

8 • Chinese Cosmographical Thought: The High Intellectual Tradition

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Chinese cosmographical thought of premodern times was not as concerned as its counterparts in Western civilizations with the overall shape of the world or structure of the cosmos. There is no pre-seventeenth-century Chinese equivalent of the medieval European *mappae-mundi* or of Western representations of the earth showing its various cosmographical divisions or climatic zones. The widely held conception that China comprised “all under heaven” (*tianxia*), as well as the geographical isolation of Chinese civilization, may have contributed to Chinese cosmographers’ lack of interest in outlining, either realistically or schematically, the form of the world as a whole. Whatever the explanation, traditional Chinese cosmographical charts generally represent structures in such microcosmic dimensions as the architectural, the urban, and the agrarian rather than depicting the shape of the earth or the system of the world. Like many Western cosmographical diagrams, however, these Chinese charts were generally based on the supposition that there exist correspondences or correlations, which may be graphically expressed, between various orders of existence or realms of the universe, such as those of heaven, earth, and humanity. But in Chinese cosmographical thought these correspondences were drawn less often between macrocosm and microcosm as among various orders of mundane reality.

In comparison with most of their counterparts in Western and Middle Eastern cosmographical traditions, Chinese cosmographical charts were also generally more subordinate to and less independent of textual descriptions. Although graphic representations of cosmographical schemata were common in China from the Song era (960–1279), those diagrams were often printed principally to illustrate or substantiate a cosmographical conception that received a more authoritative or precise formulation in an accompanying text. For Chinese scholars a picture (or graph) was *not* worth a thousand words, however useful it might be as a visual aid. The relationships between graph and text may well have differed in earlier periods, as the lore surrounding the composition and articulation of the canonical *Yi jing* (Book of changes) implies. But so few of such diagrams have survived from the pre-Song or preprinting era in China that it is difficult

to establish just what these relationships were. Hence this chapter must rely largely on verbal descriptions for its account of Chinese cosmographical thought in its formative phase in the Han era (206 B.C.–A.D. 220), though graphic reconstructions dating from the Song and later will be included where they are helpful and relevant.

A glance at these reconstructions reveals that most of them were patterned on the same model, a square divided into nine equal squares resembling the form of a simple magic square or three-by-three grid. Cosmographers in traditional China applied this plan to the conceptualization and arrangement of such diverse kinds of space as astronomical, political, agrarian, urban, and architectural. Just as Sir Thomas Browne, according to Coleridge, saw “Quincunxes [or lozenges] in Heaven above, Quincunxes in Earth below, & Quincunxes in the water beneath the Earth,”¹ so Chinese cosmographers of the Han and later eras regarded the simple nonary square as the basis of proper order in practically every realm of space. This form was at least as important and ubiquitous in premodern Chinese cosmography as the circle was in Greek, medieval European, and Islamic cosmography. One of my principal aims in this chapter is to outline the development, articulation, and later criticism of this dominant cosmographical conception, which made Chinese cosmographical thought, at least that of the high literate tradition, remarkably uniform and well integrated. In so doing, I will focus on two particularly important eras in the history of geometric and nonary cosmography in China. These include the formative phase of the Han period and the seventeenth century, which saw the criticism and decline of established cosmographical conceptions and the emergence of new ones.

I thank Nathan Sivin of the University of Pennsylvania for his valuable comments and constructive criticism on drafts of this chapter.

1. Samuel Taylor Coleridge’s letter to Sara Hutchinson, on two and one-half flyleaves of a volume containing Browne’s *Vulgar Errors, Religio Medici, Hydriotaphia*, and *Garden of Cyrus* (London, 1658), now in the Berg Collection, New York Public Library; see *Coleridge on the Seventeenth Century*, ed. Roberta Florence Brinkley (Durham: Duke University Press, 1955). The reference is to Browne’s *The Garden of Cyrus; or, The Quincunciall, Lozenge, or Network Plantations of the Ancients, Artificially, Naturally, Mystically Considered*.

In composing this outline of the formation and decline of the perennial Chinese cosmography, I found it necessary to consult sources on such diverse topics as micro-cosmic architectural structures, classical city plans, and ideal agrarian orders, for Chinese cosmographical conceptions were articulated most extensively and illustrated most graphically in these areas. Little of the modern scholarship on these subjects or schemata is devoted to their cosmographical aspects, however, focusing instead on their political, economic, or ritual significance and treating them in isolation from congruent cosmographical conceptions. In short, cosmography is not a well-developed or even a very distinct field of study among Sinologists. Hence there is at this juncture little point in attempting a systematic historiographical or bibliographical overview of the secondary literature on Chinese cosmography.

FOUNDATIONS OF GEOMETRIC AND NONARY COSMOGRAPHY

Antecedents of the perennial Chinese cosmography may be traced back to high antiquity. Rectilinear forms, especially squares, figure prominently in Chinese art and artifacts from the dawn of Chinese history. Indeed, the designs on Chinese Neolithic pots dating from as early as 5000 B.C. often consist of “parallel bands or lozenges containing concentric squares, crosses, or diamonds.”² The art of the earliest Chinese civilization, the Shang, which flourished in the latter half of the second millennium B.C., is also marked by “the imposition of abstract, balanced, geometric patterns over entire surfaces.”³ Even Shang domiciles, palaces, temples, and tombs, according to Chang, “were invariably square or oblong, governed in orientation by the four cardinal directions and dominated in design by a persistent attempt at symmetry.” Shang Chinese, moreover, may well have conceived of the form of the political cosmos as square, or at least have seen the Shang realm as oriented toward the four directions, with the “countries beyond the kingdom . . . grouped into four directional classes.”⁴

By the Han era, these rectilinear orientations and divisions had been developed into a systematic cosmography in which most realms of space were supposed to be ordered by forms that were not only symmetrical or rectilinear but patterned on the nonary square or three-by-three grid. How this came to be is unknown, though Cammann speculates that these forms “all seem to have been conceived in a determined effort to apply to the greater world the plan of the simple magic square of three.”⁵ In any case, the invention of this nine-square formation was customarily attributed to one of the legendary sage-kings of high antiquity, either Yu the Great or Fu Xi, who was said to have “differentiated the nine

palaces,”⁶ the nonary square. But Fu Xi was believed to have first observed such a pattern on the shell of a turtle emerging from the Luo River. So even though the nine-palace formation, the graphic basis of the perennial Chinese cosmography, was credited to an ancient sage-kings, its pattern was supposedly taken from the natural world. It was immanent in the structure of heaven and earth, or at least marked on the shell of a remarkable turtle.

As one of the great civilizing inventions attributed to an ancient sage, the nonary square or three-by-three grid, like other inventions such as agriculture, written language, and herbal medicine, was meant to be applied for the development and improvement of human culture and society. It was not, in other words, simply an aspect of the traditional Chinese worldview; it had policy implications and practical uses. Its judicious application in the agrarian realm, in the form of the “well-field system,” for example, was supposed to secure the livelihood of the cultivator, the revenue of the state, and the peace and prosperity of the realm as a whole. The construction

2. Michael Sullivan, *The Arts of China*, 3d ed. (Berkeley and Los Angeles: University of California Press, 1984), 7.

3. David N. Keightley, “The Religious Commitment: Shang Theology and the Genesis of Chinese Political Culture,” *History of Religions* 17 (February–May 1978): 211–25, quotation on 221.

4. Kwang-chih Chang, *The Archaeology of Ancient China*, rev. and enl. (New Haven: Yale University Press, 1977), 291.

5. Schuyler Cammann, “The Magic Square of Three in Old Chinese Philosophy and Religion,” *History of Religions* 1 (summer 1961): 37–79, quotation on 44. Cammann as well as other historians traces the cosmographical applications of this magic-square form in China to a rather shadowy classical thinker, Zou Yan (305–240 B.C.), whose original works have not survived. According to the account preserved in the *Shi ji* (Records of the grand historian, completed ca. 91 B.C.) of Sima Qian, Zou Yan held that China, which itself consisted of nine regions, comprised the central eighty-first portion of the world and the central ninth of the middle continent of the world. Small encircling seas separated the nine continents from one another, and a large encircling sea marked the outer rim of the earth where it met the dome of heaven. “Mengzi Xunqing liejuan” (Collected biographies of Mencius and Xunqing), in Sima Qian, *Shi ji*, 74.1b; see *Xinjiao Shi ji sanjia zhu* (Newly collated *Shi ji* with three principal commentaries), 5 vols. (Taipei: Shijie Shuju, 1972), 4:2344. The *Shi ji* is the first in the series of twenty-five official histories, and the most celebrated Chinese historical work.

6. Chen Menglei, Jiang Tingxi, et al., comps., *Gujin tushu jicheng* (Complete collection of books and illustrations, past and present, completed 1726, printed 1728), cat. 2, sec. 1, 43.47a; see the edition in 79 vols. (reprinted Taipei: Dingwen Shuju, 1977), 7:449. This imperially sponsored encyclopedia/anthology is the most comprehensive reference work published in Chinese history. For brief descriptions of this excellent but underutilized source, see Ssu-yü Teng and Knight Biggerstaff, comps., *An Annotated Bibliography of Selected Chinese Reference Works*, 3d ed., Harvard-Yenching Institute Studies 2 (Cambridge: Harvard University Press, 1971), 95–96; and Richard J. Smith, *China's Cultural Heritage: The Ch'ing Dynasty, 1644–1912* (Boulder, Colo.: Westview Press, 1983), 3.



FIG. 8.1. DIAGRAM OF THE NINE UNITS THAT FORM A WELL. This diagram, which appears in a seventeenth-century encyclopedia, illustrates the established "nine-palace" version of the well field. The "public field" occupies the central square, composing one-ninth of the total area. Each of the other eight squares is occupied and cultivated privately by an individual family. Although political reformers often called for the application of this checkerboard arrangement to the division of land, it was seldom implemented in Chinese history.

Size of the original: 21 × 14 cm. From Wang Qi, comp., *Sancai tubui* (Illustrated compendium of the three powers [heaven, earth, and man], completed 1607, printed 1609), *dili* 14.56a. Reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.

of an architectural version of the nine-palace formation, moreover, was considered essential for the correct performance of important imperial rituals that harmonized cosmic cycles with human activities.

Thus Chinese reformers, ritualists, and rulers of the Han and later eras applied the nine-palace formation to the ordering of various types of space, ranging from the agrarian to the architectural, with an almost relentless consistency. But in so doing, they often found it necessary

to reformulate or reshape earlier schemata designed for ordering space to fit the mold of the nonary square.

SCHEMATIC ARRANGEMENTS OF VARIOUS TYPES OF SPACE

The most famous and influential of these schemata was the well-field system, so called because its ideal shape resembles the Chinese character for "well" (井 *jing*), a rough facsimile of the three-by-three grid or nine-palace formation (fig. 8.1). As interpreted by writers in the Confucian tradition, beginning with the great classical philosopher Mencius (372–289 B.C.), this checkerboard schema was supposed to serve as the basis for the mensuration and allotment of agricultural fields. Each family in a group of eight families was to receive one of the nine equal allotments in the arrangement, while the ninth or central unit was to be cultivated in common for the public good. This well-field schema was not, however, simply a system of land mensuration. Mencius spoke of it as the basis of good government.⁷ Later Confucian writers came to regard it as "the fundamental institution of the antique social system," which "ensured a rational distribution of land and labor, and removed all cause for strife between rich and poor."⁸ Hence Confucian reformers throughout Chinese history repeatedly called for its reinstitution, frequently arguing that a utopian state could be established on such a basis, and even insisting that the three-by-three grid form be applied uniformly in the division of agricultural space. The well-field system served as a vehicle for political and social reform in other East Asian countries besides China, especially in Japan during the epoch-making Taika Reform of the seventh century. Even today the checkerboard pattern of the well-field schema can still be detected throughout a wide area of Japan.⁹

The earliest classical Chinese references to the well-field schema do not, however, give a very precise account of its geometric form. This has led some modern scholars to speculate that it was not originally a mensural scheme at all, much less a geometric formation, but rather a sort

7. *Mengzi yinde* (Concordance to Mencius), Harvard-Yenching Sino-logical Index Series, suppl. 17 (1941; reprinted Taipei: Chengwen Chubanshe, 1966), 3A, 3.13. For a modern translation of this passage see D. C. Lau, trans., *Mencius* (Harmondsworth, Eng.: Penguin Books, 1970), 99. The *Mengzi*, together with the *Lun yu* (Analects), the *Zhong-yong* (Doctrine of the mean), and the *Daxue* (Great learning), compose the Confucian *Sishu* (Four books) canonized by the Neo-Confucian philosophers of the Song era.

8. John W. Dardess, *Confucianism and Autocracy: Professional Elites in the Founding of the Ming Dynasty* (Berkeley and Los Angeles: University of California Press, 1983), 37.

9. John Whitney Hall, *Japan: From Prehistory to Modern Times* (New York: Delacorte Press, 1970), 54.

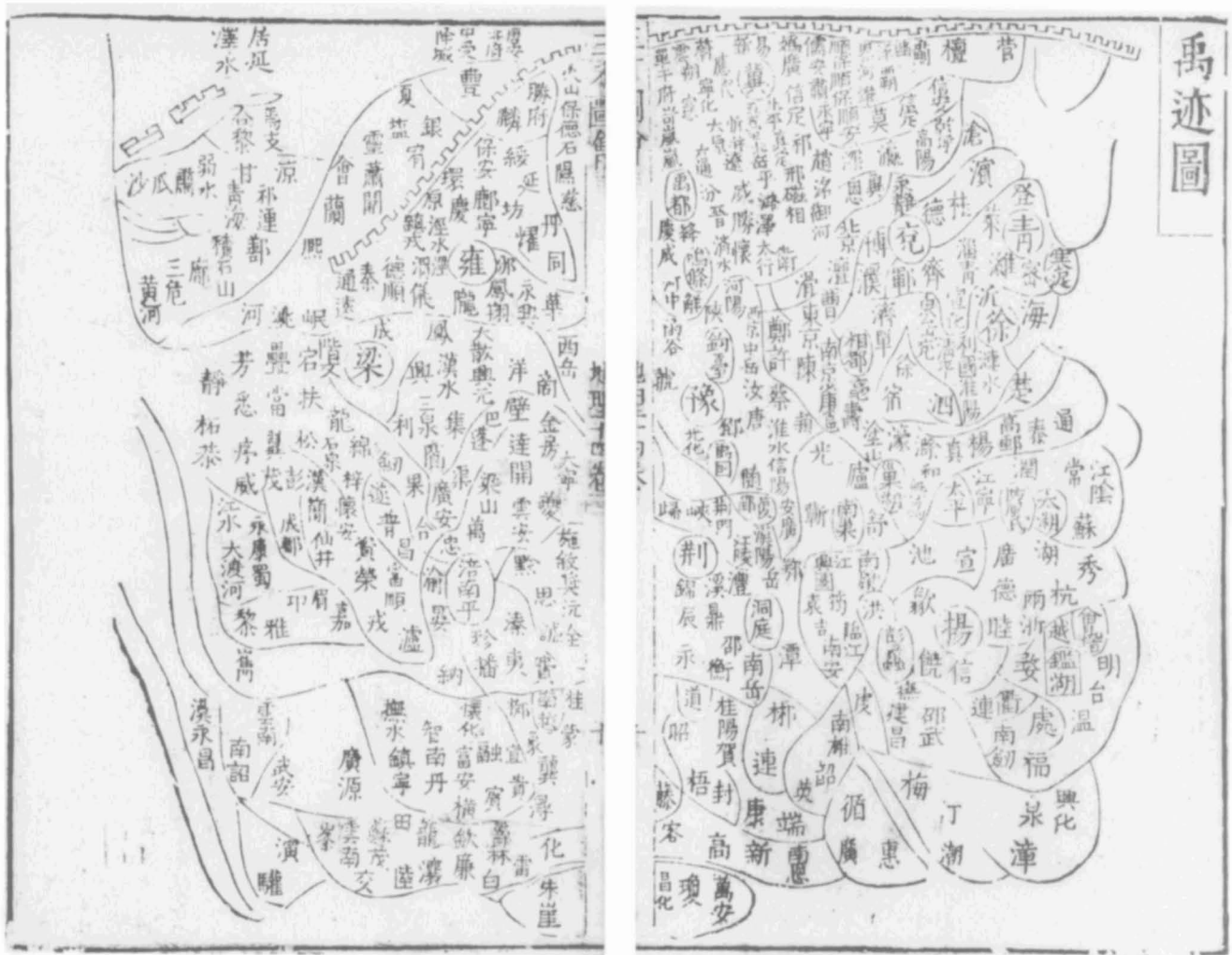


FIG. 8.2. MAP OF THE TRACKS OF [THE SAGE-KING] YU. This seventeenth-century map shows the rather irregular boundaries of the nine ancient regions or provinces of China supposedly demarcated by Yu the Great. This reconstruction is based on a study of the description of these regions in the “Yu gong” chapter of the *Shu jing*. It contravenes the more sche-

matic, geometrized versions of the *jiu zhou* favored by cosmographers of the Han era. Size of each page: 21 × 14 cm. From Wang Qi, comp., *Sancai tuhui, dili* 14.10ab. Reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.

of manorial system or perhaps a formula for allocating the produce of the land between the sedentary and swidden members of a community.¹⁰

Whatever the social or economic origins of the well-field arrangement, by Han times it was conceived primarily as a mensural schema cast in the form of the three-by-three grid or nonary square.¹¹ Indeed, so closely associated was the well-field system with this nine-palace formation that the great twelfth-century Neo-Confucian philosopher Zhu Xi (1130–1200) posited that all other applications of this grid form, such as the *mingtang* or “luminous hall,” a sort of cosmological temple or architectural microcosm, arose from the well field.¹² Needham suggests that the well-field grid may even have helped inspire the idea of a coordinate system in Chinese car-

10. Cho-yun Hsu, *Ancient China in Transition: An Analysis of Social Mobility, 722–222 B.C.* (Stanford: Stanford University Press, 1965), 112; Wolfram Eberhard, *Conquerors and Rulers: Social Forces in Medieval China*, 2d rev. ed. (Leiden: E. J. Brill, 1965), 34–36.

