 300 cm. By permission of Wenwu Chubanshe, Beijing.



FIG. 6.17. PAINTING OF WANGCHUAN. Section of a late Ming copy of the *Wangchuan tu* (Picture [or map?] of Wangchuan), by Wang Wei.

Size of the entire original: 30 × 480.7 cm. By permission of the Seattle Art Museum (Eugene Fuller Memorial Collection 47.142). See also plate 9.

tours—the latter perhaps deriving from the graph for mountain—seem to lend an abstract quality to the map. This conjecture is corroborated by the appearance of similar motifs on artifacts from the Han tombs at Mawangdui. These motifs are painted on lacquerware and painted and printed on textiles (figs. 6.14 and 6.15). Considered with the regularity of the curves and the lack of scalar indication, the designs seem to point toward a less practical application for the map than has been previously claimed, especially if one were to use it to plan troop movements as some scholars have suggested.

Because of its affinities with visual art, the garrison map ought to be viewed in relation to the other examples of tomb cartography discussed previously. In its mode of representation, the Mawangdui map shares some characteristics with the ones found at Horiger. One Horiger map of a manor (fig. 6.16) depicts roads and mountains with not nearly as much symmetry as the one from Mawangdui. But the variable perspective used on the manor map resembles the mode of representing objects seen on the garrison map: the manor map offers frontal views of some objects and overhead views of other objects lying on the same plane as those depicted frontally. Similarly, the garrison map gives overhead views of streams and military installations but depicts mountains and buildings in elevation.

The garrison map's burial with an official also allies it

with the Horiger mural maps. The maps at Horiger, drawn on the inside walls of a tomb, would serve no practical purpose in this world; as symbols of the tomb occupant's official standing and personal wealth, however, they would have helped the deceased gain standing in the afterworld. The entombment of the garrison map from Mawangdui seems to indicate that its function was conceived at least in part as ceremonial, that it was a ritual object, part of the funerary rites. This use would explain the presence of decorative motifs shared with other artifacts buried in the same tomb. Seen in this light, the map appears to have been drawn not to help military planners, but to dignify the official's passage to the otherworld by serving as a representation of his former military authority. This conclusion is also consistent with the message to the otherworld found with the artifacts in the official's tomb. The message was written on a wood tablet by a member of the deceased's household staff: "On *wuchen* [the twenty-fourth day], second month, the twelfth year [of Wendi's reign, 168 B.C.], Household Assistant Fen to Gentleman in Charge of the Dead: a list of mortuary objects is herewith forwarded to you. Upon receiving this document, please memorialize without delay to the Lord of the Dead."⁶⁷ The message implies

67. Hunan Sheng Bowuguan and Zhongguo Kexueyuan Kaogu Yanjiusuo (Hunan Provincial Museum and Institute of Archaeology, Aca-



that the deceased is being entrusted to an otherworldly bureaucracy, and the artifacts are apparently expected to help sustain him there.

Although the conclusions reached here question the validity of earlier conclusions about the garrison map, they do not necessarily undercut the argument that during the Han, the Chinese produced maps based on direct and indirect measurements of distances. The garrison map does correspond closely enough to observed geographic reality for identification of the area depicted. As the regularity of the mountain contours suggests, the mapmaker probably did not rely on survey data. But it is conceivable that the map was based on an archetype relying on such data, perhaps a map considered too valuable in this world to be buried. This would explain why some investigators have insisted that the garrison map reflects a quantitative tradition while overlooking its obvious connections with artistic and political practices. The counterarguments offered here, however, do have their difficulties. There is no evidence, for example, that the map was newly drawn for the burial.

In any case, though, the garrison map exemplifies the difficulty of separating cartographic from artistic traditions. That difficulty is not confined to early artifacts, in which case one might argue that the two traditions would become easier to separate as they “matured.” To this possible counterargument, a number of examples can be

offered in rebuttal. One of the more notable is a scroll painting by the Tang poet and painter Wang Wei (701–61). The original has been lost, and the painting is known only through painted or printed copies of later date (fig. 6.17 and plate 9). The painting depicted the artist’s estate, and copies show that it was executed with a variable perspective or moving focus often associated with the scroll form. The moving focus is accentuated by the spatial organization of the painting: the points of interest are arranged so that space flows completely around them. They are enclosed in what have been described as “space cells.”⁶⁸ In addition, the ground plane is tilted, but mountains and trees are shown frontally. Also, each point of interest on the painting is labeled.

Wang Wei’s painting has generated some debate over its proper classification—landscape painting or map. In

demia Sinica), “Changsha Mawangdui er, sanhao Han mu fajue jianbao” (Preliminary excavation report on Han tombs 2 and 3 at Mawangdui, Changsha), *Wenwu*, 1974, no. 7:39–48, 63, esp. 43. The translation is a modification of that of Ying-shih Yü, “New Evidence on the Early Chinese Conception of Afterlife—A Review Article,” *Journal of Asian Studies* 41 (1981): 81–85, esp. 82. The inventory of funerary objects found in the tomb in question consists of 410 wooden strips and boards. According to published reports, the list corresponds fairly well with the objects found, but I have been unable to determine whether the maps are named in the inventory.

68. Sherman E. Lee, *Chinese Landscape Painting* (Cleveland: Cleveland Museum of Art, 1954), 19.



FIG. 6.18. TWO DETAILS FROM A TENTH-CENTURY PAINTING OF WUTAI SHAN. From the mural of Wutai Shan in the Cave of the Thousand Buddhas at Dunhuang.

Size of the entire mural: 4.6 × 13 m. By permission of Wenwu Chubanshe, Beijing.

favor of those who would call it a landscape, the painting lacks the high degree of abstraction usually associated—at least in the twentieth century—with maps. Other than the labels, it makes no use of conventional symbols to represent geographic features but tries to approximate the actual appearance of those features. On the other hand, it certainly has elements that suggest cartographic intent: it represents an actual place; it seems intended to promote spatial understanding of that place, as suggested by the labels; and it does manifest some abstraction in its spatial organization into squarish enclosures. The painting's combination of pictorial and cartographic elements makes it suitable for classification under Harvey's term "picture map."⁶⁹

The same can be said of the mural of Wutai Shan (Wutai Mountains, in present-day Shanxi Province) in the Cave of the Thousand Buddhas at Dunhuang (fig. 6.18). Measuring about 4.6 meters high and 13 meters wide, the mural was painted between 980 and 995. As in Wang Wei's painting, the pictorial space of the mural is organized into space cells, though in this case the cells are connected by paths and roads so that a viewer "is not forced to leap barriers in order to pass from place to place but is able to follow easily the same paths taken by travellers in the painting."⁷⁰ And like the artifacts discussed above, the Wutai Shan mural is marked by variable perspective: the objects depicted occupy several ground planes. The cartographic character of the mural derives in part from its use of cartouches identifying objects on the ground as well as in the heavens, and in part from the abstraction evident in the pictorial representations: the representations of mountains, buildings, and towns

show some uniformity in appearance, implying at least some conventionalization.⁷¹

Even after the introduction into China of European cartography and its planimetric and abstract modes of representation, Chinese maps still make use of variable perspective and pictorial representation. Both were regarded as proper to cartography. The *Sancai tuhui* (Illustrated compendium of the three powers [heaven, earth, man]), an encyclopedia completed in 1607, classifies landscapes, grid maps, and maps combining pictorial and planimetric modes of representation together as *dili tu*, "geographic illustrations" or maps (fig. 6.19). The encyclopedia is a compilation of earlier as well as contemporaneous materials, so its contents may not be representative of seventeenth-century cartography, but a similar situation involving mixed modes of representation holds for contemporary and even later maps. A prefectural map from an eighteenth-century atlas (plate 10), for

69. See P. D. A. Harvey, *The History of Topographical Maps: Symbols, Pictures and Surveys* (London: Thames and Hudson, 1980). On the basis of Wang Wei's painting, Berthold Laufer concludes that Tang dynasty masters of landscape painting "received a strong impetus for their work from the high development of contemporaneous map-making." A work like Wang Wei's, Laufer goes on to say, is "not intended to represent any landscape, but it is the topography of the Wang river cherished and minutely investigated by the artist." Painters had to practice methods similar to those of the cartographers. See Berthold Laufer, "The Wang Ch'uan T'u, a Landscape of Wang Wei," *Ostasiatische Zeitschrift* 1, no. 1 (1912): 28–55, esp. 53–54.

70. Ernesta Marchand, "The Panorama of Wu-t'ai Shan as an Example of Tenth Century Cartography," *Oriental Art*, n.s., 22 (1976): 158–73, esp. 159.

71. Marchand, "Panorama of Wu-t'ai Shan," 159, 169–70 (note 70).

example, bears some striking stylistic resemblances to Wang Wei's painting. The prefectural map, colored in hues of green and blue, shows a similar spatial organization with an emphasis on cell-like enclosures. It makes use of variable perspective: the ground plane is tilted, yet mountains are depicted in elevation. As in Wang Wei's painting, points of interest are labeled, consistent with the map's function as an aid to understanding spatial relation between objects. The relatively late date of this map suggests that in manner of presentation cartography, even after the introduction of European models, had still not fully distinguished itself from other forms of visual representation.