11. See, for example, the commentary under the fifteenth year of Duke Xuan in Fan Ning (339–401), comp., *Chunqiu Guliang zhuan* (Spring and autumn [annals] with the Guliang commentary, fourth century), 7.8b; see the modern edition (Taipei: Xinxing Shuju, 1975), 92. The *Chunqiu* is one of the five Confucian classics (*Wujing*), and the only one supposedly composed by Confucius himself.

12. Zhu Xi in *Li ji jishuo* (Collected explanations of the Record of rituals), annotated Chen Hao (1261–1341), 3.35b–36a, in *Sishu wujing Song-Yuan ren zhu* (Song and Yuan commentaries on the four books and five classics), 3 vols. (Beijing: Zhongguo Shudian, 1984), 2:83–84. The *Li ji* (Record of rituals, ca. first century B.C.), another of the five Confucian classics, is actually an anthology of prose writings of the most diverse sort and provenance, compiled by redactors of the Han era.

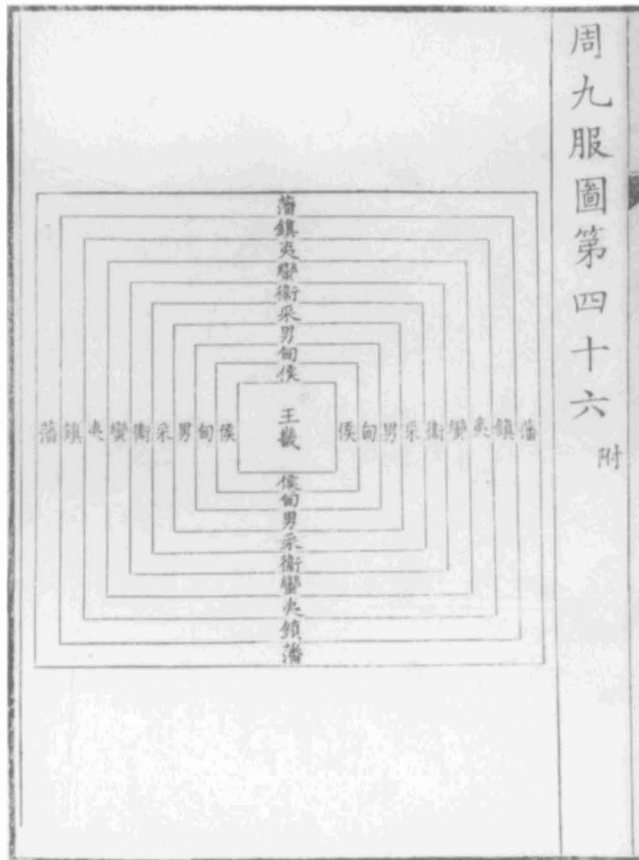


FIG. 8.3. DIAGRAM OF THE NINE DOMAINS OF THE ZHOU. This diagram depicts the type of geometrized political geography devised by Han cosmographers. All the domains in this schema are centered on the royal capital, which occupies the central square. According to this schema, the degree of barbarism increases with the square of the distance from the center, with the lands of the various types of tributaries being closer to the royal domain and the areas inhabited by various grades of barbarians at a greater distance. Like the diagram represented in figure 8.2, this is a seventeenth-century reconstruction based on a reading of a classical text, in this case the *Zhou li* (Ritual forms of Zhou, second century B.C.). Size of the original: 19.5 × 14.5 cm. From Hu Wei (1633–1714), *Yu gong zhuizhi* (Using an awl to gauge the depths of the *Yu gong*, written 1694–97), from an edition of 1705, *tu* 52b. Reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.

tography, though he cites no evidence to support this interesting speculation.¹³

Cosmographers of the Han era applied the nonary square to the realm of political geography as well as to the mensuration of agrarian space. In doing so, they found it necessary to resort to more obvious contortions of earlier classical schemata than with the well-field pattern. The primary geographical arrangement outlined in the Confucian canon, the *jiu zhou*—the nine regions or provinces of the realm—is composed of units that are

irregularly shaped and spaced. The boundaries of these regions, as described in the “*Yu gong*” (Tribute of Yu) chapter of the canonical *Shu jing* (Book of documents, dating from at least the late Zhanguo period [403–221 B.C.]), are generally marked by such sinuous and meandering physical features as mountains and rivers (fig. 8.2). However, later accounts of the *jiu zhou*, especially those dating from the third and second centuries B.C., became progressively more schematic and even approach the geometric form of the nonary square. The descriptions of the *jiu zhou* in the early Han compendium the *Huainanzi* ([Book of the] Master of Huainan, written ca. 120 B.C.) attributed to Liu An, for example, locate the nine regions “simply in terms of the eight cardinal directions plus the center.”¹⁴ The “*Wangzhi*” (Royal institutions) chapter of the canonical *Li ji* (Record of rituals, ca. first century B.C.), which also dates from the Han era, remarks that “within the four seas, there are nine regions, each a thousand *li* squared.”¹⁵ By conflating the nine regions with the nine domains (*jiu fu*), a series of concentric squares centered on the royal capital as described in another canonical text compiled in the Han era, the *Zhou li* (Ritual forms of Zhou), the later Han commentator Zheng Xuan (127–200) completed the geometrization of the classical *jiu zhou* (fig. 8.3). Thus the influential Tang-era commentator Kong Yingda (574–648) wrote that the nine regions were bounded by straight lines, not by natural physical features.¹⁶

As with the grid form of the well-field arrangement, this geometrized political geography was not simply an aspect of the traditional worldview or solely a matter for cosmographical speculation. Even as late as the nineteenth century, political reformers in China and Japan proposed to establish squared administrative districts as a prelude to a reign of virtue, or at least the improvement of government.¹⁷ These later reformers, however, were not so much attempting to reimpose a particular cartographic plan, that of the nine regions, as proceeding on the assumption that the geometrization of political districts was an important aspect of serious political reform.

13. Joseph Needham, *Science and Civilisation in China* (Cambridge: Cambridge University Press, 1954–), vol. 3, with Wang Ling, *Mathematics and the Sciences of the Heavens and the Earth* (1959), 541.

14. John S. Major, “The Five Phases, Magic Squares, and Schematic Cosmography,” in *Explorations in Early Chinese Cosmology*, ed. Henry Rosemont, Jr. (Chico, Calif.: Scholars Press, 1984), 133–66, quotation on 137.

15. See *Li ji jishuo*, 3.3b, in *Sishu wujing*, 2:67 (note 12).

16. Part 2 of Kong Yingda, “*Yu gong wufu tu shuo*” (Explanation of the diagrams of the five domains of the Tribute of Yu) in Zhang Huang, comp., *Tushu bian* (Compilation of illustrations and writings, compiled 1562–77), 86.2b, in *Gujin tushu jicheng*, 7:1091 (note 6).

17. See, for example, Hall, *Japan*, 276 (note 9); and William Theodore de Bary, Wing-tsit Chan, and Burton Watson, comps., *Sources of Chinese Tradition* (New York: Columbia University Press, 1960), 728.

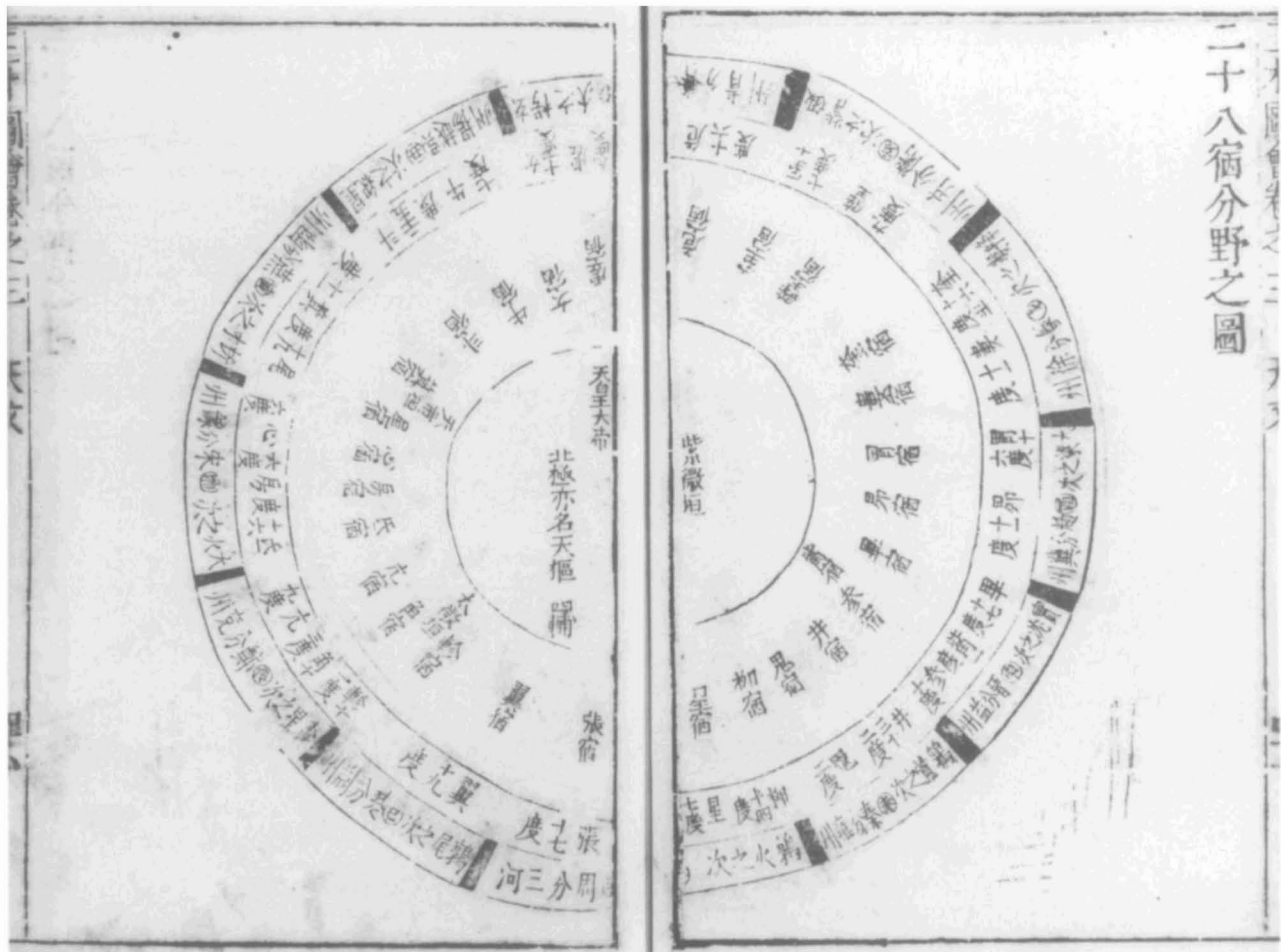


FIG. 8.4. DIAGRAM OF THE FIELD ALLOCATION OF THE TWENTY-EIGHT LUNAR LODGES. This chart shows the correspondences between these sectors of the lunar path through the heavens and the twelve regions or provinces of China. Other versions of the *fenye* correlated the nine terrestrial regions with their celestial counterparts. The main function of

this and other *fenye* charts is astrological: an unusual occurrence in a particular heavenly field might portend disaster for an important personage in the corresponding earthly region. Size of each page: 21 × 14 cm. From Wang Qi, comp., *Sancai tuhui*, *tianwen* 3.47b–48a. Reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.

The nine-region schema provided a basis for a third cosmographical conception, the *fenye* or “field-allocation” system, which correlated sectors of the heavens with territories of the earth. To each of the nine geographical regions of China there was “allocated” a corresponding celestial “field.” This *fenye* arrangement is a good example of a correlative system, based on the idea that correspondences may be drawn between separate orders of existence or realms of the cosmos.

The origins of the *fenye* system, like those of the well-field arrangement, are obscure. It may well have originated as a cartographic device for tracing the annual progress of the sun, moon, and planets through the heavens.¹⁸ Marking off the band of the ecliptic into a number of sectors would have enabled terrestrial observers to track the movements of these celestial lights in a rough

way. If such was indeed the earliest form of the *fenye*, then it would initially have had little to do with nonary cosmography. On the other hand, Wang Yong, a modern historian of Chinese geography, speculates that the *fenye* first arose from the *jiu zhou* or nine-region conception.¹⁹

Whatever its origins, by Han times the *fenye* had developed into an astrological system pairing earthly regions or states with corresponding heavenly fields or asterisms. The late-classical compendium the *Lüshi Chunqiu* (Master Lü’s Spring and autumn [annals]), associated the nine

18. Hashimoto Masukichi, *Shina kōdai rekiho shi kenkyū* (Studies on the history of ancient Chinese calendrical astronomy) (Tokyo: Tōyō Bunko, 1943), 515–17.

19. Wang Yong, *Zhongguo dilixue shi* (History of geography in China) (1938; reprinted Taipei: Shangwu Yinshuguan, 1974), 12.

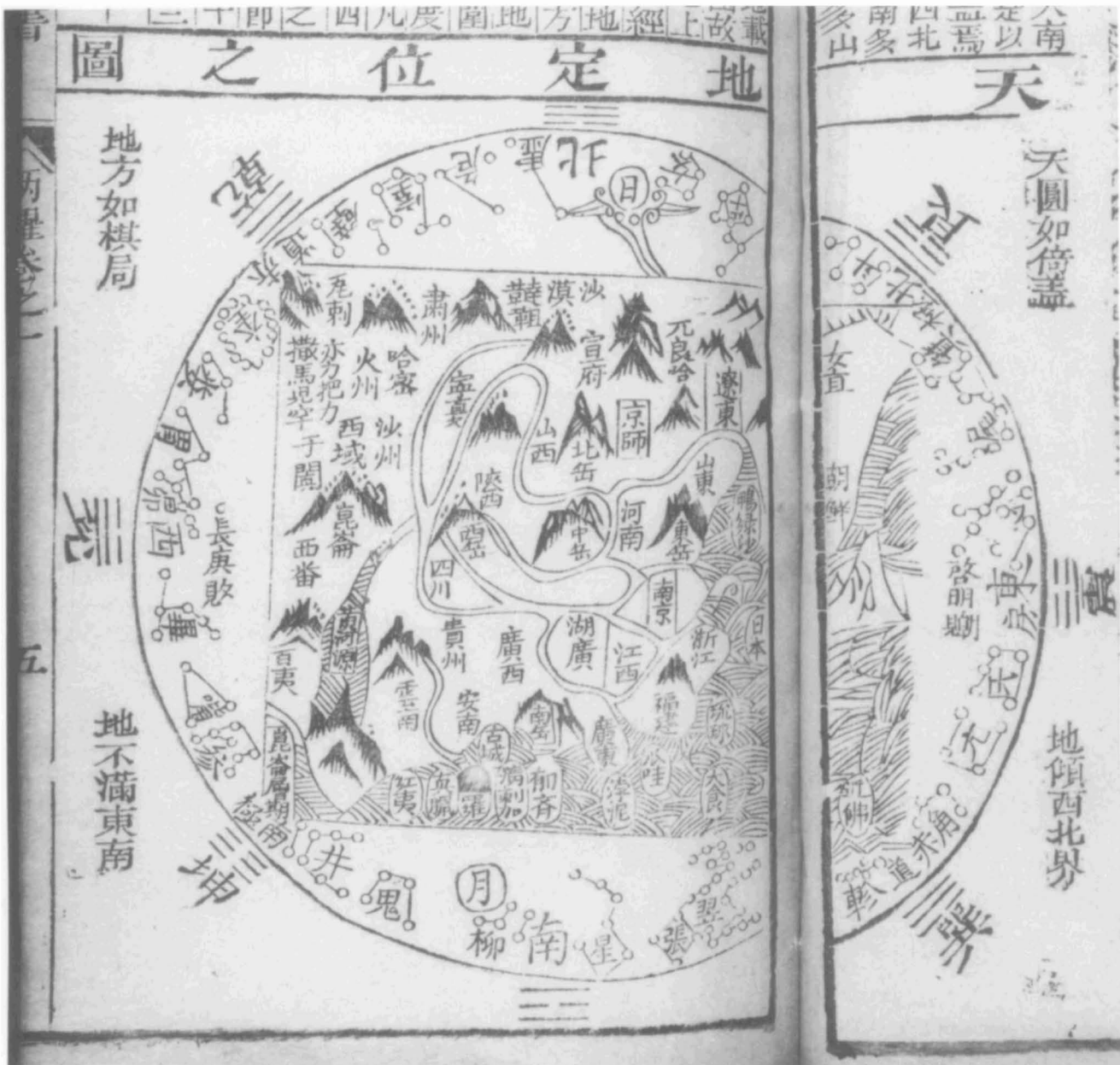


FIG. 8.5. A FENYE-INFLUENCED DIAGRAM OF THE “ROUNDED HEAVENS” CIRCUMSCRIBING THE “SQUARED EARTH.” This map shows the more modern provinces of China with surrounding tributaries and barbarian regions within the central square, and the twenty-eight lunar lodges, divided into four groupings of seven each, on the peripheral circle. This chart, however, does not specify which lunar lodges correspond to which terrestrial regions. But it does illus-

trate another important Chinese cosmographical idea, that “the earth is inclined toward the northwest.” Thus “the Southeast is mostly watery and the Northwest mostly mountainous.” Size of the original: ca. 15.5 cm. From *Xinzheng xiangji beiyao tongshu* (Newly amplified almanac of auspicious images, 1721), 1.4b–5a. By permission of the Oriental and India Office Collections, British Library, London (15257 a 24).

classical regions with nine celestial fields.²⁰ Later Han texts like the *Huainanzi* correlated earthly territories with other astronomical schemata such as the twenty-eight lunar lodges, the twelve stations of the Jupiter cycle, and the nine paths of the moon (figs. 8.4 and 8.5). An untoward event in any one of these celestial sectors

boded ill for the political authorities in the corresponding terrestrial region. A simple example of a *fenye* prognostication or verification, drawn from the “Wuxing zhi”

20. *Lüshi Chunqiu* (ca. third century B.C.), commissioned by Lü Buwei, *Sibu beiyao* edition, 13.1a–b.

(Treatise on the five phases) of the official Han history *Han shu*, is as follows:

In the seventh month of the third year of the reign of Gaodi [204 B.C.], there was a comet in the *Da jiao* [Great Horn] asterism that disappeared after a little more than ten days. Liu Xiang [77–6 B.C.] suggests that at that time Xiang Yu was the king of Chu and the hegemon of the feudal lords, but that [his rival] the Han had already pacified the three Qin [states] and was separated from Xiang Yu only by the district of Yingyang. Thus the hearts of all in the realm were shifting to the Han, and Chu was about to disintegrate. So the comet purged the royal throne [in the heavens].²¹

The political application of the *fenye* astrological schema required that the boundaries of the corresponding celestial and terrestrial fields be measured with precision. Thus, Chen Zhuo in the third century listed the dimensions of such fields by number of degrees.²²

Like the well-field and nine-region schemata, the field-allocation system was not confined to the ethereal realms of cosmological speculation. It had practical political uses as well. In fact, most imperial Chinese dynasties from Han times employed official astrologers charged with making political prognostications based on their observations of celestial abnormalities.²³ When such prognostications were taken seriously by those in positions of authority, changes in the boundaries of corresponding celestial and terrestrial sectors could influence the conduct of government. Thus it is not surprising that leading cosmographers, astronomers, and even historians of the Tang (618–907) and Song eras, particularly Li Chunfeng (602–70), Yixing (682–727), and Ouyang Xiu (1007–70), were seriously concerned with proposals to reform the boundaries of the terrestrial divisions in the *fenye* system, as well as to adjust the celestial divisions to new astronomical measurements.²⁴ Such proposals are not known to have resulted in new land surveys and maps, however. Their purpose was, after all, to bring the ancient *fenye* conceptions into accord with *existing* terrestrial boundaries.

Classical Chinese cosmographical conceptions left a more permanent, palpable mark on urban configurations—the shape of Chinese cities—than on any other arrangement of space. Some of the great capital cities of imperial China, including Beijing, were built or reformed to accord with cosmographical strictures, particularly orientation of the city walls and gates to the four points of the compass and construction on a rectilinear plan very nearly resembling a square. Whereas cosmographers in several other Eurasian civilizations generally only speculated on the form of the ideal city, some of their Chinese counterparts actually saw reasonable facsimiles of their ideal urban designs constructed. Chinese cosmographical

models also influenced urban planning in other East Asian countries, especially Korea and Japan. The two imperial capitals of premodern Japan, Nara and Kyōto, were modeled on the rectilinear grid form of the great capital of Tang-era China, Chang'an.

However, cosmographical conceptions apparently had little influence on the general shape of Chinese cities until at least the end of the Han era. According to Wright, early Chinese cities seem to have been irregular and asymmetrical in form. This was true even of the first great imperial capital in Chinese history, Chang'an in the Former Han era (206 B.C.–A.D. 8).²⁵

A canonical text that probably dates from this era, the “Kaogong ji” (Artificers’ record) chapter of the *Zhou li*, however, established the basic urban plan that greatly influenced the design of later imperial capitals. In addition to prescribing cardinal axiality and orientation, this text explains that “the builders should build the capital city as a square of nine square *li*. On each side of the city walls there are three gates. Within the city there are nine meridional and nine latitudinal streets, each of the former being as wide as nine chariot-tracks.”²⁶ This classical plan of the ideal city thus incorporates nonary numerology, as well as a squared perimeter, into its design, though it does not prescribe that the city be patterned after the three-by-three grid. Wheatley, however, has suggested that the nine streets in this text originally designated nine

21. “Wuxing zhi” in Ban Gu, *Han shu* (History of the Former Han, compiled first century A.D.), 27C.26b–27a, in *Xinjiao Han shu jizhu* (Newly collated *Han shu* with collected commentaries), 5 vols. (Taipei: Shijie Shuju, 1973), 2:1516. The *Han shu* is the second in the series of twenty-five official histories, all but the first covering one particular dynasty, which in the case of the *Han shu* is the Former Han era (206 B.C.–A.D. 8).

22. Ho Peng-yoke, trans. and annotator, *The Astronomical Chapters of the Chin Shu* (Paris: Mouton, 1966), 113.

23. See, for example, Ho Peng-yoke, “The Astronomical Bureau in Ming China,” *Journal of Asian History* 3 (1969): 137–57, esp. 144.

24. Part 2 of “Tianwen zhi” (Treatise on astrology) in Liu Xu et al., *Jiu Tang shu* (Old history of the Tang, compiled 940–45), *juan* 36, in *Lidai tianwen lüli deng zhi huibian* (Collected treatises on astrology, astronomy, and harmonics in the standard histories), 9 vols. (Beijing: Zhonghua Shuju, 1976), 3:673; part 1 of “Tianwen zhi” (Treatise on astrology) in Ouyang Xiu et al., *Xin Tang shu* (New history of the Tang, compiled 1032–60), *juan* 31, in *Lidai tianwen*, 3:718–19, 722. The *Jiu Tang shu* and the *Xin Tang shu* are the official histories covering the Tang era (618–907).

25. Arthur F. Wright, “The Cosmology of the Chinese City,” in *The City in Late Imperial China*, ed. George William Skinner (Stanford: Stanford University Press, 1977), 33–73, esp. 42–44.

26. Zheng Xuan, *Zhou li Zhengzhu* (Ritual forms of Zhou with Zheng’s commentary, second century), *Sibu beiyao* edition, 41.14b. I have followed the translation of this passage as given in Laurence J. C. Ma, “Peking as a Cosmic City,” in *Proceedings of the 30th International Congress of Human Sciences in Asia and North Africa: China 2*, ed. Graciela de la Lama (Mexico City: El Colegio de México, 1982), 141–64, quotation on 144.

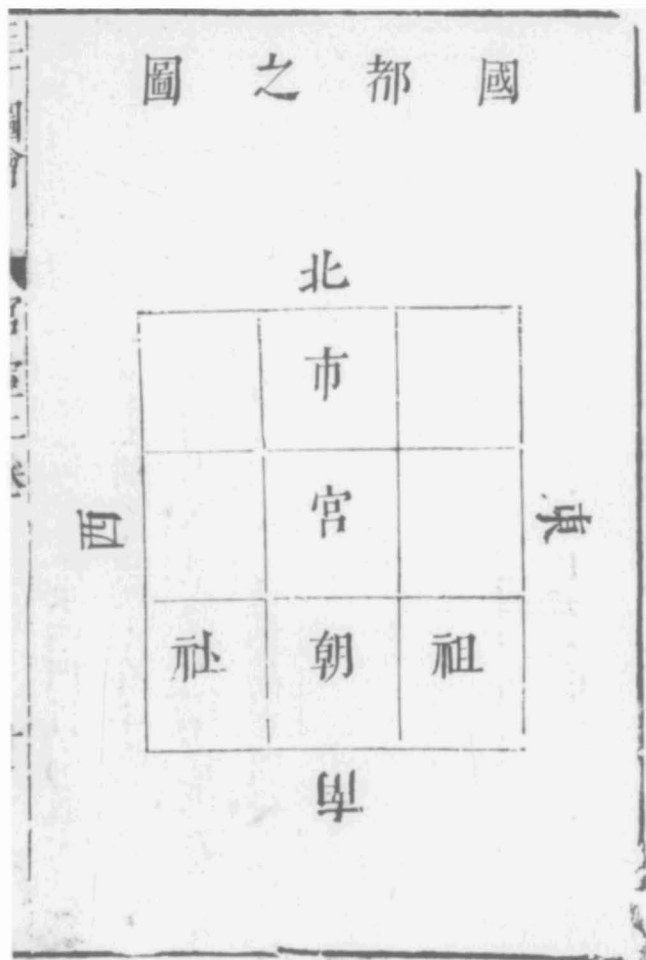


FIG. 8.6. DIAGRAM OF THE NATIONAL CAPITAL. This shows the form of the capital city modeled on the nine-palace plan and oriented to the four quarters, with the imperial palace occupying the central square. The description of the ideal capital in the canonical *Zhou li* (Ritual forms of Zhou, second century B.C.), however, refers to nine streets rather than nine squares or sectors of the city.

Size of the original: 21 × 14 cm. From Wang Qi, comp., *Sancai tuhui, gongshi* 2.11a. Reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.

squares. In that case, he speculates, “the ideal-type city should have originally comprised a regular nonary layout of eight sectors, pivoted about a central unit consisting of one-ninth of the total area.”²⁷ In other words, the nine-palace formation may at one time have been applied to the plan of the ideal city as well as to the well-field and nine-region configurations (fig. 8.6).

The classical city plan was, however, actually realized in the designs of some of the great imperial capitals of Chinese history, such as Chang’an in Tang times and Beijing in the Ming (1368–1644) and Qing (1644–1911) eras, though such obstacles as existing settlements, topograph-



FIG. 8.7. DIAGRAM OF XUAN YUAN'S (OR THE YELLOW EMPEROR'S) LUMINOUS HALL. This seventeenth-century diagram purports to show the earlier, more pristine and less schematic version of the *mingtang*. Conceptions of the *mingtang* favored by Han cosmographers were, however, based on nonary cosmography, as illustrated below in figure 8.8.

Size of the original: 21 × 14 cm. From Wang Qi, comp., *Sancai tuhui, gongshi* 1.7a. Reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.

ical irregularities, and geomantic requirements did necessitate some adjustments. This plan, like its counterparts in several other Eurasian civilizations, was designed to illustrate and establish the centrality of the ruler, the Son of Heaven who sat at the “pivot of the four quarters” and mediated between heaven and earth. Hence emperors throughout Chinese history often concerned themselves with the geometric layout and numerological symbolism of the capital and its cultic sites and structures, just as

27. Paul Wheatley, *The Pivot of the Four Quarters: A Preliminary Enquiry into the Origins and Character of the Ancient Chinese City* (Chicago: Aldine, 1971), 414.

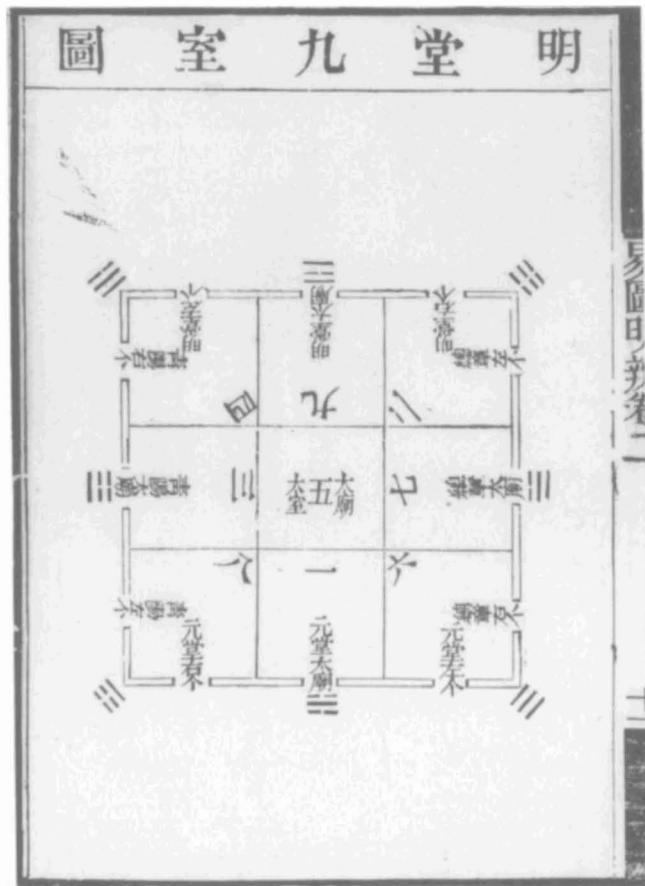


FIG. 8.8. DIAGRAM OF THE NINE CHAMBERS OF THE LUMINOUS HALL. This diagram outlines the standard plan of the *mingtang*, correlating the chambers with magic-square numbers and the eight trigrams associated with the *Yi jing* (Book of changes). Only the central chamber, the “Grand Temple” or “Grand Chamber,” lacks a corresponding trigram. This seventeenth-century reconstruction by a famous classical scholar is based on his study of Han cosmographical texts, since no diagrams of the plan of the *mingtang* survived from this earlier period.

Size of the original: 20 × 13.5 cm. From Hu Wei, *Yi tu mingbian* (A clarifying critique of the diagrams [associated with the Book of] changes, 1706), from an edition of 1843, 2.11b. Reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.

they did with agrarian reform along the lines of the well-field schema.²⁸

Perhaps the most important and famous cultic site or structure was the *mingtang* or “luminous hall,” a sort of cosmological temple designed for the performance of imperial rites, as well as “an architectural symbol of virtuous government” (fig. 8.7).²⁹ Unlike the other cosmographical schemata that came to be ruled by the nine-palace formation, particularly the well-field system and the nine regions, there is no clear or detailed description of the *mingtang* in any pre-Han text. The references to

this institution in earlier classical sources, such as the *Mengzi* and the *Zuozhuan* (Zuo’s tradition [of interpreting the *Chunqiu*], ca. 300 B.C.), are both brief and cryptic, giving no account of its form and little even of its functions. These early sources do not associate the *mingtang* with nonary cosmography, or indeed with cosmography of any sort.