This conclusion is corroborated by examples from geographic works dating from the sixteenth through the nineteenth century, in which pictorial and planimetric representations are all labeled *tu*. For example, reproduced in figures 6.20 to 6.22 are sequences of *tu* from regional and local gazetteers. If one were to remove the place-names, some of these *tu* would be indistinguishable from what would unequivocally be called landscape pictures. This is especially true in cases where human figures, animals, and boats—elements not usually associated with cartographic representation—make up part of the map content. Compilers of gazetteers saw both planimetric and pictorial representation as essential to their task: grid maps are the “warp,” and maps of mountains, streams, and villages are the “woof.”⁷² In Qing dynasty gazetteers, one influence of representational practices imported from Europe does manifest itself in the greater use of linear or convergent perspective in maps. These techniques did not displace the variable perspective seen in earlier paintings and maps but were juxtaposed to traditional spatial representation (see figs. 6.23 and 6.24).⁷³ Like grids of traditional Chinese cartography and graticules of European mapmaking, convergent perspective and variable perspective often appear on the same map.

TOWARD A REDEFINITION OF THE MAP

The influence on Chinese cartography of European models of both cartography and the visual arts provides yet another indication of the close relation of painting and cartography in Chinese culture. Further evidence appears in an eighteenth-century anthology of poems inscribed on paintings, commissioned by the Kangxi emperor (1654–1722), who also commissioned Jesuit missionaries to undertake a survey of his empire and to draw new maps using European techniques. Despite the introduction of European map styles into the Kangxi emperor's court, the compilers of the anthology express a conception of maps that seems uninfluenced by European ideas. Among the classifications of illustrations used in this collection are *dili* (geographic) and *shanshui* (land-

scape). According to the statement of principles that introduces the collection, a geographic picture or *tu* is one that gives an overall view of all the mountains, seas, and topographic configurations. A landscape is a picture in which one creates a scene out of nothing “to portray one's impressions” or a picture in which one “embellishes [reality] as one wishes without identifying names so as to make any mountain or river whatever.”⁷⁴ What makes a geographic map a map, according to this statement, is its depiction of an actual place as opposed to one that is imaginary or even unnamed. A landscape painting seems to allow for more self-expression and greater use of the imagination than a geographic map, although it is unclear how much embellishment would disqualify a picture from being classified as a map.

Unfortunately, the collection of poetry does not contain reproductions of the pictures on which the poems are inscribed so that the distinction between map and landscape might be clearly illustrated. As the definition stands, any painting of an actual place, such as the one by Wang Wei, in which the artist strove for fidelity without embellishment and identified the geographic feature depicted, would be considered a *dili tu* or map. Thus, in the gazetteer maps of the Qing period one often sees both pictorial and planimetric modes of depiction, sometimes within the same representation.

Beneath the term *dili* lies an additional explanation for traditional Chinese cartographic practice. Besides “geography,” the term can also refer to the traditional Chinese science of “siting,” used to evaluate the configurations of *qi* underlying proposed sites for buildings and tombs. The importance of *qi* in siting hints at another connection

72. *Yuzhou zhi* (Gazetteer of Yuzhou [in present-day Henan Province]) (1835; reprinted Taipei: Taiwan Xuesheng Shuju, 1968), 1.1a–b.

73. As I mentioned above, convergent perspective may have been used, but infrequently, before the arrival of the Europeans. The principles of convergent perspective do not seem to have been widely known. Jesuits are known to have given lectures on the principles of perspective, and several Chinese writers marveled at the realism of European pictorial art. On the influence of European art on Chinese painting, see James Cahill, *The Compelling Image: Nature and Style in Seventeenth-Century Chinese Painting* (Cambridge: Harvard University Press, 1982), 70–105; and Harrie Vanderstappen, “Chinese Art and the Jesuits in Peking,” in *East Meets West: The Jesuits in China, 1582–1773*, ed. Charles E. Ronan and Bonnie B. C. Oh (Chicago: Loyola University Press, 1988), 103–26.

74. Chen Bangyan et al., comps., *Yuding lidai tihua shi lei* (Imperial commission, classified [collection] of poems inscribed on paintings through the dynasties, commissioned 1707), *Siku quanshu* edition, “Fanli” (principles), 1b. This collection is also discussed by Kazutaka Unno in “Maps as Picture: The Old Chinese Views of Maps” (paper presented at the Thirteenth International Conference on the History of Cartography, Amsterdam and The Hague, 26 June to 1 July 1989). Unno shares the view expressed here that cartographic representation in traditional China was generally not conceived as separate from other forms of visual representation.

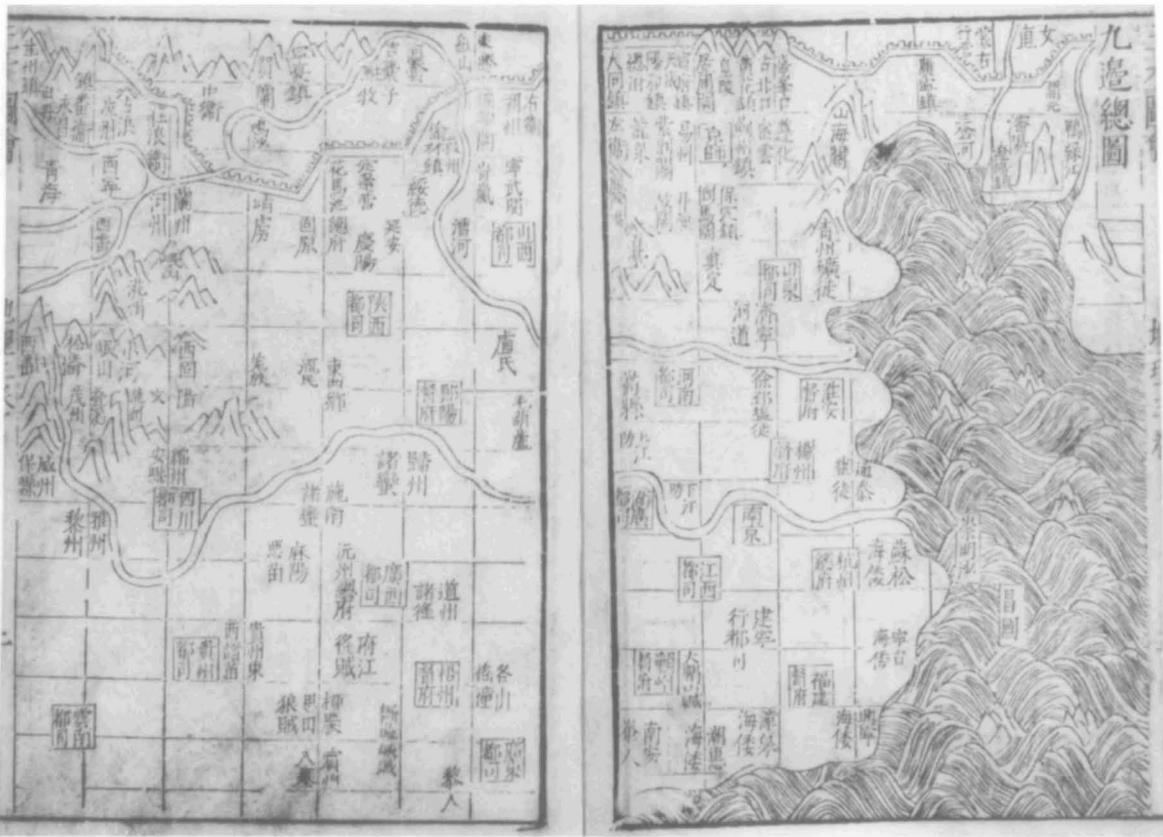


FIG. 6.19. THREE MAPS FROM A MING ENCYCLOPEDIA. Selection of *dili tu* (geographic pictures or maps) from the *Sancai tuhui*. Note the range of representational modes used in these woodblock maps—planimetric, pictorial, and a mixture of both.

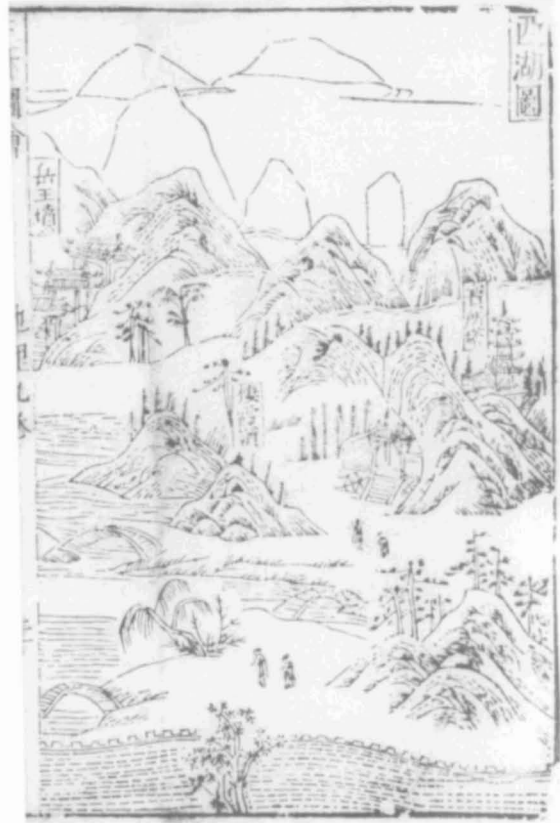
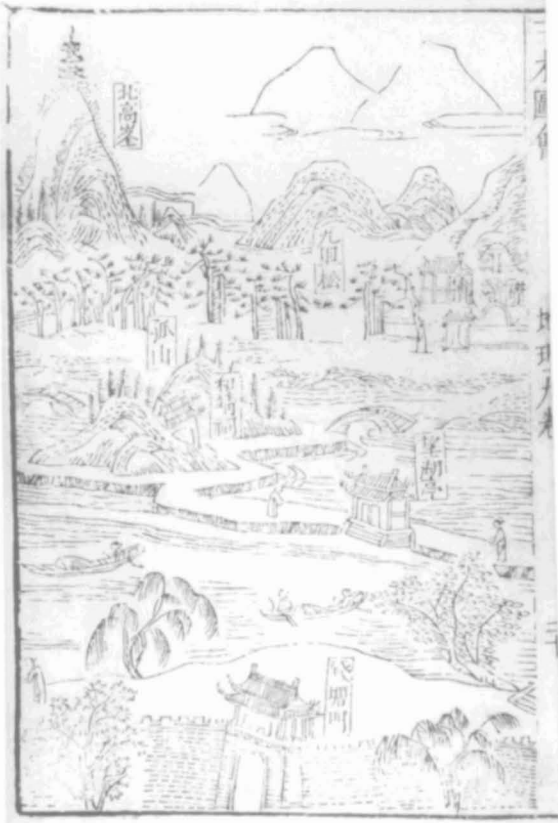
(a) “Jiubian zongtu” (Comprehensive map of the nine frontiers).
 (b) Map of Xihu (West Lake), in Hangzhou.

(c) Map of Yanglongkeng (in present-day Guizhou Province). Size of each page: 21 × 14 cm. All from Wang Qi, comp., *Sancai tuhui* (completed 1607, printed 1609), chapters on *dili* (geography): (a) 3.1b–2a, (b) 9.20ab, (c) 12.39a. Reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.

between traditional Chinese art and science, and the links between siting and the graphic arts are not difficult to discern. Landscape paintings and maps often depicted ideal siting configurations (fig. 6.25). Among practitioners of siting, straight lines were regarded as signs of malign influences, of a lack of *qi*, and traditional Chinese painters tended to hold straight lines in low esteem for the same lack of vitality. Mapmakers, too, show a similar interest in vitality with their predilection for asymmetry and irregularity, qualities best expressed pictorially rather than planimetrically. Even on grid maps, one frequently finds that the uniformity imposed by the squares is broken up by pictorial elements.⁷⁵

The interest in the vitality underlying material forms serves as a reminder that maps fell within a representational complex, that adherence to the physical world took no precedence over the subjective. As discussed above, in Chinese theories of representation, objective presentation does not preclude subjectivity.

75. In one instance, an emperor is said to have altered a map to eliminate straight lines. According to Yue Ke (b. 1183), in 968 the first emperor of the Song was planning to refurbish the capital (present-day Kaifeng) and enlarge the foundations of the city wall. The wall “wound and curved as if earthworms wriggled within it.” The secretary-general gathered artisans and produced a plan that “seized upon the square and straight”: all four sides had gates, and the wards and marketplaces were arranged in gridlike fashion. The emperor inspected the plan and grew angry, apparently revolted by its straight lines: “He personally took up a brush to smudge them out and ordered that a large circle be made on a sheet of paper. It wound and turned, went up and down and slanted. [The emperor’s] side note said: ‘Repair the wall according to this.’” See Yue Ke, *Ting shi* (History [recorded] on a stand [by the bed], ca. 1210), chap. 1; see the modern edition (Beijing: Zhonghua Shuju, 1981), 8–9. In the episode just cited, although Yue Ke does not explicitly say so, the emperor seems to be acting in accordance with well-known siting principles. The best introduction to the science of siting, also known by the names *feng shui* (wind and water) and *kanyu* (cover and support, that is, heaven and earth), is Steven J. Bennett, “Patterns of the Sky and Earth: A Chinese Science of Applied Cosmology,” *Chinese Science* 3 (1978): 1–26. Siting is often erroneously called “geomancy,” which actually refers to an unrelated practice. For further discussion of siting within this volume, see pp. 216–22 and 276–79.



(b)



(c)



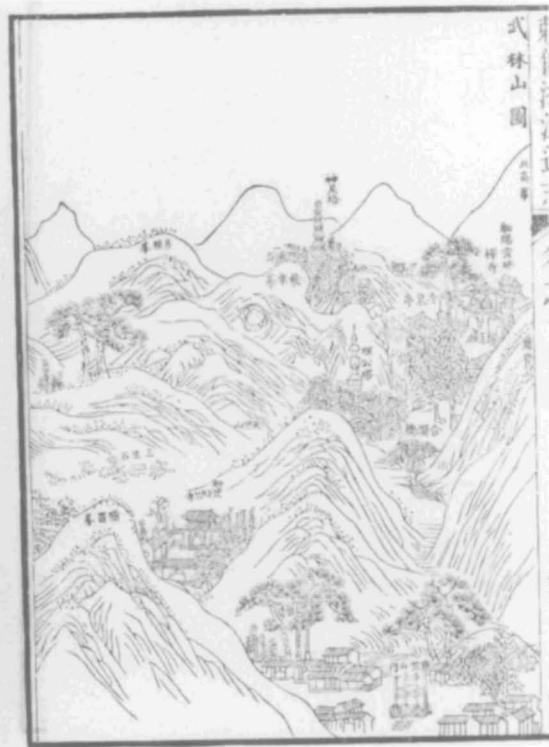
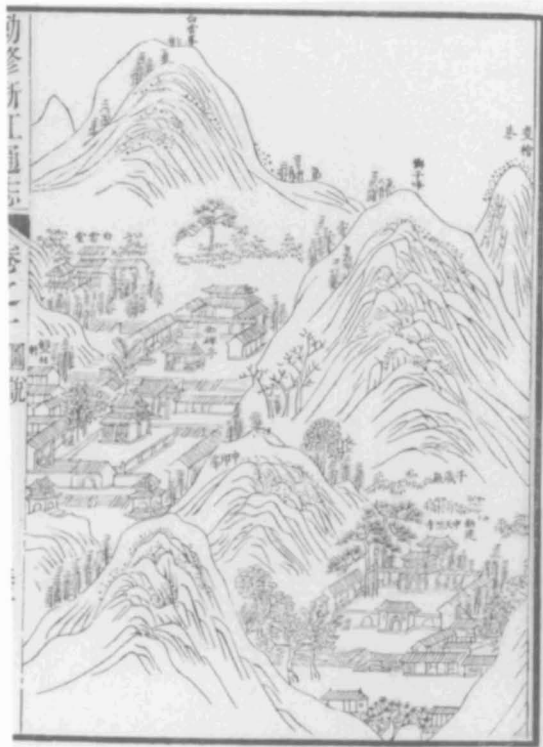
(a)



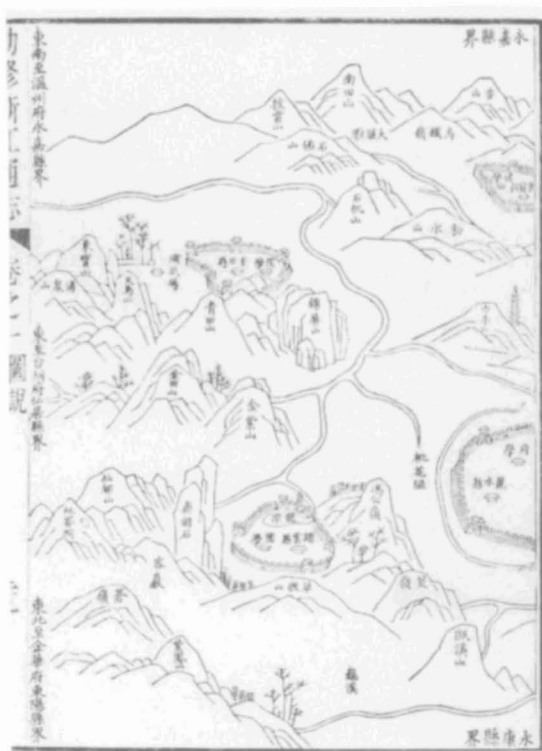
(b)

FIG. 6.20. FOUR MAPS OF ZHEJIANG PROVINCE. Compare figures 6.21 and 6.22. Size of each page: ca. 19.5 × 14 cm. From *Zhejiang tongzhi* (Comprehensive gazetteer of Zhejiang, 1736), from an 1884

edition: (a) Chuzhu fu, 1.28b–29a, (b) Yuhuan Shan, 1.30b–31a, (c) Tianmu Shan, 1.32b–33a, (d) Wulin Shan, 1.34b–35a. Reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.