The dearth of detailed descriptions of the *mingtang* in earlier classical texts left a clear field for Han-era scholars to recreate the structure along the lines of their own cosmographical conceptions. There was little to limit the free play of Han cosmographical fancies regarding the *mingtang*, as there was with the nine-region conception, for which an inconveniently detailed classical description existed. Hence, postclassical students of the *mingtang* devised more than twenty different versions of this architectural microcosm.³⁰ However, the most popular postclassical reconstructions of the *mingtang* were those based on quinary and nonary cosmography and numerology, particularly the latter (fig. 8.8).

Inasmuch as architectural structures are generally more amenable to the expression and elaboration of cosmographical ideas than are agricultural fields, political divisions, and even city plans, these reconstructed *mingtang* extend such conceptions to a greater length than any of the nonary schemata discussed thus far. Cai Yong (133–92), a later Han expositor of the nonary interpretation of the *mingtang*, described the structure as a complete architectural microcosm. Its nine rooms, for example, represented the nine regions, its twelve palaces resonated with the twelve hours of the day, its twenty-eight pillars symbolized the twenty-eight lunar lodges, and its eight inner passages were paired with the eight trigrams of the *Yi jing*. Its base was square, the shape of the earth, its round roof resembled the heavens, and the whole structure was surrounded by water that represented the four seas.³¹

The complex form of the *mingtang* is not architecturally feasible, as Maspero has pointed out.³² Yet impe-

28. For an example of such imperial concern, see Jeffrey F. Meyer, *Peking as a Sacred City* (Taipei: Chinese Association for Folklore, 1976), 109.

29. Howard J. Wechsler, *Offerings of Jade and Silk: Ritual and Symbol in the Legitimation of the T’ang Dynasty* (New Haven: Yale University Press, 1985), 195.

30. Wang Meng’ou, “Gu mingtang tu kao” (An investigation of the plan of the ancient luminous hall), in Li Yuegang et al., *Sanli yanjiu lunji* (A collection of articles on the three ritual classics) (Taipei: Liming Wenhua Shiye, 1981), 289–300, esp. 295.

31. “Mingtang Yueling lun” (A discussion of the luminous hall [in connection with the] Monthly ordinances) in Cai Yong, *Cai Zhonglang ji* (Collected writings of Cai Zhonglang [Yong], second century), *Sibu beiyao* edition, 10.6a–b.

32. Henri Maspero, “Le Ming-t’ang et la crise religieuse chinoise avant les Han,” *Mélanges Chinois et Bouddhiques* 9 (1948–51): 1–70, esp. 66–67.

rial sovereigns throughout Chinese history, beginning with the emperor Wu (r. 140–87 B.C.) of the Former Han era, commissioned the construction of *mingtang*. Some of these, such as that built by the usurper Wang Mang (45 B.C.–A.D. 23) in A.D. 4 and that reconstructed by the Later Han emperor Guangwu (r. 25–57), were apparently modeled as closely as possible on the nonary plan outlined in the Han compendium the *Da Dai Li ji* (The Elder Dai's record of rites). There is archaeological as well as literary evidence that such architectural microcosms were constructed as early as Han times, for an elaborate building, said to be the ruins of Wang Mang's *mingtang*, recently excavated just south of the Han-era capital of Chang'an, was divided into nine rooms situated on a square base and surrounded by a circular water-course.³³

Why did some of the most renowned, energetic, and practical imperial sovereigns in Chinese history concern themselves with the construction of a cosmographically and numerologically proportioned architectural microcosm? One of the main reasons was that it provided the appropriate setting for the Son of Heaven's ritual ordering of space and time, especially of the seasons of the year. By moving through the *mingtang* at the appropriate pace, the ruler helped to ensure that the seasons would follow their proper order.

But for this ritual tour of the *mingtang* to be efficacious, the dimensions and parts of this architectural microcosm had to correspond with the larger patterns and rhythms of the cosmos. These included such basic markers and divisions of space and time as the nine regions of the realm, the twelve months of the year, the twenty-four solar periods, and the twenty-eight lunar lodges, and such configurations as the square base (corresponding to earth) and the round roof (corresponding to heaven). Hence debates over the proper form and dimensions of the *mingtang*, which often arose at court in response to an imperial commission to construct such a structure, were not merely antiquarian exercises.³⁴ For inasmuch as the *mingtang* was supposed to be constructed as an architectural microcosm, the subject of dispute was ultimately the shape and proportions of the cosmos in general, not simply the optimum measurements of a building. Hence it is not surprising that some of the most important figures in Chinese intellectual history, such as Dong Zhongshu (ca. 179–ca. 104 B.C.), Zhu Xi (1130–1200), Wang Fuzhi (1619–92), and Kang Youwei (1858–1927), wrote on the subject of the *mingtang*, though they did not include in their extant works charts or graphs of its proper plan.

The cosmographical pattern or model that inspired the most extensive debate and speculation in traditional China was not, however, the *mingtang*, but the *Luo shu* (Luo River writing) and its companion, the *Hetu* (Yellow

River chart). The importance of these schemata in Chinese thought of premodern times is illustrated by the large section devoted to them in the great Chinese encyclopedia the *Gujin tushu jicheng* (Complete collection of books and illustrations, past and present, 1726), in which materials on the *Hetu* and *Luo shu* occupy more space than that given to some of the individual Confucian classics. Indeed, these figures were the pivots of cosmological discourse in the Neo-Confucianism of the Song era, the most influential intellectual movement in the past thousand years of Chinese history. Moreover, later scholars' exposé of the heterodox origins of commonly accepted versions of the *Hetu* and *Luo shu* was one of the most important episodes in the intellectual history of the Qing period.

Unlike the cosmographical conceptions discussed above, neither the *Luo shu* nor its complement, the *Hetu*, was used directly as a model for ordering any type of physical space—astronomical, geographical, agrarian, urban, or architectural. But the *Luo shu* in particular was widely regarded as the original source of nonary cosmography and even of the nine-palace formation. Later commentators on the *Hetu* and *Luo shu*, moreover, interpreted these figures as the paradigms not just of nonary cosmograms, but of all *tu*, a Chinese character that might designate almost any form of graphic representation including charts, diagrams, maps, and illustrations in general. These *tu*, supposedly devised or revealed by the sages of high antiquity, were among the primary sources of order in the world, as important in this regard as the books of the Confucian canon.

As with the *mingtang*, there are no clear or detailed descriptions of either the *Hetu* or *Luo shu* in classical Chinese literature of the pre-Han era, a situation that promoted their cosmological metamorphosis. Lacking precise classical accounts, Han cosmologists could give free rein to their imaginations in reconstituting and reinterpreting these figures. On the other hand, they could not find much support for their speculative reconstructions in classical literature. Of all the extant texts that may be reasonably dated from the pre-Han era, none associates the *Hetu* or *Luo shu* with any particular geometric configuration or numerological system. These early references generally limit themselves to relating that these figures emerged from sacred rivers and that they were good auspices.³⁵

Postclassical interpretations of these references, especially those devised in the Han era, often identified the

33. Wright, "Cosmology of the Chinese City," 51 (note 25).

34. For a brief account of one such debate, which arose in the seventh century, see Wechsler, *Offerings*, 207 (note 29).

35. Bernhard Karlgren, "Legends and Cults in Ancient China," *Bulletin of the Museum of Far Eastern Antiquities*, no. 18 (1946): 199–365, esp. 273.

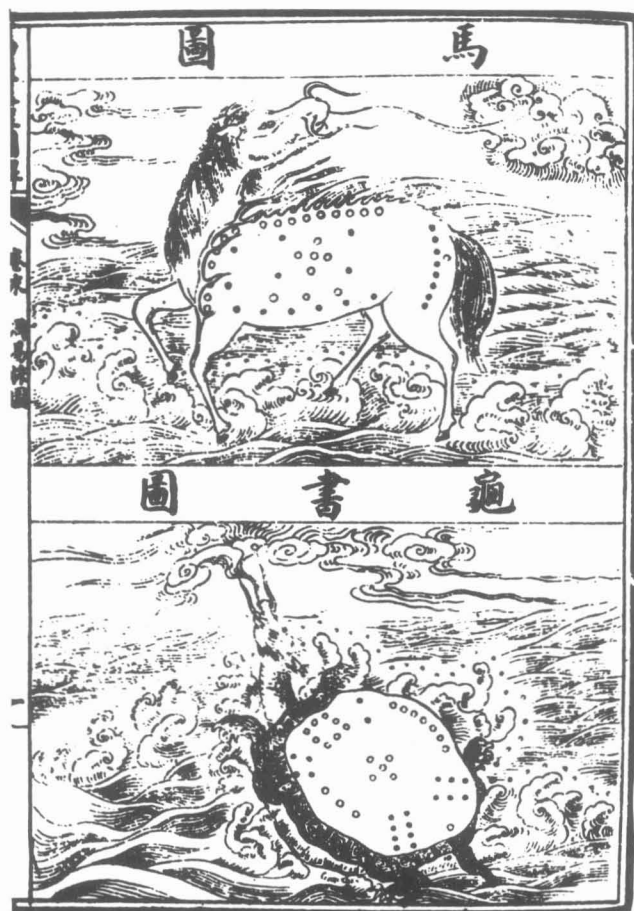


FIG. 8.9. ILLUSTRATION OF A LEGENDARY ACCOUNT OF THE ORIGINS OF THE YELLOW RIVER CHART (HETU) AND LUO RIVER WRITING (LUO SHU). This diagram is included in a sixteenth-century commentary on the *Yi jing*. The *Hetu* was supposed to have been imprinted on the side of a horse wading in the Yellow River, and the *Luo shu* on the shell of a turtle emerging from the Luo River. Size of the image: unknown. From Lai Zhide, *Yi jing Laizhu tujie* (Explanations of the diagrams [associated with] the Book of changes with Lai's commentary, 1598) (Taipei: Guangtian Chubanshe, 1975), 1a.

Hetu with the eight trigrams of the *Yi jing* and the *Luo shu* with the “nine categories” or “nine sections” (*jiuchou*) of the “Hongfan” (Great plan) chapter of the *Shu jing* (fig. 8.9).³⁶ Thus the “Wuxing zhi” chapter of the *Han shu* remarks that the Han scholar Liu Xin (ca. 50 B.C.–A.D. 23),

held that [the legendary sage-king] Fu Xi continued [the work of] heaven as king, [and thus] received the Yellow River chart; [what he] drew on its pattern was the eight trigrams [of the *Yi jing*]. [The legendary sage-king] Yu regulated the floodwaters and thus was favored with the Luo River writing; [what he] set out on its model was the “Great Plan” [chapter of the *Shu jing*].³⁷

Later commentators went on to identify the *Hetu* with roundness and the order of the heavens and the *Luo shu* with squareness and the mensuration of the earth.³⁸

The association of the *Luo shu* with the nine-palace formation as well as with nonary numerology and geographical order may also have arisen as early as the Han era.³⁹ Postclassical commentators on the *Luo shu* even identified this figure with the simple magic square of three. On the other hand, the standard diagram of the *Luo shu*, that favored particularly by the Neo-Confucian cosmologists of the Song era, both dispenses with the squared outline and represents each of the magic-square numbers by figures that resemble knotted cords rather than by numerals (fig. 8.10). Since no graphic representation of the *Luo shu* survives from earlier than the Song, it is difficult to assess the relative antiquity and authority of these different forms of the *Luo shu*. Nor is it easy to reconstruct any genealogy of charts typed as “*Luo shu*,” though different versions did exist.

In sum, few of the cosmographical conceptions outlined above—the well-field, nine-region, field-allocation, classical city plan, *mingtang*, and *Luo shu* schemata—could be fit so clearly and perfectly into the nine-palace template as to inspire universal approbation. Indeed, debates on the correct form of some of these cosmograms frequently arose in the postclassical era of Chinese history. Nevertheless, the pervasive influence of this nonary grid form on the cosmographical theory and practice of Chinese civilization is remarkable. Nor was this influence confined to the schemata just named. It may be traced in such cosmographical artifacts as the bronze “TLV” mirrors dating from the Han era, which depict a

36. “Wuxing zhi” in *Xinjiao Han shu jizhu*, 27A.1a–b (2:1315) (note 21); Kong Anguo (fl. ca. 100 B.C.), *Shang shu Kongzhu* (Documents of antiquity [Book of documents] with Kong’s commentary), *Sibu beiyao* edition, 7.1b; Li Daoping, ed., *Zhou yi jijie zuanshu* (Collected commentaries and annotations on the Zhou change [Book of changes]) (Taipei, 1967), 8.793. The *Yi jing*, probably the most complex and controversial of the five Confucian classics, was originally a manual for divination and a collection of omens and anecdotes to which were later appended philosophical and cosmological commentaries ascribed to Confucius.

37. “Wuxing zhi” in *Xinjiao Han shu jizhu*, 27A.1a–b (2:1315) (note 21).

38. Zhu Xi, *Yixue qimeng* (Primer on the study of the [Book of] changes, 1186), 1.3a–b; see the modern edition (Taipei: Guangxue She Yinshuguan, 1975), 1.5–6.

39. Cammann, “Magic Square of Three,” 43–44, 61–64 (note 5). However, the Qing cosmological critic, Zhang Huiyan (1761–1802), dated the association of the *Luo shu* with the nine-palace form from a later period, the Eastern Jin era (317–420). See Zhang’s *Yi tu tiaobian* (Systematic critique of the diagrams associated with the [Book of] changes, ca. 1800), 3b, in *Zhang Huiyan yixue shishu* (Ten books by Zhang Huiyan on the study of the [Book of] changes), 2 vols. (Taipei: Guangwen Shuju, 1970), 2:958.

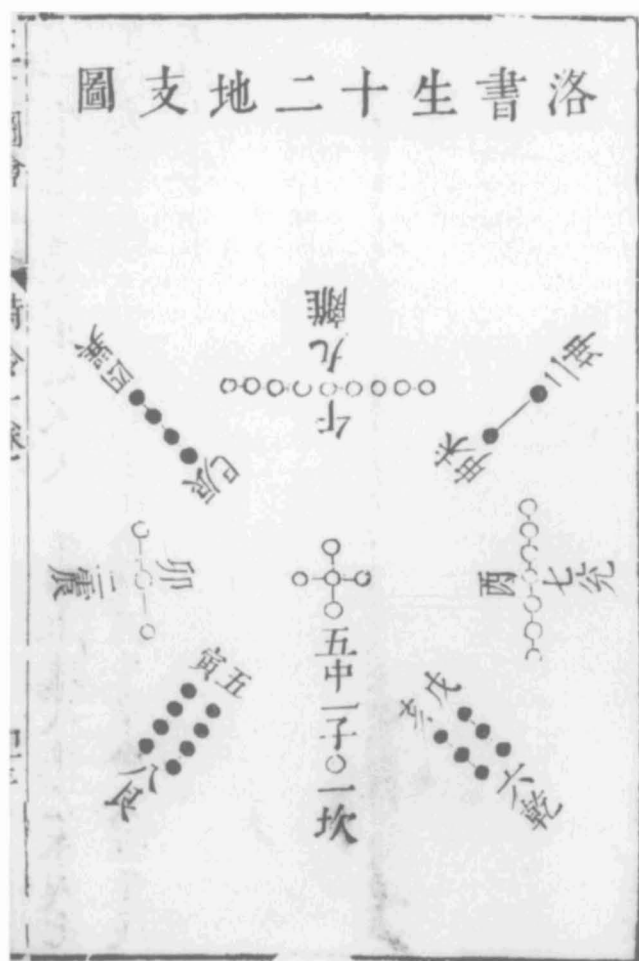


FIG. 8.10. DIAGRAM OF THE *LUO SHU* GIVING BIRTH TO THE TWELVE TERRESTRIAL BRANCHES. This diagram correlates the twelve terrestrial branches, a series of chronograms, with magic-square numbers and with the eight trigrams associated with the *Yi jing*. The numbers are presented not as numerals but in the form of knotted cords. Although the squared outline of the nine-palace form does not appear here, the general configuration of the chart is nonary. Diagrams like this were supposed to have been transmitted secretly from antiquity, but no extant graphic representation of the *Luo shu* dates from before Song times (960–1279). The version shown here is that favored by Song Neo-Confucian cosmologists. Size of the original: 21 × 14 cm. From Wang Qi, comp., *Sancai tuihui, shiling* 1.43a. Reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.

rounded heaven encompassing a squared earth. According to Cammann, even nine divisions, representing the nine ancient regions of China, can be projected on the face of some of these cosmic mirrors.⁴⁰ Similar patterns appear in the checkered formation of the Han diviner's board as well as the gaming boards used for various types of "chess."