(c)



(d)

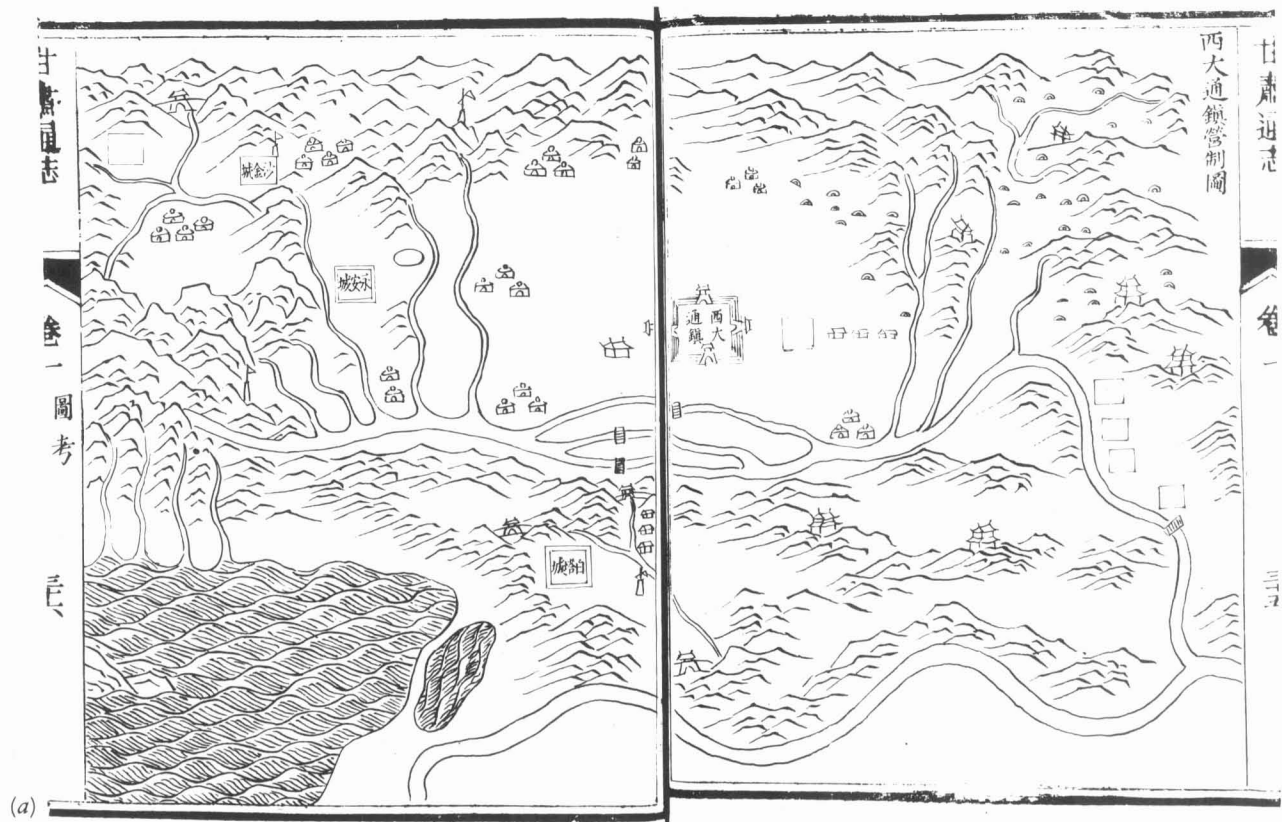


FIG. 6.21. THREE MAPS OF GANSU PROVINCE. Size of each original: 22 × 34 cm. From *Gansu tongzhi* (Comprehensive gazetteer of Gansu, 1736): (a) 1.35b–36a, (b) 1.36b–

37a, (c) 1.37b–38a. Reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.

Representation of physical appearance was a means of understanding underlying realities, the innerness of both object and artist. This method is recognized in a Qing hydrological work: “Those who draw territorial maps must discern details, and later they can abstract their ordering principles. They must also take into account the complete configuration [of the land], and later they can grasp its essential structure.”⁷⁶ A map, like a painting, is not just a record, but is a product of the mapmaker’s intuitive sense of underlying form—mapmaking involves abstraction of external details into something internal, a “mindscape.” A cartographic image can thus represent not only physical appearances, but also the mapmaker’s memories and reflections. The collection of poems inscribed on paintings referred to above provides ample evidence that maps were read in this way, not only as a means of gaining knowledge of the physical world but as a means of enriching one’s subjective world or emotional experience.

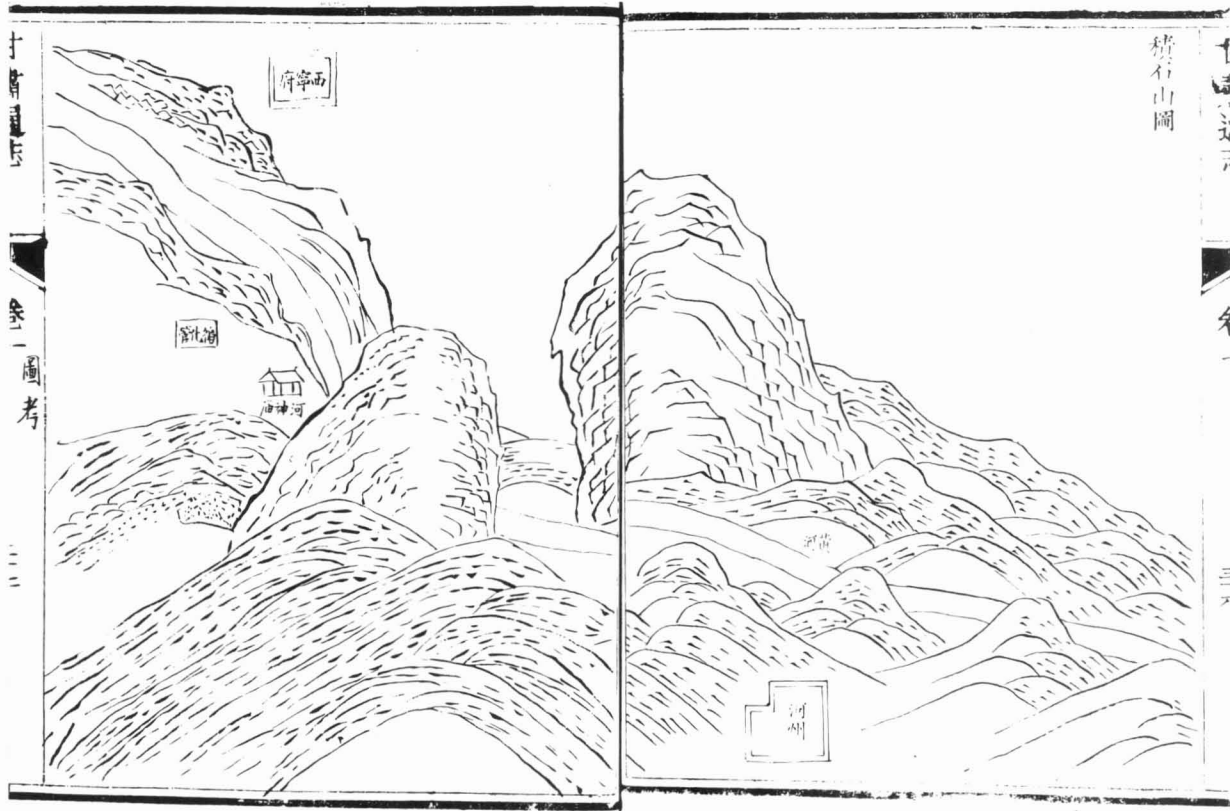
As is well known, Chinese landscape paintings have inspired much poetry; in fact, after the Song, a landscape was often not considered complete unless a poem—by the artist or by another—was inscribed on it.⁷⁷ The paint-

ing and poem would thus exemplify the “three perfections,” the entire artifact constituting a unity of linguistic, calligraphic, and visual art. Perhaps less known is that maps also inspired poetry—poems inscribed on the maps themselves and serving to bring out subjective elements submerged in the attempt to render the physical world. This adds another dimension to the relationship between map and text discussed in other chapters.

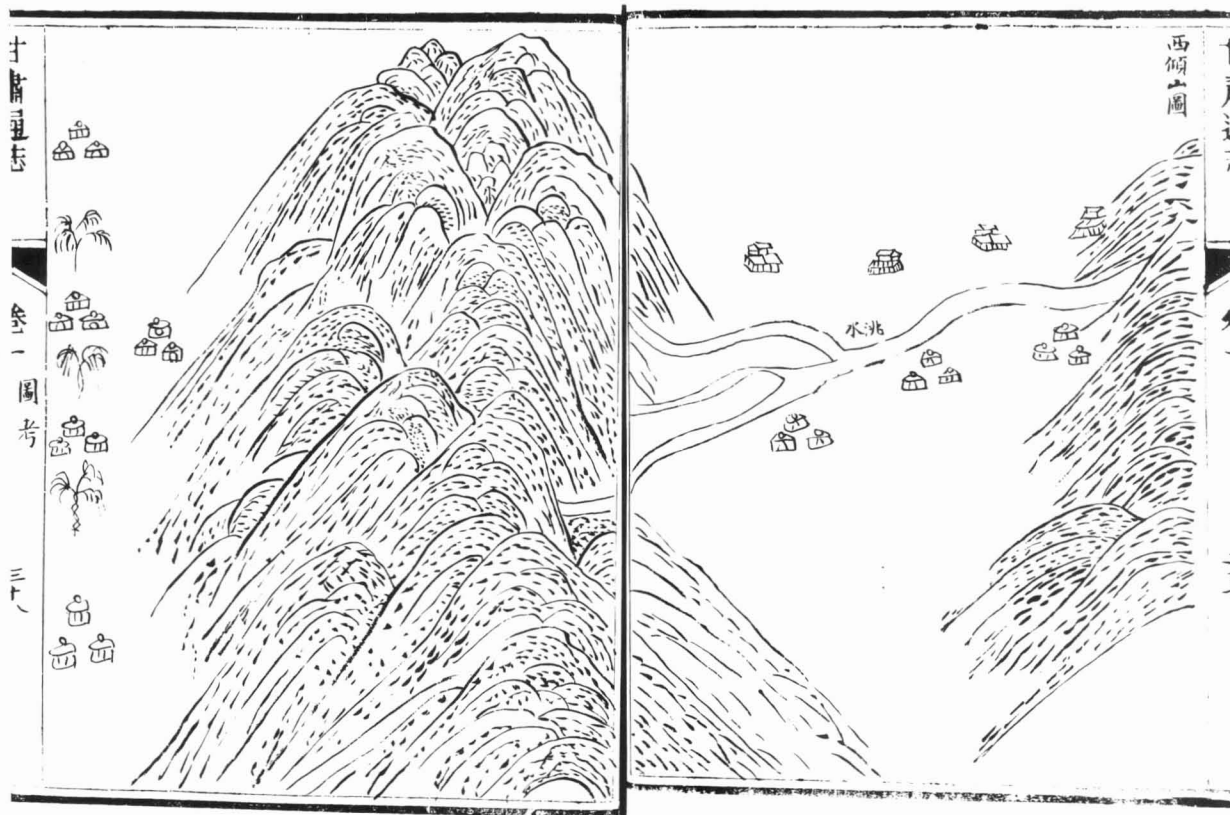
These poems suggest that maps were viewed not only for intellectual understanding, as a means of increasing one’s understanding of spatial relationships, but also for emotional experience—for example, as a means of renewing one’s sense of place. “Space is transformed into place as it acquires definition and meaning,” Tuan has noted; place “is a concretion of value,” and values carry emo-

76. Wang Niansun, *He yuan jilue* (Short accounts of the sources of the Yellow River, commissioned and printed 1782) (reprinted Taipei: Guangwen Shuju, 1969), 1.6a.

77. See Michael Sullivan, *The Three Perfections: Chinese Painting, Poetry, and Calligraphy* (London: Thames and Hudson, 1974); and Shen C. Y. Fu et al., *Traces of the Brush: Studies in Chinese Calligraphy* (New Haven: Yale University Press, 1977), 179–80.



(b)



(c)

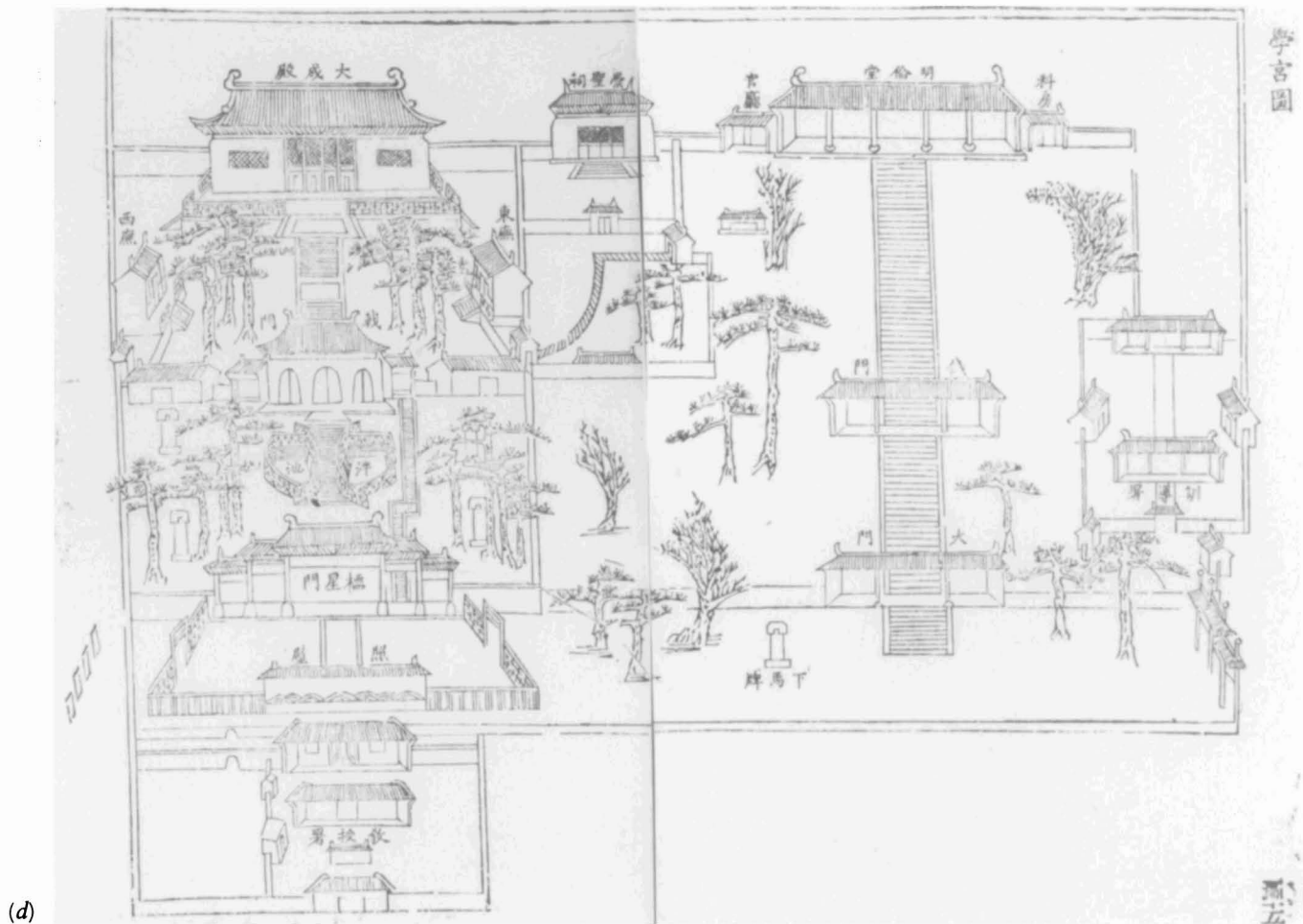


FIG. 6.22. THREE MAPS OF YONGPING PREFECTURE. Size of each original: 26.5 × 32 cm. From *Yongping fu zhi* (Gazetteer of Yongping Prefecture [in modern Hebei Province],

1879): (a) *tu* 15ab, (b) *tu* 16ab, (c) *tu* 17ab. Reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.

tional weight.⁷⁸ This is illustrated by the poetic response of Ding Henian (1335–1424) to a map titled *Changjiang wanli tu* (Ten thousand *li* map of the Changjiang [Yangtze River]), which apparently does not survive. Maps with the same name or similar names do survive, and from these we may gain a sense of what might have been depicted on the map that elicited Ding’s response (details from two examples of maps/landscapes of the Yangtze River are figs. 6.26 and 6.27). Although the map artifact is no longer extant, the text of Ding’s poem is preserved in the anthology of poems inscribed on paintings and appears in the section on maps (*dili tu*). The description of the lost artifact as a map thus merely follows the classification of the compilers of the anthology. In Ding’s case the map is a pretext for a search for origins, a place of familiarity:

The Changjiang extends thousands and thousands
of *li*;
Where is my old home?
Suddenly through the clear sky I see stream and
trees,
And vaguely make out Hanyang.⁷⁹

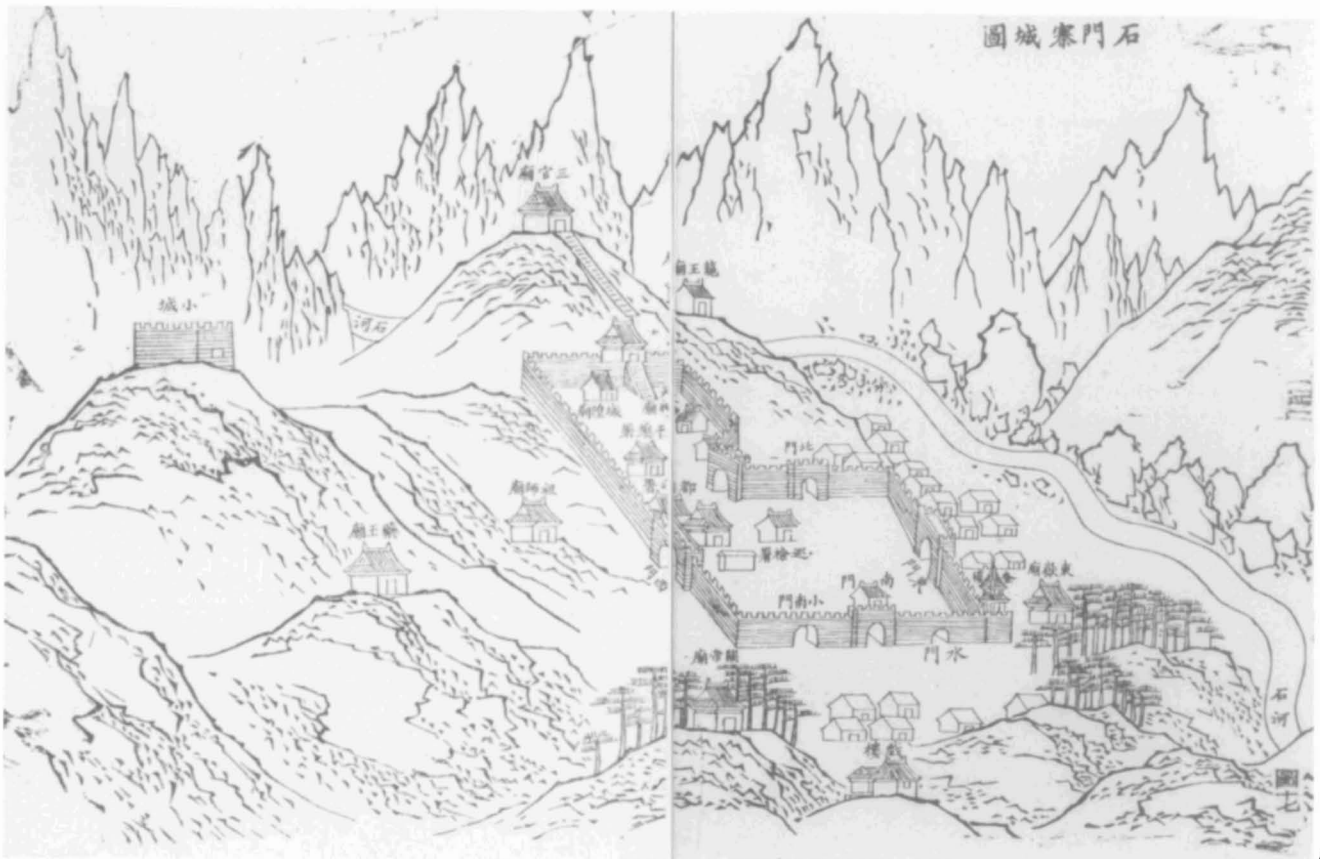
Although the poem is written in response to a map, the text of the poem itself gives no indication that the speaker is looking at a map. Rather, the poet writes as if he were

78. Yi-fu Tuan, *Space and Place: The Perspective of Experience* (Minneapolis: University of Minnesota Press, 1977), 136, 12.