Nonary cosmography in premodern China was not,

moreover, the exclusive preserve of orthodox thinkers associated with the Confucian or classical traditions. The nine bureaus of the Daoist hell were sometimes represented in the form of a nonary square, as were some Buddhist mandalas.⁴¹ The Daoist altar used in rites of cosmic recreation also incorporated the nine-palace arrangement along with other cosmological proportions and symbols.⁴²

At a more popular level, the influence of the schematic cosmography sketched above may be traced even in Chinese domestic architecture. As Wang remarks, "The typical home in rural Taiwan is . . . constructed, as nearly as possible, to conform to an ideal of perfect symmetry."⁴³ The second-floor plans of many typical Chinese houses, moreover, approximate the form of the nine-palace model.⁴⁴

Although literary evidence concerning popular cosmographical thought in China is sparse, there is thus some reason to suspect that common people in late traditional China were more concerned and familiar with the cosmographical conceptions articulated by the cultured elite than were their counterparts in medieval Western and Middle Eastern civilizations. Such conceptions were widely circulated through the ubiquitous Chinese almanac (*lishu*), probably the most popular book in late traditional China.⁴⁵ They might also have been purveyed through the medium of diviners, many of whom used variations and applications of the nine-palace formation,

40. Schuyler Cammann, "The 'TLV' Pattern on Cosmic Mirrors of the Han Dynasty," *Journal of the American Oriental Society* 68 (1948): 159–67.

41. For a good illustration of a nine-checked mandala, see Minoru Kiyota, *Shingon Buddhism: Theory and Practice* (Los Angeles: Buddhist Books International, 1978), 93–94.

42. Kristofer M. Schipper and Wang Hsiu-huei, "Progressive and Regressive Time Cycles in Taoist Ritual," 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), 185–205, esp. 192 and 201; graphic illustrations of this cosmic altar appear on 190 and 191. Other examples of nonary cosmography and numerology in Shangqing Daoism, including the "nine palaces in the head," are given in Livia Kohn, *Early Chinese Mysticism: Philosophy and Soteriology in the Taoist Tradition* (Princeton: Princeton University Press, 1992), 110.

43. Wang Sung-hsing, "Taiwanese Architecture and the Supernatural," in *Religion and Ritual in Chinese Society*, ed. Arthur P. Wolf (Stanford: Stanford University Press, 1974), 183–92, quotation on 183.

44. A sketch of the second floor of a "typical Chinese house" appears in Stephen Skinner, *The Living Earth Manual of Feng-Shui: Chinese Geomancy* (London: Routledge and Kegan Paul, 1982), 110. A similar diagram may be found in Francis L. K. Hsu, *Under the Ancestors' Shadow: Kinship, Personality, and Social Mobility in Village China* (1948; reprinted Garden City, N.Y.: Anchor Books, 1967), 30.

45. On the wide distribution of the *lishu*, see Ch'ing K'un Yang, *Religion in Chinese Society: A Study of Contemporary Social Functions of Religion and Some of Their Historical Factors* (Berkeley and Los Angeles: University of California Press, 1961), 17.

particularly the *Luo shu*, in practicing their art (see, for example, fig. 8.16 below).

GEOMANCY AND ITS RELATION TO COSMOGRAPHY

There did exist countervailing cultural traditions in pre-modern China that opposed some of the basic principles of geometric cosmography. The most prominent of these was geomancy, or *feng shui* (literally, wind and water), an art concerned primarily with siting of such structures as buildings and graves in auspicious locations so as to benefit the living and pacify the dead. This was accomplished by locating these structures in places where they would harmonize with and draw upon the flow of the energetic pneuma (*qi*) that circulated through such features of the terrain as mountains and streams. Hence the art of *feng shui* is perhaps better characterized by the English term “siting” than by the word “geomancy,” though the latter term has become so well established as to make abandoning it rather difficult.⁴⁶

The most widely known and practiced application of geomancy is the identification of proper burial sites for deceased parents and other ancestors.⁴⁷ Geomantic prescriptions for the location of graves are, moreover, more specific and theoretical than for other types of sites. But the Chinese art of siting has been applied in a very wide range of spatial dimensions, “from the smallest of spaces—say, a bedroom or even the location of a chair—to the largest, cosmic dimension.”⁴⁸ In late imperial China, geomancers were frequently called upon to site and orient residences, villages, and even capital cities.⁴⁹ They also advised the government on such enterprises as the construction of public buildings, the conduct of military operations, and the management of public works.⁵⁰ Even the boundaries of Chinese administrative districts, ranging from villages and townships to whole provinces, frequently follow the irregular and meandering lines prescribed by *feng shui*.⁵¹ Among the numerous contemporary examples of the public use of geomancy is that by the famous architect I. M. Pei in his design for the Fragrant Hill Hotel near Beijing.⁵²

Although geomancy in its higher reaches was a rather complex art practiced by skilled specialists, the knowledge of general geomantic rules of thumb was surprisingly widespread in late traditional Chinese society. As Smith remarks, “Virtually everyone in China recognized its basic symbolic repertoire and knew intuitively a good geomantic location on first glance.”⁵³ Even the least educated Chinese, according to the nineteenth-century observer J. J. M. de Groot, “show an astounding amount of knowledge of Fung-shui.”⁵⁴ Indeed, this art provided some of the basic categories and concepts through which the Chinese man in the rice paddy comprehended the

physical environment. It helped bring the cosmology of the high culture down to earth.

As with several of the Chinese arts and sciences, the origins of geomancy have been traced by its practitioners to hoary antiquity, to the same legendary sage-kings who are credited with the delineation of the *Hetu* and *Luo shu* and the demarcation of the nine regions (*jiu zhou*). More historically, there is some archaeological and literary evidence that the establishment of settlements as early as the Shang dynasty of the second millennium B.C. was preceded by careful examination of local topographical conditions, perhaps auguring the existence of a proto-geomantic art in that remote era.⁵⁵ The cosmographical foundations of siting were established in texts of the classical era, especially the *Yi jing* and the *Guanzi* ([Book of] Master Guan). During the early Han period, *feng shui* apparently was recognized and practiced as an independent art. A Han-era bibliography contains notices of treatises that seem to have been concerned with geomancy, though none of these are now extant.⁵⁶ The post-Han migrations of Chinese to the south, with its variegated natural landscapes and exotic aboriginal cultures, evidently stimulated the development of this art, which was codified in the *Zang shu* (Burial book) ascribed to Guo Pu (276–324) and the *Huangdi zhai jing* (The Yellow Emperor’s site classic) credited to Wang Wei (415–43).⁵⁷

46. For a brief discussion of why the term “geomancy” may not apply very well to the Chinese art of *feng shui*, see Steven J. Bennett, “Patterns of the Sky and Earth: A Chinese Science of Applied Cosmology,” *Chinese Science* 3 (1978): 1–26, esp. 1–2. In premodern China this art was designated by many names besides *feng shui*. Some of these are listed in Richard J. Smith, *Fortune-Tellers and Philosophers: Divination in Traditional Chinese Society* (Boulder, Colo.: Westview Press, 1991), 315 n. 1.

47. Smith, *Fortune-Tellers and Philosophers*, 151 (note 46).

48. Sarah Rossbach, *Feng Shui: The Chinese Art of Placement* (New York: E. P. Dutton, 1983), 2.

49. Sang Hae Lee, “Feng-Shui: Its Context and Meaning” (Ph.D. diss., Cornell University, 1986), 21.

50. Smith, *Fortune-Tellers and Philosophers*, 157–58 (note 46).

51. Lee, “Feng-Shui,” 188 (note 49).

52. Lee, “Feng-Shui,” 134 n. 158 (note 49).

53. Smith, *Fortune-Tellers and Philosophers*, 171 (note 46).

54. J. J. M. de Groot, *The Religious System of China: Its Ancient Forms, Evolution, History and Present Aspect*, 6 vols. (Leiden: E. J. Brill, 1892–1910), vol. 3, bk. 1, *Disposal of the Dead*, pt. 3, *The Grave* (reprinted Taipei: Chengwen Chubanshe, 1972), 939.

55. Lee, “Feng-Shui,” 49 (note 49).

56. Stephan D. R. Feuchtwang, *An Anthropological Analysis of Chinese Geomancy* (Vientiane, Laos: Editions Vithagna, 1974), 16–17. For a list of these titles, as well as other evidence for the early development of *feng shui* in China, see Joseph Needham, *Science and Civilisation in China* (Cambridge: Cambridge University Press, 1954–), vol. 2, with Wang Ling, *History of Scientific Thought* (1956), 359–63, and de Groot, *Religious System*, 3:994–96 (note 54).

57. Steven Bennett questions the attribution of the *Huangdi zhai jing* to Wang Wei; see Bennett, “Patterns,” 5 (note 46).

In the Song era, two major schools of geomancy crystallized, one concentrating on cosmology and the other on the forms of the landscape.⁵⁸ The first of these, the “Compass” or “Directions and Positions” school, was supposedly developed by Wang Ji (fl. 1030–50) and was especially popular in the southern coastal province of Fujian.⁵⁹ Hence it is also sometimes referred to as the Fujian school. This school drew on the metaphysical speculations of the Song Neo-Confucian philosophers and used such cosmological ideas as yin-yang and the five phases (*wuxing*) to analyze sites.⁶⁰ In determining the spatial and temporal dimensions of a site, adepts of this Directions and Positions school relied heavily on the geomantic compass (*luopan* or *luojing*), a complicated instrument whose dial might have as many as thirty-eight concentric rings centered on a “celestial pool” that housed a magnetic needle (fig. 8.11). Inasmuch as these rings incorporate “nearly all the Chinese symbols which are used in dealing with time and space,” ranging from the eight trigrams to the twenty-eight lunar lodges, it amounted to “an outline of the universe according to traditional Chinese natural philosophy.”⁶¹ Like the structures inspired by the classical nonary square, such as the classical city plan and the *mingtang*, it was a concrete model of the cosmos. The compass was applied to the art of siting by aligning the disk with the magnetic needle and then determining the coordinates of the site in question by all the relevant measures of space, time, and cosmic change indicated on the compass dial.⁶² Siting by this method left wide latitude for creative interpretation by professional practitioners of the art.

The other major geomantic school, the “Form” or “Forms and Configurations” school, associated with the southern inland province of Jiangxi, supposedly developed from the teachings of Yang Yunsong (fl. 874–88). In contrast with the rather analytical Compass school, with its “abstruse cosmology and elaborate calculations,” the Form school was much more popular and down to earth, “by virtue of its emphasis on physical forms and configurations.”⁶³ Its practitioners relied less on the cosmological schemata encompassed by the geomantic compass and more on on-site inspection of the landforms around proposed sites for buildings and tombs, particularly the shapes of mountains and the directions of watercourses, in order to determine the patterns of cosmic energy flow.⁶⁴ The approach of this school has been characterized as more “intuitive” and “mystical” than that of the “analytical” Compass school.⁶⁵ Indeed, some authorities of this school “describe the experience of finding the right location in terms reminiscent of Chan-Buddhist enlightenment.”⁶⁶ Nevertheless, the adherents of the Form school did not rely on intuitive insight or visual scanning alone, but made use of schematic topographical maps that showed how the currents and con-

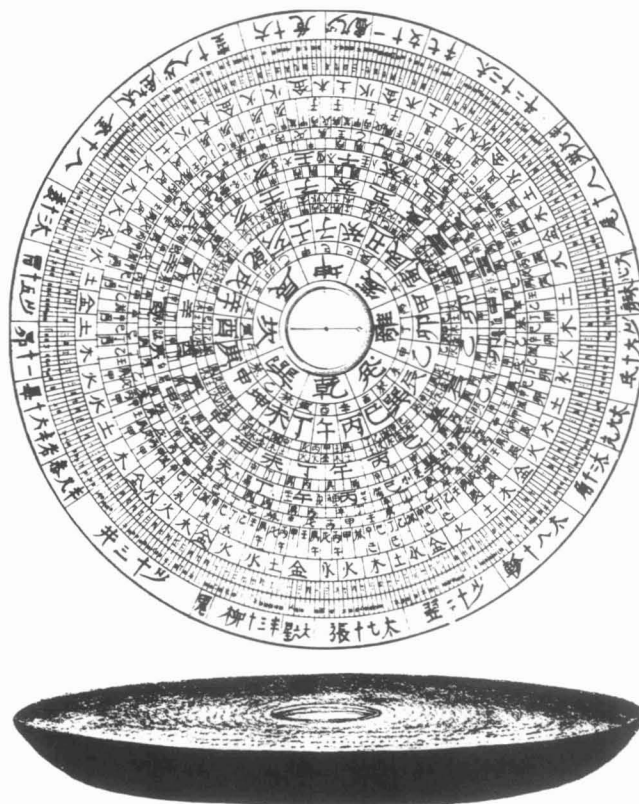


FIG. 8.11. ILLUSTRATION OF A GEOMANTIC COMPASS. This diagram depicts a nineteenth-century geomancer's compass. The innermost circle is called the “celestial pool” and is divided in half by the magnetic needle, betokening the division of the Supreme Ultimate into yin and yang. The first ring contains the eight trigrams of the *Yi jing*, the second has characters representing the twenty-four directions, and so on to the outermost ring, which designates the twenty-eight lunar lodges. The compass included practically all of the systems and series the Chinese used to measure or represent elements of space, time, and cosmic change.

Size of the image: unknown. From J. J. M. de Groot, *The Religious System of China: Its Ancient Forms, Evolution, History and Present Aspect*, 6 vols. (Leiden: Brill, 1892–1910), vol. 3, bk. 1, *Disposal of the Dead*, pt. 3, *The Grave* (reprinted Taipei: Chengwen Chubanshe, 1972), 959.

58. Feuchtwang, *Anthropological Analysis*, 17 (note 56).

59. Lee, “Feng-Shui,” 128 and 159 (note 49).

60. Lee, “Feng-Shui,” 158–59 (note 49), and Bennett, “Patterns,” 3 (note 46).

61. Jeffrey F. Meyer, “Feng-Shui of the Chinese City,” *History of Religions* 18 (November 1978): 138–55, quotation on 149; Feuchtwang, *Anthropological Analysis*, quotation on 96 (note 56).