79. In Chen et al., *Yuding lidai tihua shi lei*, 6.8a (note 74). Hanyang is a county in Hubei Province, north of the Yangtze, near its junction with the Han River. In the first line of the poem, Ding engages in some wordplay, describing the Changjiang in terms that justify the literal meaning of its name, “long river.”



(b)



(c)

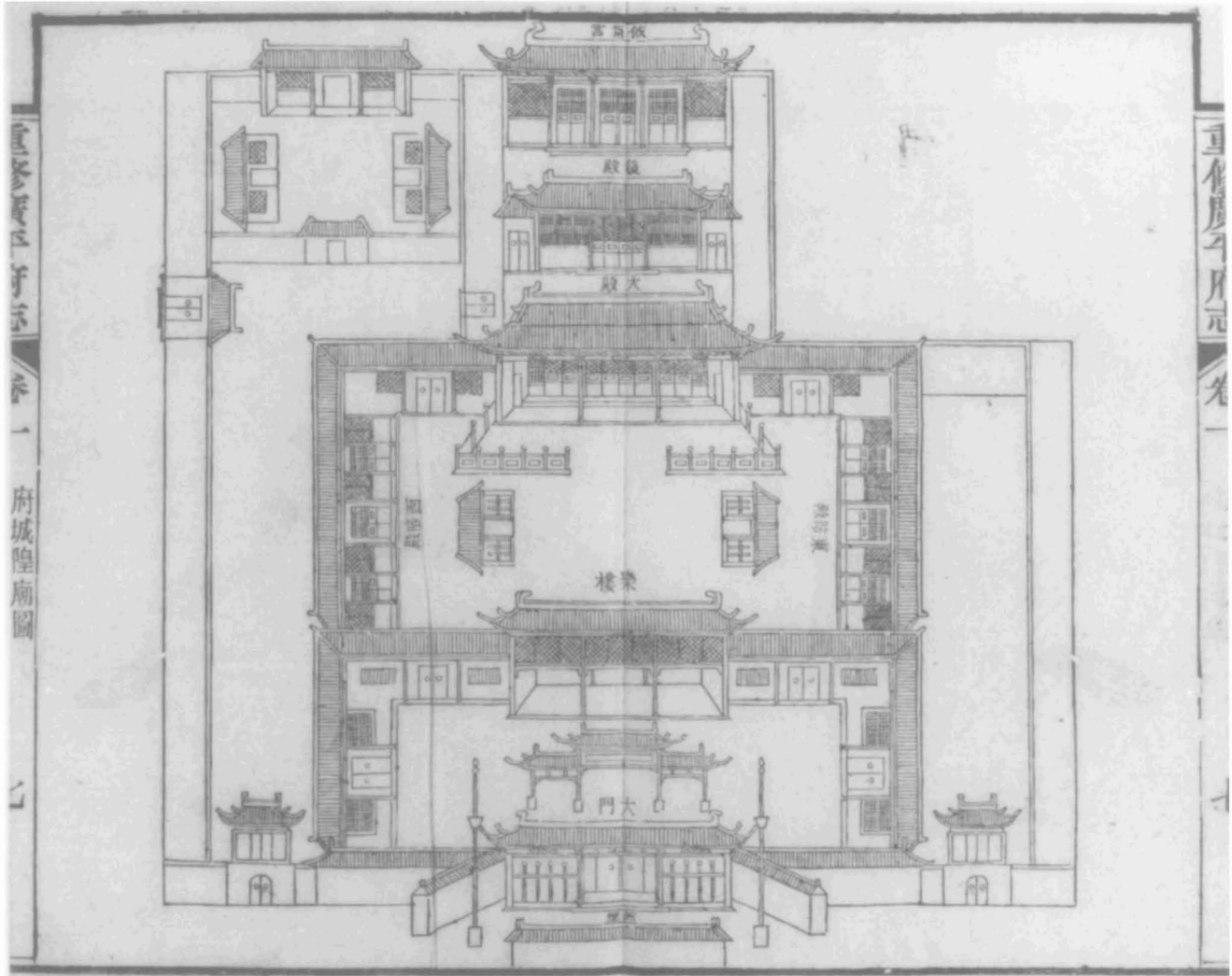


FIG. 6.23. MAP OF THE TEMPLE OF THE GUANGPING PREFECTURE'S GUARDIAN DEITY. See also figure 6.24. Both are examples of convergent perspective in woodblock maps.

Size of the original: 23 × 27 cm. From *Guangping fu zhi* (Gazetteer of Guangping Prefecture [in modern Hebei Province], 1894), chap. 1, map 7. Reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.

viewing an actual scene, not a representation. In effect, the map serves as a substitute for reality, implying a high degree of formal likeness. But in accordance with Chinese aesthetic theory, the physical world and the psychological become fused. Physical descriptions are intertwined with acts of perception: the poet is actively looking (“Where is my old home?”), not just seeing, and the poem closes with an act of recognition—a rediscovery of the familiar in Hanyang.

A similar blending of objective and subjective experience takes place in these lines by the painter-poet Yang Ji (ca. 1334–ca. 1383), which, like Ding Henian’s, were inscribed on a map entitled *Changjiang wanli tu*, a work that also does not seem to have survived. Like Ding Henian’s poem, Yang Ji’s appears in the anthology of poems inscribed on paintings, appearing under the classification

of maps. It too gives no hint that the speaker is looking at a map, and the process of viewing the map becomes the occasion of emotional release. The movement of this poem differs from Ding’s, however, in that its emotional scope expands as the poem progresses—from the poet’s personal situation to more generalized experience of those traveling on the Yangtze, perhaps figures depicted on the map:

My home lies farther west of the Min Mountains,
Directly facing where the Min River issues forth.
In Sanba, under a clear spring sky, the snow first
thaws;
And through a hundred bends and a thousand
turns, it flows east.
The Jiang flows east for ten thousand *li*;

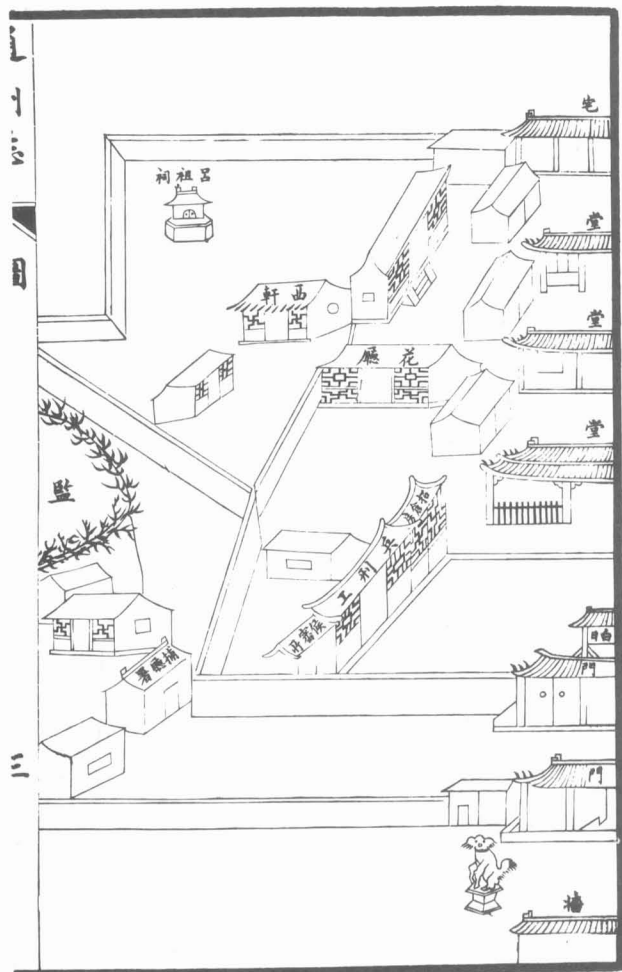
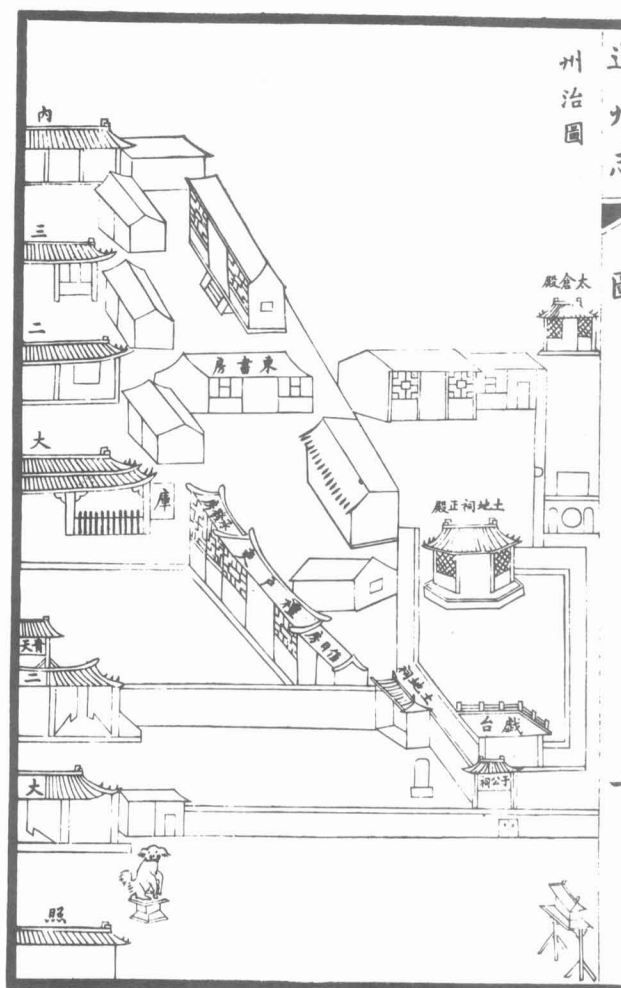


FIG. 6.24. MAP OF THE SEAT OF LOCAL GOVERNMENT AT TONGZHOU.

Size of each page: 22.5 × 14.5 cm. From *Tongzhou zhi* (Gaz-



etteer of Tongzhou [in modern Hebei Province, near Beijing], 1879), *tu* 2b–3a. Reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.

People now drift and float toward other places.
The mist, waves, and green grass at times draw out
their sorrow;
The sounds of wind, rain, and gibbon are about to
break their hearts.⁸⁰

As the preceding examples suggest, traditional Chinese mapmakers worked in an environment where they themselves or map readers might inscribe poems on maps, as they would be expected to do on paintings. To complete the parallel between cartography and painting—to extend the argument for a unity of map and landscape—a cartographic work was often not considered complete until a poem was inscribed on it. The cartographic artifact at its best was a fusion of graphic and verbal art, and like a poetic work, it was meant to be appreciated on at least two levels. The inscribed poems themselves demonstrate that at least viewers read mapmakers' intentions in those

terms and responded accordingly. In other words, cartographic forms were meant not only to reproduce but to express. Painters of landscape paintings had similar expectations, and poems inscribed on landscapes are often difficult to distinguish from those inscribed on maps. For example, here is a poem inscribed by the Neo-Confucian philosopher Zhu Xi (1130–1200) on a landscape by Mi Youren (1072–1151). As with the poems inscribed on maps, the poet treats the representation as actuality and animates the scene by inserting a human agent:

80. In Chen et al., *Yuding lidai tihua shi lei*, 6.8b–9a (note 74). The Min Mountains and Min River are in Sichuan. It is possible to translate the last three lines as referring to the speaker in the poem, so that the poem remains personal throughout. In this case the graph *ren*, translated here as “people,” would be interpreted as referring to the speaker (“a person”).

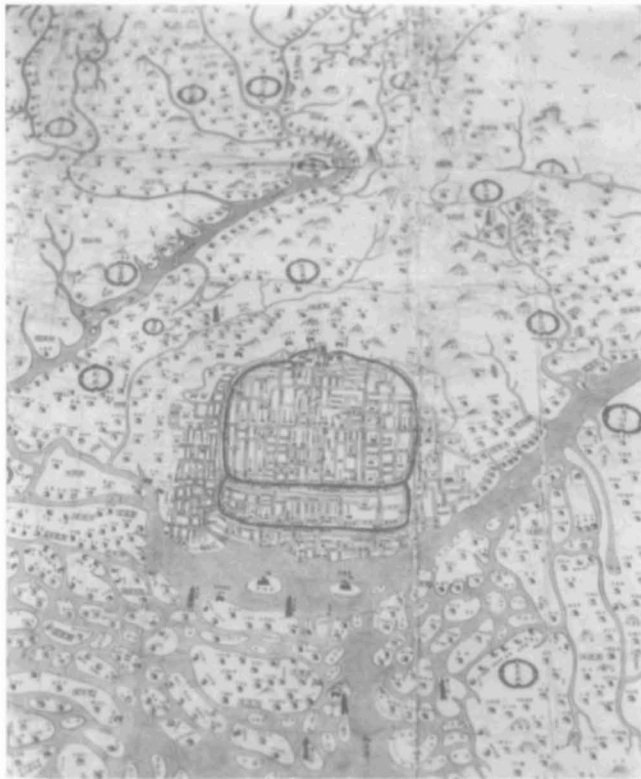


FIG. 6.25. QING MAP OF GUANGDONG. Detail of the *Guangdongsheng quantu* (Complete map of Guangdong Province), drawn in the eighteenth century. The estuary of the Pearl River has been displaced so that it is due south of the city of Guangzhou (Canton) instead of to its southeast, and its two banks are symmetrically aligned in relation to the north-south axis passing through the center of the city. The deviations from actuality are intended to situate the city in a favorable position according to the principles of the science of siting.

Size of the entire original: 151 × 277 cm. Courtesy of the Geography and Map Division, Library of Congress, Washington, D.C. (G7823.K8A5 17--K8 Vault).

The mountains of Chu are densely arrayed;
Trees shed, autumn clouds rise.
Toward dawn, as soon as I ascend the terrace—
Behold, the vast Jiang, daily going a thousand *li*.⁸¹

COMBINING FACT AND VALUE

On the basis of the evidence considered here, it seems that Chinese cartography often shared the aesthetic principles of painting and poetry. This conclusion is hardly surprising, since cartographers, painters, and poets generally occupied the same social stratum, as part of the intellectual elite, and came from similar educational backgrounds. In some cases the same person might be involved in cartography, painting, and poetry. In such a person's mind, it seems likely that the principles governing those pursuits would have blended together and not

formed three disparate sets. The cultural environment was such that self-expression was as important as reproduction of external reality, if not more important. It might therefore be possible to write a history of Chinese cartography showing its assimilation into the fine arts. This calls for an adjustment in the sorts of artifacts selected for attention, artifacts chosen not only for signs of quantification and mensuration, but for expressive and aesthetic value. It has been customary, however, to regard maps with a seemingly utilitarian aim—planimetric grid maps presenting quantitative information and ideally based on direct and indirect measurements—as the defining achievements of Chinese cartography.⁸² According to this view, pictorialism and expressionism in cartography are something to be outgrown, just as they were in Europe. Enough has been said in this and other chapters to weaken that view of the Chinese cartographic tradition, which privileges the objective and quantitative over the subjective and qualitative—in short, fact over value. But the split between fact and value was never as strong in China as it has become in the European tradition.

To elevate objectivity over subjectivity, presentation over expression, is to introduce a hierarchy foreign to Chinese aesthetics, an economy of representation that seems to have involved cartography. Maps were made not only to be studied, not only for reference, but also to be enjoyed, and the record shows that mapmakers had users capable of appreciating their works intellectually and aesthetically. If one goal of the history of cartography is to reconstruct the reception of maps by particular users in particular cultures, accounts of Chinese cartography must take these theories of representation into account. When viewing a Chinese map, one may have to consider not only landscape—the representation of visible earth forms—but also what might be called “inscape”: “But as air, melody, is what strikes me most of all in music and design in painting, so design, pattern or what I am in the habit of calling ‘inscape’ is what I above all aim at in poetry. Now it is the virtue of design, pattern, or inscape to be distinctive and it is the vice of distinctiveness to

81. “Ti Mi Yuanhui hua” (Inscribed on a painting by Mi Yuanhui [Mi Youren]), in Chen et al., *Yuding lidai tihua shi lei*, 11.11a (note 74). This poem appears under the *shanshui*, or landscape, classification. Chu is a region comprising much of the Yangtze basin: it encompasses Hubei Province and parts of other present-day provinces. The Jiang is the Changjiang, or Yangtze River.

82. For example, see Edouard Chavannes, “Les deux plus anciens spécimens de la cartographie chinoise,” *Bulletin de l'École Française d'Extrême Orient* 3 (1903): 214–47; Joseph Needham, *Science and Civilization in China* (Cambridge: Cambridge University Press, 1954–), vol. 3, with Wang Ling, *Mathematics and the Sciences of the Heavens and the Earth* (1959); Chen Feiya et al., eds., *Zhongguo gudai dilixue shi* (History of ancient Chinese geography) (Beijing: Kexue Chubanshe, 1984); Lu Liangzhi, *Zhongguo dituxue shi* (History of Chinese cartography) (Beijing: Cehui Chubanshe, 1984).



FIG. 6.26. SECTION OF A THIRTEENTH-CENTURY COPY (?) OF THE *CHANGJIANG WANLI TU*. The *Changjiang wanli tu* (Ten thousand *li* map of the Changjiang [Yangtze River]) was made by Juran (fl. ca. 960–80), a Buddhist priest.

The painting presents an oblique view of both banks of the Yangtze and provides place-names. Size of the entire original: 43.7 × 1,654 cm. Courtesy of the Freer Gallery of Art, Smithsonian Institution, Washington, D.C. (acc. no. 11.168).

become queer.”⁸³ In the Chinese context *inscape* applies to the representation of the inneresses of earth and mind, which resonate with each other and with the outer patterns of heaven (*tianwen*). *Inscape*, or a similar idea, may help to account for the discrepancies between image and geographic reality observed in many Chinese maps. Some maps, for example, those of the Daozang (Daoist canon), seem to take Su Shi’s injunctions against formal resemblance to their limit, forgoing geographic reality altogether and purporting to represent configurations of spiritual energy or forms beyond the phenomenal world (see figs. 6.28 and 6.29).