62. Bennett, “Patterns,” 3 (note 46).

63. Smith, *Fortune-Tellers and Philosophers*, 139 and 138 (note 46).

64. Bennett, “Patterns,” 3 (note 46); Skinner, *Living Earth Manual*, 8–9 (note 44).

65. Bennett, “Patterns,” 3 (note 46).

66. Smith, *Fortune-Tellers and Philosophers*, 139 (note 46).

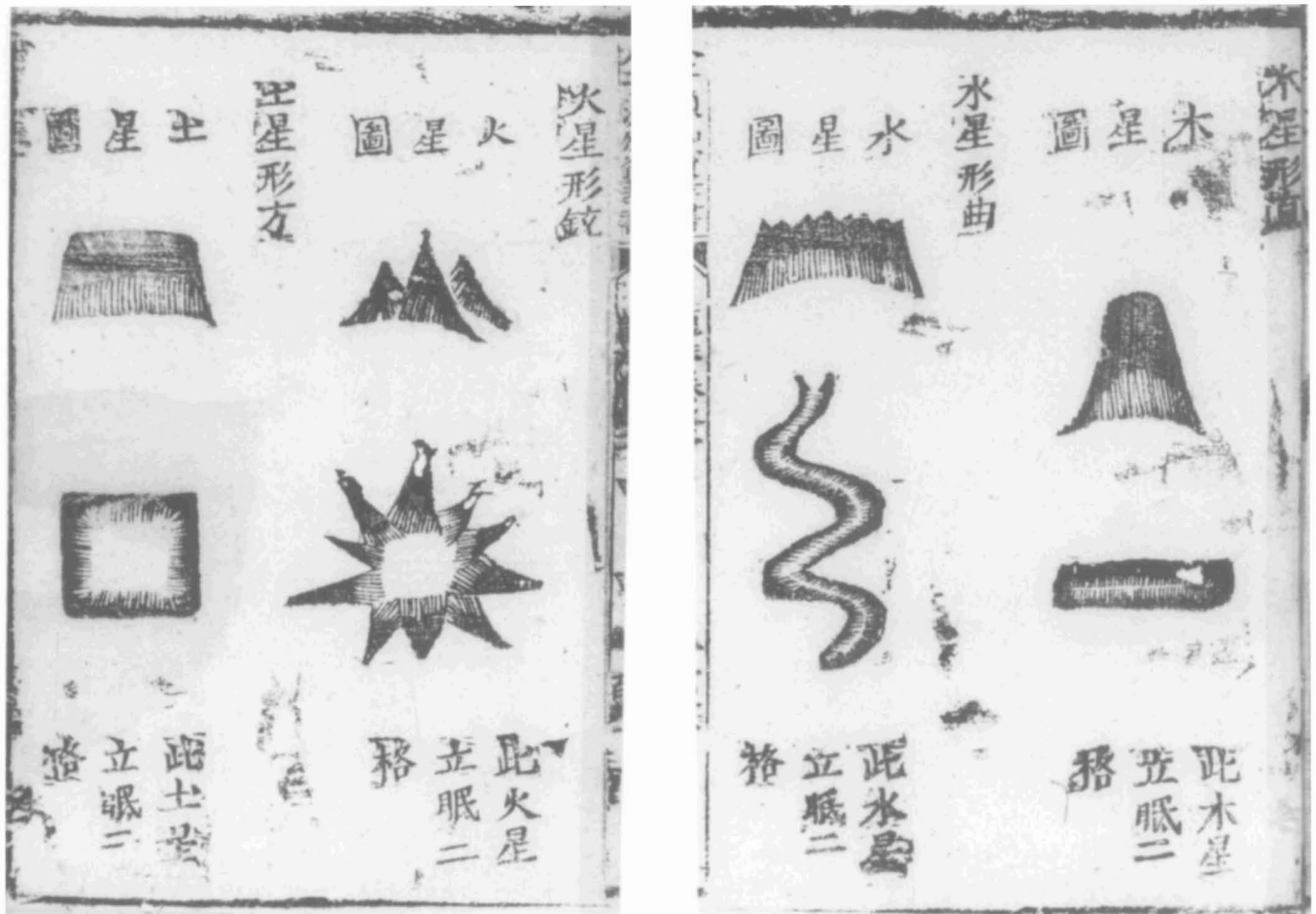


FIG. 8.12. ILLUSTRATIONS OF THE TOPOGRAPHICAL FORMS CORRESPONDING TO THE FIVE PLANETS AND FIVE PHASES. The upper illustrations in this diagram depict side views and the lower illustrations top views of mountain forms. The captions say that the form corresponding to the

metal star (Venus) is round, to the wood star (Jupiter) is straight, to the water star (Mercury) is curvy, to the fire star (Mars) is pointed, and to the Earth star (Saturn) is square. Size of each page: 21 × 14 cm. From Xu Shanji and Xu Shanshu,

centrations of the energetic *qi* or pneuma that pulsed through the ridges and watercourses of the earth could be traced in order to identify auspicious locations. They also cataloged various landforms by a rich metaphorical vocabulary that likened the physical features and relationships of the landscapes to animals (especially the mythical dragon), parts of the human body, celestial bodies, manufactured objects, and even the characters of the Chinese written language.⁶⁷ For example, geomancers correlated each of the five planets (and correlatively the five phases of cosmic change) with particular landforms, specifically the shapes of mountains, on the theory that celestial bodies must have their terrestrial counterparts. They correlated gently rounded forms with metal and the planet Venus, elongated trunklike forms with wood and the planet Jupiter, softly undulating forms with water and the planet Mercury, sharply pointed forms with fire and the planet Mars, and squared forms with Earth and

the planet Saturn (fig. 8.12).⁶⁸

Although theoretically distinguished from one another, the Compass and Form schools were often combined in practice, in their literature, and even in their cosmographical orientations. Geomancers of all persuasions, for example, were generally in accord regarding the characteristics of the ideal *feng shui* spot, sometimes called the “dragon’s lair.” Such a location has been characterized by Freedman as “one which nestles in the embrace of hills standing to its rear and on its flanks; it is then like an armchair, comfortable and protecting” (figs. 8.13 and 8.14).⁶⁹ In the front of the ideal site should run a watercourse, which must flow neither too swiftly, lest the

67. Smith, *Fortune-Tellers and Philosophers*, 139 (note 46).

68. Smith, *Fortune-Tellers and Philosophers*, 144 (note 46), and Lee, “Feng-Shui,” 136–37 (note 49).

69. Maurice Freedman, *Chinese Lineage and Society: Fukien and Kwang-tung* (London: Athlone Press, 1971), 122.



Dili renzi xuzhi (Everything that geomancers should know, first printed 1559), 1583 edition, 11.120b–121a. Reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.

good influences be dispersed, nor too sluggishly, lest the flow of cosmic energy stagnate. The wind stirring around the site must be correspondingly moderate. Cosmologically, the *feng shui* spot is the meeting place of the heavenly *qi* and the earthly *qi*, where the yang and yin, or male and female influences, are most closely intertwined and most intensely concentrated.⁷⁰ The configuration of this ideal site has been compared to a womb, both “the place of fertility” and “the place all creatures return to at last.”⁷¹ From such a place, the spirits of the ancestors were well situated to favorably influence the fortunes of their living descendants.

Whatever one might think of the efficacy of this form of applied cosmography, the aesthetic and hygienic attractions of the *feng shui* spot, situated on a south-facing slope receiving the sun and with an unrestricted view that takes in a gently flowing stream, may be appreciated by all. As Feuchtwang puts it, “Everyone takes



FIG. 8.13. ILLUSTRATIONS OF THE IDEAL *FENG SHUI* SPOT, OR THE DRAGON’S LAIR CONFIGURATION. These drawings show how the site of the grave is protected on three sides by ridges and is open to the south. Compare these rather schematic illustrations with the more complex diagram in figure 8.14.

From Xu Zhimo, *Dili chuoyu fuluantou gekuo* (A summation of songs on the pattern of the earth, chiseled jade, and pared hilltops, 1828), 2:7. Reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.

unsymbolic pleasure in sunlight, airiness and a good view.”⁷² Thus it is not surprising that the concept and configuration of the ideal *feng shui* spot were extended to cover dwellings of the living as well as of the dead. This principle is illustrated even in the architecture of rural Taiwanese houses, which “are often shaped like a lair, with two projecting wings.”⁷³

Although *feng shui* was practiced and appreciated throughout China by the late imperial period, it was “most pervasive and deeply entrenched” in the area of

70. Lee, “Feng-Shui,” 189 (note 49); Smith, *Fortune-Tellers and Philosophers*, 143 (note 46).

71. Lee, “Feng-Shui,” 191–92 (note 49).

72. Feuchtwang, *Anthropological Analysis*, 117 (note 56).

73. Bennett, “Patterns,” 13 (note 46).

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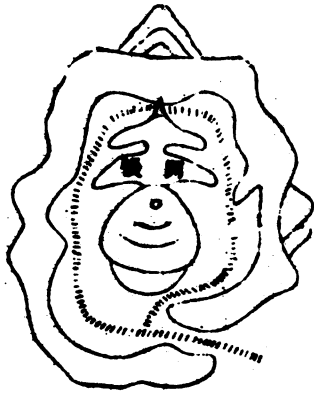


FIG. 8.14. ILLUSTRATION OF A NINTH-CENTURY WORK ON GEOMANCY. This chart, which illustrates the *Shier zhang fa* (Twelve staff patterns) attributed to Yang Yunsong (fl. 874–88), exhibits some of the characteristics of an ideal geomantic site according to the “coiled up” pattern. The site, where a grave is situated, is protected, particularly from the north and west, by sinuous ranges of hills. It is also nourished by small streams that combine to flow through an opening to the south, the region from which beneficent influences radiate. Joseph Needham remarks that “the relation of this kind of drawing to physiographic map-making . . . is evident.” For Needham’s commentary on this particular chart, see his *Science and Civilisation in China* (Cambridge: Cambridge University Press, 1954–), vol. 2, *History of Scientific Thought* (1956), pl. XVIII (fig. 45) caption following p. 360.

Size of the image: 3 × 2.5 cm. From Chen Menglei, Jiang Tingxi, et al., comps., *Gujin tushu jicheng* (Complete collection of books and illustrations, past and present, completed 1726, printed 1728), 79 vols. (Shanghai: Zhonghua Shuju, 1934), 475.38.

the country south of the Yangtze, with its sinuous mountains and undulating watercourses.⁷⁴ Mountains are of particular importance in geomancy and, indeed, “receive more attention in feng-shui manuals than any other natural phenomena.” Such manuals also give considerable attention to the bends, confluences, and branches of watercourses.⁷⁵ To the geomancer, both mountains and rivers literally animated the landscape. They constituted the dragon’s veins, through which pulses *qi*, the energetic pneuma that was also conceived as the blood of the dragon whose winding form and features could be seen in all interesting topographical formations.⁷⁶ In fact, the whole of China has been depicted cartographically as “a tripartite dragon system with subsidiary trunks and branches” (fig. 8.15).⁷⁷

On the other hand, flat landscapes and relatively straight watercourses, such as those of the North China Plain, were both uninviting and unpromising to *feng shui* practitioners. In fact straight lines, one of the chief building blocks of classical geometric cosmography (which was based in the northern China homeland of Chinese civilization), were “anathema” in *feng shui*.⁷⁸ Geomancers looked askance at such lines, which might be straight ridges, watercourses, thoroughfares, housetops, or even telegraph wires, because they easily conducted a sort of evil miasma or noxious *qi* that encouraged the movement of demons. Straight watercourses, moreover, were often suspected of too quickly draining off benign influences from the site in question. Hence geomancers much preferred that meandering, undulating, and even tortuous lines inform the areas around the structures for which they were employed to find the most auspicious locations.⁷⁹ They regarded flat landscapes, the kind that were ideal for the situation of the well-field schema and the classical city plan, as “old, tired, [and] worn-down.”⁸⁰

Although Confucian scholars in the late imperial period frequently criticized *feng shui* on both ethical and cosmological grounds, the art did influence and interact with aspects of the high intellectual and cultural tradition in premodern East Asia. Geomancers’ preference for sinuous ridges and undulating watercourses may well have affected the shapes of such features in Chinese landscape paintings, one of the noblest arts of China. Both geomancers and landscape painters, moreover, conceived of the landscape as the body of the dragon through whose veins, mountain ridges and watercourses, pulsed the vital *qi*. Even the *feng shui* spot, the dragon’s lair, frequently appears in landscape paintings, where “dwellings and temples are often ensconced in three-sided enclosures of earth, rock or foliage.”⁸¹

74. Smith, *Fortune-Tellers and Philosophers*, 149 (note 46).

75. Feuchtwang, *Anthropological Analysis*, 121 and 129 (note 56).

76. Feuchtwang, *Anthropological Analysis*, 141 (note 56).

77. Bennett, “Patterns,” 13 (note 46).

78. Skinner, *Living Earth Manual*, 25 (note 44). Joseph Needham remarks that in *feng shui* “there was in general a strong preference for tortuous and winding roads, walls and structures, . . . and a strong objection to straight lines and geometrical layouts.” See Needham, *Science and Civilisation*, 2:361 (note 56).

79. Skinner, *Living Earth Manual*, 25 (note 44). On this point Jack Potter remarks that “most roads in the New Territories [of Hong Kong] have a serpentine quality that is due more to *feng shui* requirements than to bad engineering.” See Jack M. Potter, “Wind, Water, Bones and Souls: The Religious World of the Cantonese Peasant,” *Journal of Oriental Studies* 8 (1970): 139–53, quotation on 143.

80. Skinner, *Living Earth Manual*, 37 (note 44). According to Sarah Rossbach, “The worst possible location for a building is featureless ground—a flat plain with no *ch’i*-formed undulations”; Rossbach, *Feng Shui*, 59 (note 48).

81. Bennett, “Patterns,” 13 (note 46).

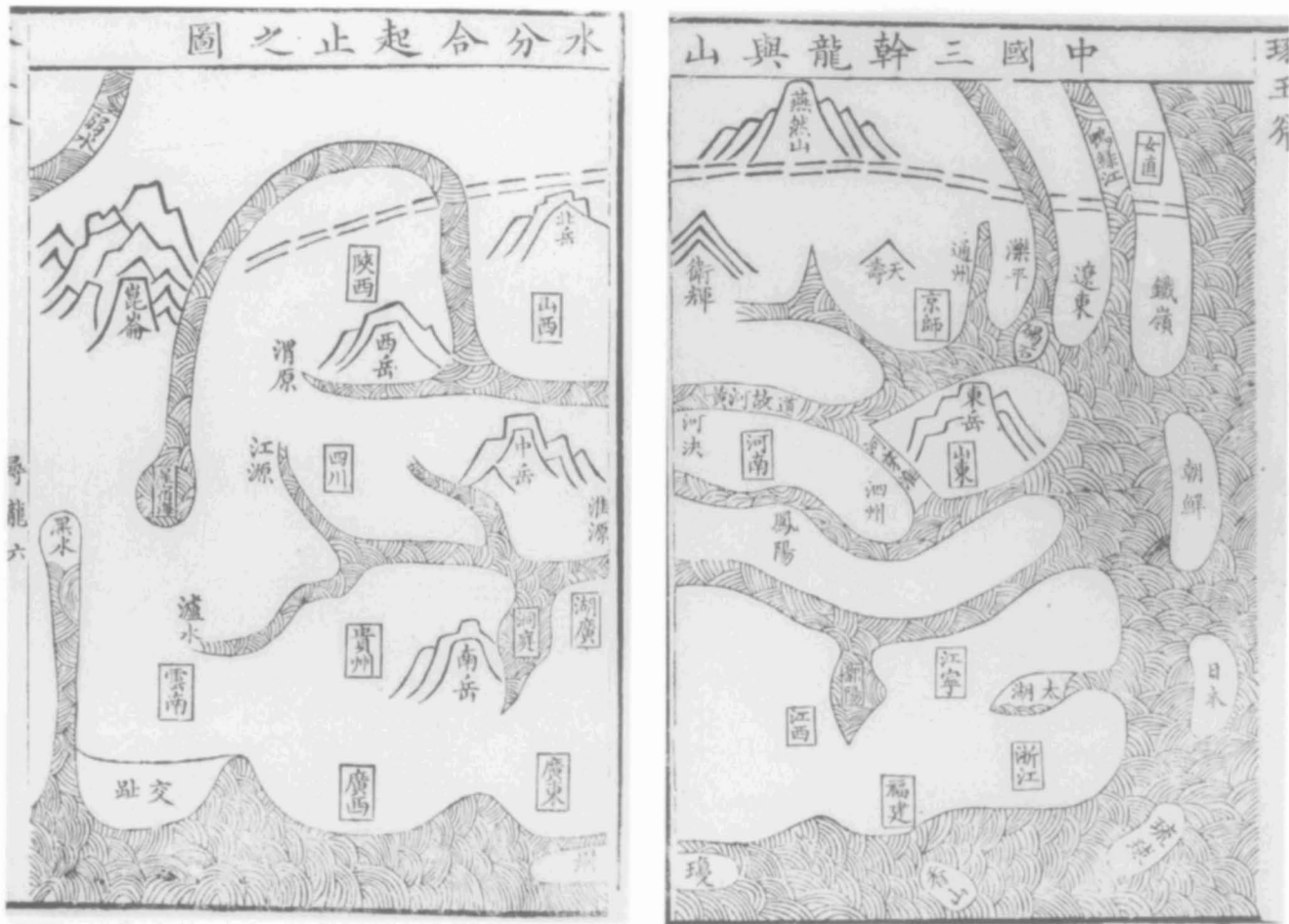


FIG. 8.15. ILLUSTRATION OF THE THREE DRAGON SYSTEMS OF CHINA WITH THE DIVISIONS AND CONJOININGS AND SOURCES AND ENDINGS OF THE MOUNTAINS AND RIVERS. The white areas of this schematic map of East Asia represent land, and the patterned areas are rivers and seas. The two major rivers that flow from west to east horizontally across the map are the Yellow River and the Yangtze River. These rivers separate the three principal dragons of China, those of the north, center, and south, from one

another. The characters written inside the squares are the names of China's provinces. The archaic and extremely schematic character of this map is illustrated in that it depicts Korea as an island off the eastern coast of China, due north of Japan. From Xu Zhimo, *Dili chuoyu fuluantou gekuo* (A summation of songs on the pattern of the earth, chiseled jade, and pared hilltops, 1828), 1:6. Reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.