The explanatory power of the economy of representation described here, however, still needs to be established more firmly. This requires deeper and more extensive study of the interaction of the arts in China, so that their relation to mapmaking can be more precisely defined. The research presented here surveys only a small portion of the available materials. My purpose has been merely to demonstrate the usefulness of a humanistic approach to Chinese maps, an approach in which the claims of value are recognized, in the hope of stimulating further investigation. The examples discussed above illus-

trate the value of the visual arts for the study of maps: in its treatment of space and manner of representation, mapmaking seems to have shared a number of conventions with painting and—by virtue of the close relationship between painting and poetry—with literature. Knowledge of those conventions can often shed light on how a particular map was meant to be “read,” and disregard for them may lead to misreading or partial understanding, as in the case of the Han garrison map. In many instances one may have to consider the possibility that departures from formal likeness were intentional, that mapmakers held expressive aims paramount.

The conjoining of map and art history that I have argued for here is crucial in another, perhaps more fundamental, respect. Scholarship in Chinese art and cartography often involves the study of purported copies of works made centuries earlier. In many cases such copies are all that is available, but they should be handled with more caution than they have been previously, especially

83. Gerard Manley Hopkins to Robert Bridges, 15 February 1879, in *Gerard Manley Hopkins*, ed. Catherine Phillips (Oxford: Oxford University Press, 1986), 234–35, esp. 235.



FIG. 6.27. SECTION OF THE "WANLI CHANGJIANG TU" (TEN THOUSAND LI MAP OF THE YANGTZE RIVER). As in figure 6.26, this map shows both banks of the river and gives place-names.



Size of each page: 22.5 × 14.5 cm. From Zhang Huang, comp., *Tushu bian* (Compilation of illustrations and writings, compiled 1562–77, printed 1613), 58.2a–3b. Reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.

since the validity of conceptions about the sequence of styles and modes of representation depends on the establishment of authenticity. What Loehr has said about the history of Chinese art holds also for cartography:

The authenticity question results in a true paradox: (1) Without knowledge of styles, we cannot judge the authenticity of individual works, and (2) without convictions about authenticity, we cannot form concepts of style. . . . The case for or against authenticity, therefore, rests on convictions, and for the convincingness of a work, style is the foremost criterion. A judgment about authenticity, therefore, remains itself arbitrary and subjective unless it is fully compatible with the criteria of style.⁸⁴

Historians of Chinese cartography need to be sensitive to Loehr's concerns. Some judgments about the appearance and accuracy of maps supposedly made during the Song, for example, have been based on copies dating

from the Ming and Qing. The fidelity of the Qing copies to the Song originals cannot be taken for granted. True, copying was taken seriously: Xie He identifies copying, "the transmission of models," as the sixth principle of painting.⁸⁵ But copying was not a purely mechanical affair. Manual copying of past masterpieces of painting and calligraphy was a crucial element in defining one's own artistic style, and therefore a copy was supposed not merely to reproduce, but also to introduce something of the copyist. In the case of woodblock printing, there is evidence that fidelity of copies to the physical appearance of original woodcuts was not quite complete, as one might expect from the place of formal resemblance in Chinese aesthetics. Maps in Song and Ming editions of the same work could differ appreciably in appearance (see figs. 6.30 and 6.31).⁸⁶

84. Loehr, "Some Fundamental Issues," 187–88 (note 34).

85. Xie, *Gu huapin lu*, 1 (note 31).

86. There are also differences in the cartographic images on the two



FIG. 6.28. MAP OF TAI SHAN (MOUNT TAI) FROM THE DAOIST CANON. Titled “Dongyue zhenxing tu” (Map of the true form of the sacred peak of the east), it represents the mountain’s caverns. Maps like this were meant to harness the spiritual power of the mountain for the benefit of the user: they could repel evil spirits and help one attain immortality. Size of the page: 11 × 10.5 cm. From *Lingbao wuliang duren shangjing dafa* (Great rituals of the supreme scripture on the infinite salvation of Lingbao [numinous treasure]), 21.16a, in *Zhengtong Daozang* (Daoist canon of Zhengtong reign period [1436–49]), 1,120 volumes, vol. 89. From Commercial Press reprint, 1923–26, reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.

Before we can draw conclusions about the cartography of a period from later copies, we need to know more about the attitudes of the block cutters themselves and those who drew the paper images that were transferred to the blocks. To what extent were the artists allowed to deviate from the physical appearance of the original images, and to what extent were the block cutters allowed to deviate from the transferred image? On these questions, scholars have yet to reach even tentative conclusions. But answers to such questions are crucial if historians of Chinese cartography are to arrive at even a provisional understanding of the chronology of their own subject. Solutions seem to require the expertise of both historians of science and historians of the arts, since the questions involve technology, production processes,

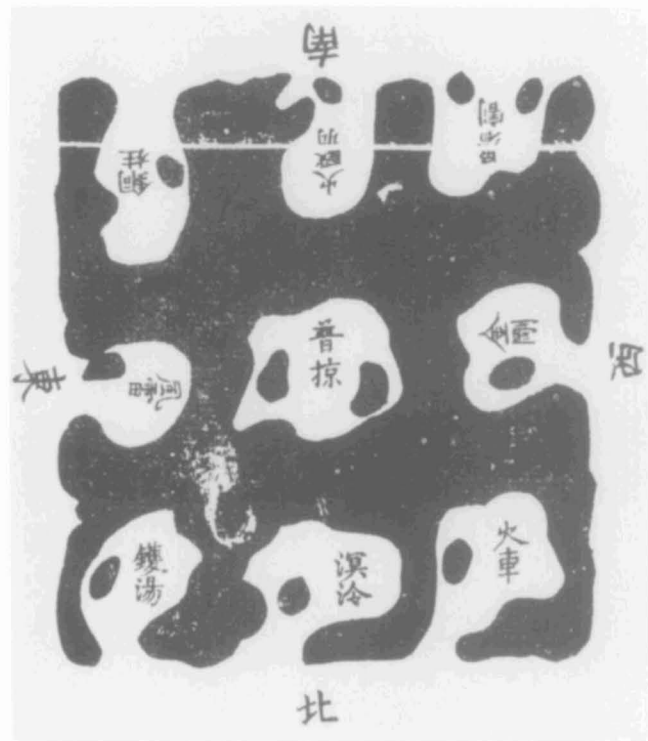


FIG. 6.29. MAP OF THE UNDERWORLD FROM THE DAOIST CANON. The “Jiu yu deng tu” (Map of the lanterns of the nine purgatories) represents the nine chambers where souls of the dead undergo various punishments, such as flogging, boiling, and immersion. The chambers are laid out following the nonary square pattern typical of many cosmographic representations (see pp. 204–5). The map was supposed to be used to help win the release of underworld prisoners. Size of the page: 11.5 × 11 cm. From Lu Shizhong, *Wushang xuanyuan santian yutang dafa* (Great rituals of the jade hall from the three heavens of the supreme, sublime, and primal, compiled 1158), 14.5b, in *Zhengtong Daozang* (Daoist canon of the Zhengtong reign period [1436–49]), 1,120 volumes, vol. 101. From Commercial Press reprint, 1923–26, reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.

artistic style, and aesthetic theory. In short, what is needed is a merger of fact and value.

The stress here has admittedly fallen on value, but that should not be misconstrued as a denial of the claims of fact. Both are equally important aspects of the cultural realities we seek to understand, and one should not be ignored at the expense of the other. In the field of the history of cartography, it is time to heal what might be called a dissociation of sensibility. This chapter is intended as a first step toward this reunification, and as a first step, it reasserts the value of value—partly as a matter of analytical convenience, but mainly to direct

surviving versions of the *Yu ji tu* (Map of the tracks of Yu) carved in stone. (See figs. 3.14 and 3.15.)



FIG. 6.30. “GUJIN HUA YI QUYU ZONGYAO TU” (GENERAL MAP OF THE ANCIENT AND PRESENT TERRITORIES OF CHINA AND FOREIGN COUNTRIES). This map, as well as figure 6.31—both from a Ming edition of the *Lidai dili zhizhang tu* (Easy-to-use maps of geography through the dynasties, 1098–1100, supplemented 1162)—should be compared with those from a Southern Song edition (figs. 3.23 and

3.24 above). There are differences in the density of the labels, in the forms of certain graphs, and in the depictions of the coastlines. Size of the original: unknown. Photograph courtesy of Cao Wanru, Institute for the History of Natural Science, Academia Sinica, Beijing.

attention to an area that tends to be slighted in much research into Chinese cartography.⁸⁷

87. Though there is little movement among historians of Chinese cartography toward art history, in Chinese art history there are indications of movement in the opposite direction. Kiyohiko Munakata, for example, consults traditional Chinese maps in order to understand Chinese attitudes toward sacred mountains, a traditional subject of landscapes. See Kiyohiko Munakata, *Sacred Mountains in Chinese Art* (Urbana: University of Illinois Press, 1991).



FIG. 6.31. "TANG YIXING SHAN HE LIANGJIE TU" (MAP OF THE TWO BOUNDARIES FORMED BY MOUNTAINS AND RIVERS ACCORDING TO YIXING OF THE TANG). See figure 6.30.

Size of the original: unknown. Photograph courtesy of Cao Wanru, Institute for the History of Natural Science, Academia Sinica, Beijing.