Both landscape painting and geomancy may be related to the development of cartography in China, the former in that its early forms may have been “the first steps of cartography,” and the latter in that it “stimulated cartographic skills.”⁸² In premodern Korea, the influence of *feng shui* on cartography was apparently even more pronounced. It contributed to the emergence of “a uniquely Korean map style” in which, for example, “mountains are represented not individually but as part of a system of ridgeline” to emphasize the long-distance flow of the terrestrial *qi* or pneumatic energy. This feature, Jeon asserts, is absent from most Chinese maps.⁸³

In China, geomancy impinged on the high cosmographical tradition by coming into conflict with geometric cosmography, particularly in city planning. As Meyer has

noted, the failure of a number of great imperial cities in premodern China to conform precisely to the classical city plan, particularly their departures from rectilinearity, arose more from the requirements of siting than from physical or political obstacles.⁸⁴ Moreover, where the local landforms were not propitious for siting a capital city with its imperial palace, they were in some cases modified to suit geomantic requirements. For example,

82. Feuchtwang, *Anthropological Analysis*, 140 (note 56). See also Hong Key Yoon, “The Expression of Landforms in Chinese Geomantic Maps,” *Cartographic Journal* 29 (1992): 12–15.

83. Sang-woon Jeon, *Science and Technology in Korea: Traditional Instruments and Techniques* (Cambridge: MIT Press, 1974), 279–80.

84. Meyer, “*Feng-Shui*” (note 61). On such geomantic adjustments in urban designs, see also Skinner, *Living Earth Manual*, 25 (note 44).

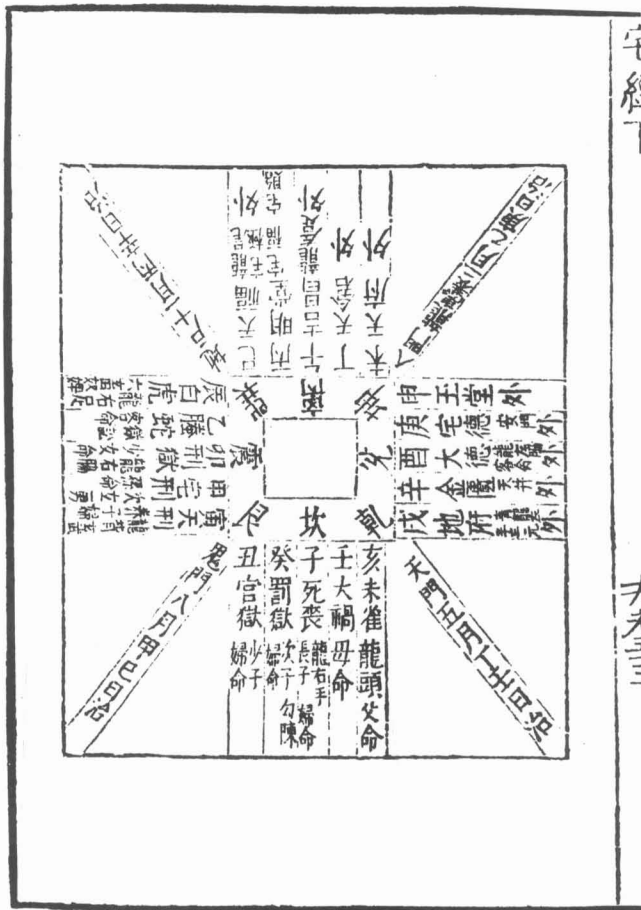


FIG. 8.16. "FATE POSITION DIAGRAM." Even in geomancy the geometric and nonary cosmography outlined above had its place, as exemplified in this "fate position diagram" that appears as an illustration in a Qing edition of the geomantic classic *Huangdi zhai jing* (The Yellow Emperor's site classic). As explained by Bennett, "The inner square contains the trigrams [of the *Yi jing*], which in this case are used to orient the site on the cardinal points. The siting expert then consults the diagram to determine which part of the site will affect certain members of the family" (Bennett, "Patterns of the Sky and Earth: A Chinese Science of Applied Cosmology," *Chinese Science* 3 [1978]: 25). On the use of this *Luo shu* type of diagram in *feng shui*, see also Stephen Skinner, *The Living Earth Manual of Feng-Shui: Chinese Geomancy* (London: Routledge and Kegan Paul, 1982), 47–48, 61–67. Size of the original: 16.5 × 11.5 cm. From Wang Wei, *Huangdi zhai jing* (Yimen guang du [Extensive documents from the Great Gate], vol. 24), B.1b. Reproduced courtesy of the Harvard-Yenching Library, Harvard University, Cambridge.

in Ming times a huge artificial mound known as "Prospect Hill" was built at the northern end of the Forbidden City to protect it from the noxious influences emanating from that direction. Thus could unhealthy land be treated by geomancers, who have in fact been called "doctors of the earth."⁸⁵

Finally, geomantic orientations may have influenced the criticisms that Confucian scholars in the late traditional era directed against the established geometric and nonary interpretations of the classical cosmograms outlined above. At least there was some congruence between the preferences of geomancers and of these later critics for naturally irregular lines and boundaries (fig. 8.16).

LATER MODIFICATIONS AND CRITICISMS OF TRADITIONAL COSMOGRAPHICAL SCHEMATA

Debates and disagreements regarding the configurations and practicalities of some of the cosmographical schemata sketched above ranged throughout premodern Chinese history. For example, agrarian reformers who proposed to implement the well-field system frequently encountered spirited opposition from opponents who argued that the plan was unworkable.⁸⁶ As early as Song times, such famous scholars as Zheng Qiao (1108–66) and Zhu Xi noted the disjunctions between the irregular boundaries of the classical nine regions outlined in the "Yu gong" chapter of the *Shu jing* and the geometrized reconstitution of these regions formulated by Han commentators.⁸⁷ As I noted above, several famous writers of Tang and Song times proposed redesigning the terrestrial components of the field-allocation (*fenyue*) system that were out of accord with contemporary political boundaries. Debates over the proper plan and proportions of the *mingtang* were major episodes in the court politics of Han and Tang times, though the participants in these debates are not known to have used charts to support their arguments. And the question of the form and significance of the enigmatic *Hetu* and *Luo shu* was a chief point of cosmological controversy from Han times to the beginning of the modern era. Thus the particular geometric and nonary conceptions and patterns sketched above by no means monopolized the field of cosmographical thought in traditional China. There is no question here of a uniform, monolithic worldview from which departure was inconceivable or dissent unthinkable.

Nevertheless, few major writers before the seventeenth century challenged the basic principles and fundamental

85. Smith, *Fortune-Tellers and Philosophers*, 131 (note 46). Smith adds that geomancers "often employed medical metaphors to explain their ideas, and in fact, a great many specialized in traditional Chinese medicine."

86. See, for example, the introduction to the survey on the land tax in Ma Duanlin (fl. 1273), *Wenxian tongkao* (General study of literary remains, completed ca. 1280) (Taipei: Xinxing Shuju, 1962), 1.2a–4a; English translation in *Sources of Chinese Tradition*, 501–3 (note 17).

87. "Dili lue" (Monograph on geography) in Zheng Qiao, *Tongzhi* (Comprehensive treatises, ca. 1150), 40.86b; see the modern edition (Taipei: Shijie Shuju, 1970), A.218, 224; Zhu in *Li ji jishuo*, 3.4a, in *Sishu wujing*, 2:67 (note 12).

presuppositions of geometric or nonary cosmography. In some cases, such as with the debates over the proper plan and proportions of the *mingtang*, the opponents of the nine-palace pattern supported models that were just as much in accord with geometric cosmography as was the nonary form. There was little to choose between the nonary and quinary models on this point. Further, the objections that were raised to the implementation of such plans as the well-field system focused more on the social and economic dislocations that applying them might cause than on their lack of accord with the physiography of the land. In sum, even critics of the cosmographical schemata outlined above generally operated in the same mental universe as the Han cosmographers who devised most of these models.

From this perspective, the seventeenth century marks an epoch in the history of Chinese cosmographical conceptions, at least on the level of high intellectual history. For Chinese savants in this era, like their contemporaries in Europe, challenged the cosmological geometry associated with the dominant intellectual traditions of their respective cultures. Bacon condemned the medieval Scholastics for having promoted “the fiction that all celestial bodies move in perfect circles”;⁸⁸ and Galileo observed “that the surface of the moon is not smooth, uniform, and precisely spherical as a great number of philosophers believe it (and the other heavenly bodies) to be.”⁸⁹ So Chinese cosmographical critics of the same era blurred the edges of the three-by-three grid form, the nonary square, arguing that this plan did not fit physiographical contours, political or ritual requirements, or classical descriptions.

Seventeenth-century criticisms of the well-field system, for example, focused on the disjunctions between the ideal geometry of this plan and the physiographical irregularities of the surface of the earth. Thus Lu Longqi (1630–93) argued that this model could be applied only in those limited areas where the topography was suitable.⁹⁰ And Lu Shiyi (1611–72), though advocating an eventual restoration of the well-field arrangement, practically despaired that the manifold irregularities of either the natural or the artificial aspect of the landscape could ever be made to conform to this geometric template.⁹¹ In sum, just as the circle, according to Bacon and Galileo, did not fit the order of the heavens, so the nonary square, according to Lu Longqi and Lu Shiyi, did not match the contours of the earth.

Seventeenth-century Chinese commentators also noted disjunctions between geometric versions of the nine regions and the natural boundaries of China’s ancient provinces as described in the canonical account of these areas contained in the *Shu jing*. Yan Ruoju (1636–1704), the most renowned early Qing authority on this classic, maintained that the legendary sage-king Yu the Great

“fixed the frontiers of the nine regions by mountains and rivers.”⁹² Yan and his contemporaries, especially Hu Wei (1633–1714), apparently reached this conclusion through a close study of the “Yu gong” chapter of the *Shu jing*. Their geographical interests and conceptions, in other words, were generally focused on classical texts. But it is also possible that an acquaintance with the more realistic terrestrial maps of their day led them to doubt the geographical value of schematic cosmography.

Some seventeenth-century criticisms of the astrological *fenye* or field-allocation system developed a line of argument broached by scholars as early as the Tang era, that the boundaries of the terrestrial regions in the schema should be reformed to bring them into accord with natural physiographical divisions.⁹³ Other commentators emphasized the disjunctions and incommensurability between these regions and the celestial “fields” to which they supposedly corresponded. Fang Yizhi (1611–71), for example, remarked that though the southerly Yangzhou region comprised about half of China’s land area, its heavenly “field” included only three of the twenty-eight lunar lodges.⁹⁴ Finally, several early and mid-Qing critics of the *fenye* system objected particularly to the precision with which its expositors had attempted to calculate the bounds of the corresponding celestial and terrestrial fields in the schema. Thus Huang Zongxi (1610–95) argued that the *fenye* was originally intended only as a rough outline and was not geared to meet the exacting demands of astrological prediction.⁹⁵ Lu Longqi contended that the *fenye* should not be regarded as a system at all, that it had little basis apart from a rather incomplete and haphazard historical record of correspondences between

88. Francis Bacon, *The New Organon*, bk. 1, in *The New Organon and Related Writings*, ed. Fulton H. Anderson (New York: Liberal Arts Press, 1960), 50.

89. Galileo, *The Starry Messenger*, in *Discoveries and Opinions of Galileo*, trans. and annotated Stillman Drake (Garden City, N.Y.: Doubleday, 1957), 21–58, quotation on 31.

90. Lu Longqi, *Sanyutang riji* (Diary from Three Fish Hall, written 1659–92) (Taipei: Shangwu Yinshuguan, 1965), B.113.

91. Lu Shiyi, *Sibian lu jiyao* (Epitome of the record of thinking and sifting, published 1707–13), comp. Zhang Boxing, 19.2a–b, in *Kunzhi ji deng sanzong* (The record of hard study [of Lo Qinsun] with two other works of the same sort) (Taipei: Guangxue She Yinshuguan, 1975), 191–96.

92. Yan Ruoju, *Shang shu guwen shuzheng* (Inquiry into the authenticity of the ancient text version of the documents, first printed 1745) (Tianjin: Wushi Kanben, 1796), 6B.79b; *Siku quanshu* edition, 6B.99b.

93. Yan, *Shang shu guwen shuzheng*, 6A.6b, 10a–b; *Siku quanshu* edition, 6A.8a, 13a–14a (note 92).

94. Fang Yizhi, *Tongya* (Comprehensive refinement, completed 1636, printed 1666), *Siku quanshu* edition, 11.23a.

95. Huang Zongxi, *Poxie lun* (Discussion confuting heterodoxy, seventeenth century), 5a, in *Lizhou yizhu huikan* (A collection of [Huang] Lizhou’s extant works, 1910) (Taipei: Long Yan Chubanshe, 1969), vol. 2.

celestial appearances and terrestrial events. In any case, "it has nothing to do with boundaries."⁹⁶

Unlike Qing commentaries on most of the geometric and nonary cosmograms outlined above,⁹⁷ the Qing critique of the *Hetu* and *Luo shu* was a major episode in the intellectual history of the era. This critique was an important aspect of the Qing repudiation of the cosmology and metaphysics associated with the dominant Lixue (Principle) school of Song Neo-Confucianism. The discrediting of the standard versions of these figures probably did more to subvert cosmology and cosmography in the traditional mode than did any other affair in the intellectual history of late traditional China.

As early as the fourteenth century, Confucian scholars pointed out the nonclassical provenance and heterodox associations of the interpretations of the *Hetu* and *Luo shu* accepted by the major Song Neo-Confucian cosmologists. They particularly questioned the identification of the *Luo shu* with the nine-palace formation.⁹⁸ Seventeenth-century scholars such as Mao Qiling (1623–1716) meticulously exposed how such figures as the nonary *Luo shu* had been constituted through the arbitrary conflation of unrelated passages in various classical texts.⁹⁹

But sixteenth- and seventeenth-century criticisms of the cosmographical *Luo shu* were not confined to such textual arguments. Gui Youguang (1507–71), for example, contended that *any* precise graphical or numerological representation of the *Hetu* or *Luo shu*, not just the nine-palace formation, distorted their true essence and significance. For the *Hetu* and *Luo shu* were really ubiquitous under heaven. They could not be satisfactorily delimited or depicted by a geometric figure,¹⁰⁰ just as the ineffable *Dao* could not be adequately represented through words or signs.

The famous seventeenth-century scholar Huang Zongxi also attempted to distinguish the early classical *Hetu* and *Luo shu* from later cosmographical reconstructions and elaborations. But instead of affirming the cosmic ubiquity of these figures as had Gui Youguang, Huang argued for their mundaneness and specificity. According to Huang, the *Hetu* and *Luo shu* originally had no cosmological purport or significance. They were really only topographical maps and economic geographies used in high antiquity for administrative and tax purposes.¹⁰¹ Huang Zongyan (1616–86) similarly contended that in ancient times "the *Hetu* and *Luo shu* were geographical records that recorded the contours of mountains and rivers and the rates of land taxes."¹⁰² These seventeenth-century commentators thus reduced the *Hetu* and *Luo shu*, which Han and Song Neo-Confucians had interpreted as the sources of cosmic geometry and numerology, to the level of practical administrative tools and devices. In so doing, they radically subverted

one of the primary bases of traditional cosmographical speculation.

These scholars did not, however, attempt to reconstruct the ancient geographical maps and records that, they claimed, were designated by the terms *Hetu* and *Luo shu*. Nor did they explain precisely how these charts were supposed to have functioned in the government of high antiquity. Their rejection of cosmographical interpretations of the *Hetu* and *Luo shu* did not, in other words, lead directly to the composition of more realistic geographical representations or records.

On the other hand, some of the principal seventeenth-century critics of traditional cosmographical conceptions, particularly Huang Zongxi, Gu Yanwu (1613–82), Hu Wei, and Yan Ruoju, contributed significantly to the revival of geographical studies in that era. Such scholars helped to establish geography as "a precise field of evidential inquiry" and "an important element of concrete studies" (*shi xue*) with applications in such areas as land reclamation and hydraulic works, as Elman has noted.¹⁰³ A possible link between these scholars' cosmographical criticism and their empirical geographical studies may be found in their use and conceptualization of *tu* (a Chinese character that may mean anything from "chart" to "schema") not as cosmological diagrams but as realistic maps. The seventeenth century thus marked a change in the orientation toward space within the tradition of Confucian scholarship, from a concern with cosmological geometry to an emphasis on empirical geography.

96. Lu, *Sanyutang riji*, B.46–47 (note 90).

97. I have not included accounts of Qing criticisms of the classical city plan and the *mingtang*, which in any case are only marginally relevant to the history of cartography.

98. Pi Xirui (1850–1908), *Jingxue lishi* (History of classical studies, printed 1907), annotated Zhou Datong (Taipei: Yiwen Yinshuguan, 1966), 291; idem, *Jingxue tonglun* (Comprehensive discussions of classical studies, printed 1907), 4 vols. (Taipei: He-Lo Tushu Chubanshe, 1974), 1:28; "Hetu Luo shu shuo" (Explanation of the Yellow River chart and Luo River writing) in Song Lian (1310–81), *Song Wenxian gong quanji* (Complete collected writings of Song Wenxian, 1810), *Sibu beiyao* edition, 36.3a.

99. Mao Qiling, *Shang shu guangting lu* (Record of a broad understanding of the documents, seventeenth century), *Siku quanshu* edition, 3.8b–10b.

100. "Yi tu lun" (Discussion of the diagrams associated with the [Book of] changes) in Gui Youguang, *Zhenchuan xiansheng ji* (Collected writings of [Gui] Zhenchuan), *Sibu beiyao* edition, 1.1b, 3a–b.

101. Huang Zongxi, *Yixue xiangshu lun* (Discussion of the images and numerologies associated with the study of the [Book of] changes, written ca. 1661) (Taipei: Guangwen Shuju, 1974), 1.14–15.

102. Huang Zongyan, *Yixue bianhuo* (Exposé of delusions regarding the study of the [Book of] changes, seventeenth century), 5b–6a, in *ce* 132 of *Zhaodai congshu* (A collection of books from our illustrious era, 1876), ed. Zhang Chao.

103. Benjamin A. Elman, "Geographical Research in the Ming-Ch'ing Period," *Monumenta Serica* 35 (1981–83): 1–18, esp. 15.

COUNTERCOSMOGRAPHY AND ANTICOSMOGRAPHY IN QING THOUGHT

The seventeenth-century cosmographical reformation outlined above was confined largely to the sphere of high intellectual history. Throughout the Qing era, the premises and principles of geometric cosmography continued to inform popular culture and even imperial ritual. But the seventeenth-century cosmological critics apparently left their mark on fields as diverse as landscape painting, moral philosophy, and astronomical and geographical thought. At least there is a certain congruence between the sort of cosmos these critics imagined and that conceived by several prominent Qing painters, philosophers, astronomers, and geographers.

Seventeenth-century landscape painters, in particular, might well have sympathized with the remark of the mid-Qing cosmological critic Zhang Huiyan (1761–1802) that “the ways of heaven and earth are invariably uneven and irregular.”¹⁰⁴ Modern historians of Chinese landscape painting have noted the “almost painful distortions” and “tortured forms” in late Ming and early Qing landscape art.¹⁰⁵ In contrast, the work of one of the great Song-era masters, Li Cheng (919–67), has been aptly characterized as animated by a “conviction of a coherence and order underlying surface appearances in nature, the same conviction that inspired Song philosophers to erect the vast and orderly structure of the Neo-Confucian cosmology.”¹⁰⁶ A famous painting, *Xishan xing lü* (Travelers among streams and mountains), by Fan Kuan (active ca. 990–1030), a near contemporary of Li’s, likewise presents “a cosmological vision as grandiose and all-encompassing” as that found in the cosmographical diagrams devised by the great Song Neo-Confucian cosmologist Shao Yong (1011–77).¹⁰⁷ Such grand visions of cosmic order and coherence were apparently no longer possible, or at least were not very convincing, in Qing times. Inasmuch as Chinese landscape paintings were often conceived as cosmograms, schematic representations of heaven and earth, this is surely a significant development in the history of Chinese cosmographical thought, not just in the aesthetics of landscape painting.

A departure from the values of order, regularity, and symmetry that informed Neo-Confucian cosmology and traditional cosmography is also evident in the moral philosophy of the Qing era. Whereas Song Neo-Confucians regarded imbalances and asymmetries in the constitution of the cosmic *qi*, the energetic pneuma, as the cosmological source of evil in the world,¹⁰⁸ some Qing philosophers accepted and even celebrated such irregularities. Yan Yuan (1636–1704), for example, remarked that deviation from the mean was potentially as moral a position as balance and centrality. For “although open and obstructed, straight and bent all have their differences,

the pneuma and pattern that fills the universe is the same everywhere.”¹⁰⁹ Hence proper moral cultivation might begin from any point on the moral map, not just the mean position. Yan, indeed, included several such maps in his *Cunxing bian* (Treatise on preserving the nature) as a guide to show how those with different endowments or propensities might improve their moral stance.¹¹⁰ Although these “maps” are not geographical in any sense, they do illustrate how graphic representations or *tu* came to be applied in moral philosophy as well as in the sciences of the heavens and the earth.

The seventeenth-century recognition of imbalance, asymmetry, and irregularity in the world and a preference for natural rather than geometric lines of division appear in the astronomical and geographical thought of the period, as well as in its landscape art and moral philosophy. These inclinations even influenced the Chinese reception of the European cosmography and astronomy introduced into late Ming China by Jesuit missionaries. Wang Fuzhi, for example, rejected the theory of the spherical earth propounded by the Jesuits, arguing that “since it is in some places level, in others steep, in some places recessed and in others convex, then wherein lies its sphericity? . . . Thus from the earth’s inclines, irregularities, heights, depths, and vastness, it is clear that it has no definite form.”¹¹¹

104. Zhang, *Yi tu tiaobian*, 28a (2:1007) (note 39).

105. Michael Sullivan, *A Short History of Chinese Art* (Berkeley and Los Angeles: University of California Press, 1967), 226; James Cahill, “Style as Idea in Ming-Ch’ing Painting,” in *The Mozartian Historian: Essays on the Works of Joseph R. Levenson*, ed. Maurice Meisner and Rhoads Murphey (Berkeley and Los Angeles: University of California Press, 1976), 137–56, esp. 149.

106. James Cahill, *Chinese Painting* (Geneva: Editions d’Art Albert Skira, 1960; reprinted New York: Rizzoli International Publications, 1977), 32.

107. Michael D. Freeman, “From Adept to Worthy: The Philosophical Career of Shao Yong,” *Journal of the American Oriental Society* 102 (1982): 477–91, quotation on 484.

108. See, for example, Zhang Zai (1020–77), *Zhangzi zhengmeng zhu* (Master Zhang’s correcting youthful ignorance with commentary) (Taipei: Shijie Shuju, 1967), 3.92–93; and Cheng Hao (1032–85), *Henan Chengshi yishu* (Surviving works of the Chengs of Henan, 1168), ed. Zhu Xi, in *Er Cheng quanshu* (Complete works of the two Cheng [brothers], collected 1323), *Sibu beiyao* edition, 2A.1b.

109. Yan Yuan, *Cunxing bian* (completed 1669, first printed 1705), 2.29–30, in *Sicum bian* (Treatises on the four preservations) (Taipei: Shijie Shuju, 1966).

110. For graphic illustration of Yan Yuan’s moral maps, his seven “diagrams of human nature” (*xing tu*), see Yan, *Cunxing bian*, 2.24–33 (note 109). Some of these diagrams, with a more detailed explanation of their contents, may also be found in John B. Henderson, *The Development and Decline of Chinese Cosmology* (New York: Columbia University Press, 1984), 236.

111. Wang Fuzhi, *Siwen lu, waipian* (Record of intellectual inquiry, outer chapters, seventeenth century), 63, in *Lizhou Chuanshan wushu* (Five books by [Huang] Lizhou and [Wang] Chuanshan) (Taipei: Shijie Shuju, 1974).

Seventeenth-century scholars and astronomers criticized European celestial cartography and calendrics on similar grounds, arguing that Western astronomers had overlooked natural irregularities and anomalies in their quest for geometric order and mathematical precision. Wang Xichan (1628–82), for example, contended that the Western division of the celestial sphere into 360 degrees was an unnaturally neat schema whose only merit was that it aided computation.¹¹² Like other prominent scholar-astronomers of his era, Wang preferred to measure the great circles of the sphere by $365\frac{1}{4}$ degrees (corresponding to the number of days in a tropical year) as Chinese astronomers had done since the Han era. The units in this cartographical schema corresponded to a natural measure of celestial time and space, the sun's daily movement on the ecliptic, even though they added up to a rather irregular and unwieldy sum. Abandoning this natural measure for an artificially uniform schema, said Wang Fuzhi, would be as senseless as arbitrarily rounding off the lengths of Chinese dynasties in order to produce historical units of uniform duration.¹¹³

Both Wang Xichan and Mei Wending (1633–1721) raised similar arguments against the Western solar calendar introduced by Jesuit missionaries into seventeenth-century China. They objected particularly to the constitution of the months in the Western calendar, pointing out that they did not correspond to lunations or any other natural cycle but were merely conventional divisions of the solar year.¹¹⁴ The Chinese lunisolar calendar, these scholar-astronomers admitted, had major drawbacks, particularly the problem of intercalation. But the native calendar at least made it possible for cartographic and calendrical standards to conform to natural divisions and cycles, in this case those of the sun and the moon.

Some Ming and Qing scholars posed yet more radical criticisms of both traditional Chinese and contemporary Western cosmographical standards. They did not stop with the contention that demarcations of space and time should follow naturally irregular contours and cycles. Instead, they went on to devise a sort of anticartography or anticartography that looked askance at the formulation or imposition of clear, definite boundaries of any sort—spatial, temporal, or cosmographical. Wang Tingxiang (1474–1544), for example, objected to a Han-era cosmologist's division of the year into two finely distinguished units of yin and yang months (corresponding to the cold and hot seasons, respectively) on the grounds that these two pneumatic powers were inextricably intermingled: "There was never a case of pure yin without yang or pure yang without yin."¹¹⁵ Lü Kun (1536–1618) asserted that the famous circular diagram of the yin and yang that depicts them as separated by an S-shaped curve also distorts the face of reality, for the interactions between the yin and yang are too subtle to be portrayed

graphically.¹¹⁶ Even heaven and earth, said Fang Yizhi, mutually interpenetrate in such a way as to preclude drawing a sharp line of distinction between the two.¹¹⁷

Thus the cosmographical ideas of late Ming and Qing scholars contravened those that dominated earlier cosmographical thought in China. Yet there are some Chinese antecedents for these critics' departures from the schematic cosmographical conceptions of their orthodox predecessors. One of these might be found in Chinese geomancy, with its preference for naturally undulating and meandering lines, as noted above. Philosophers associated with Daoism, who celebrated the anomalous, the irregular, and even the freakish aspects of nature, might also have struck a responsive chord with seventeenth-century cosmological critics, some of whom wrote commentaries on the Daoist classics. Those who did so, or were otherwise familiar with heterodox literature, might well have appreciated the following passage from an important syncretic text of the fourth century A.D., the *Baopuzi* ([Book of] the master who embraces simplicity):

Life and death, beginning and end, are indeed the great laws of the universe. Yet the similarities and differences of things are not uniform. Some are this way and some are that. Tens of thousands of varieties are in constant change and transformation, strange and without any definite pattern. Whether things are this way or that, and whether they are regular or irregular in their essential and subsidiary aspects, cannot be reduced to uniformity.¹¹⁸

But unlike Daoist philosophers, Qing scholars sometimes attempted to apply such principles and precepts practically to the sciences of the heavens and the earth, particularly astronomy and geography. Whereas Browne saw quincunxes everywhere, "in Heaven above . . . in

112. "Zi xu" (author's preface) of Wang Xichan, *Xiaoan xinfa* ([Wang] Xiaoan's new system, 1663), in *Xiaoan yishu* (Surviving works of [Wang] Xiaoan, comp. ca. 1682), 1.2b, in *ce* 31 of *Muxi xuan congshu* (A collection of books from Muci Studio), comp. Li Shengduo, 40 vols. (1883–91).

113. Wang, *Siwen lu, waipian*, 53 (note 111).

114. Wang, *Xiaoan xinfa*, 1.2a–3a (note 112); Mei Wending, *Lixue yiwu* (Queries on astronomical studies, presented 1702), pt. 2, in *Meishi congshu jiyao* (Epitome of Mei's collected works, printed 1771), ed. Mei Gucheng (d. 1763) (Taipei: Yiwen Yinshuguan, 1971), 47.1b.

115. Wang Tingxiang, *Jiacang ji* (Writings for the family repository, published ca. 1636–37), in *Wang Tingxiang zhexue xuanji* (Selected philosophical works of Wang Tingxiang, 1965) (Taipei: He-Lo Tushu Chubanshe, 1974), 167.

116. Lü Kun, *Shenyin yu* (Groaning words, 1593) (Taipei: He-Lo Tushu Chubanshe, 1974), 1.53.

117. Fang Yizhi, *Dongxi jun* (The adjustment of things, 1653) (Beijing: Zhonghua Shuju, 1962), 95–96.

118. Ge Hong (283–343), *Baopuzi*, *Sibu beiyao* edition, pt. 1 of 8, 2.2a. I have followed the translation of this passage given in *Sources of Chinese Tradition*, 299 (note 17).

earth below,” and Han-era cosmographers applied the nonary square, the nine-palace formation, to the ordering of practically every realm of space, some Ming and Qing scholars regarded anomaly (*cha*) and irregularity (*buqi*) as constitutive of the structure of space and time.¹¹⁹ Anomalies appeared in the heavens in such forms as the precession of the equinoxes, the “annual difference” (*sui-cha*) between the lengths of the sidereal and tropical years, the inequalities of solar and lunar motion, and the retrograde motion of the planets. On the earth, irregularities took the form of topographical peculiarities and the historical changes in landforms and landscapes that so disturbed seventeenth-century scholars like Gu Yanwu.¹²⁰ Such anomalous movements were not simply complicating factors for which adequate adjustment could be made in calculation. Rather, they were woven into the fabric of the cosmos. They made it unlikely that any cosmographical, astronomical, or geographical model, not just the nonary grid, could be serviceable for very long at a time.¹²¹

CONCLUSION

Despite the cosmological criticisms expressed by seventeenth-century scholars, vestiges of geometric cosmography and even of the nonary grid have survived in modern Chinese culture. Even the centerpiece of modern-day Beijing might well be regarded as modeled on the nonary square, or at least on the Greek cross. At the center of the capital is the largest public square in the world. To the north stand the monumental Gate of Heavenly Peace (Tiananmen) and the old imperial palace, and due south loom the equally massive Front Gate (Qianmen) and the Mao Zedong Memorial Hall. Symmetrically disposed to the east and west of the square are the Museum of Chinese History and the Great Hall of the People. The total effect of this complex is overpowering in its monumental symmetry.

Inasmuch as most of the structures in this array, including the large public square that stands at the center, were established or erected under Communist rule, their disposition might well be taken as evidence that China’s contemporary leaders, like their imperial predecessors, regard the proper ordering of space as an effective means of political control. Indeed, before the advent of such modern-day mass media as newspapers, radio, and television, the ordering of space may well have been the most widely employed instrument of political and cultural propaganda in many civilizations, especially those of South and East Asia. Insofar as the traditional cosmographical orientations outlined in this chapter persist among the folk in such cultures, cosmographical models may still be used to accomplish political goals like enhancing the legitimacy of the ruling powers who have created a model of heaven on the surface of the earth, an order not to be marred by such asymmetrical monstrosities as a goddess of democracy.

119. For illustrations of this viewpoint, which was anticipated by earlier Chinese astronomers, see Wang Tingxiang, *Shenyan* (Prudent words, 1533), in *Wang Tingxiang zhexue xuanji*, 56 (note 115); and Jiang Yong (1681–1762), *Shu xue* (Mathematical studies, ca. 1750) (Shanghai: Shangwu Yinshuguan, 1936), 1.26, 28–29.

120. For Gu’s comments on how the physical geography of China, particularly of the once prosperous Northwest, had changed since antiquity, see his essay on the “Jiu zhou” (nine regions) in *Yuanchaoben Rizhi lu* (The original manuscript version of the Record of daily knowledge, 1958) (Taipei: Minglun Chubanshe, 1970), 23.626–27.

121. There is a superficial resemblance between Qing scholars’ antic cosmography and contemporary chaos theory, which poses “a geometry of the pitted, pocked, and broken up, the twisted, tangled, and intertwined.” For just as Qing scholars elevated anomalies and irregularities to the status of ultimate principles, so chaos theorists look upon “pits and tangles” as “more than blemishes distorting the classic shapes of Euclidean geometry. They are often the keys to the essence of a thing.” James Gleick, *Chaos: Making a New Science* (New York: Viking, 1987), 94.