Urban Planning in Pre-Industrial China

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In this article Dr. Nelson discusses the importance of the political and ideological dimensions of urban planning in pre-industrial China and challenges modern urban planners, particularly those from the West, to address these concerns in the context of planning and analyzing modern Chinese cities. Dr. Nelson is an archaeologist and associate professor of anthropology at the University of Massachusetts.

China has been a focus for the evolution of urban civilization for 3,600 years. A theory of urban planning was first developed in the Shang Dynasty (from c. 1600 BC) as a means of ensuring social order and political control within the Chinese state as a whole. As the agrarian state grew in size and complexity, absorbing and subordinating numerous cultural traditions, this theory of urban planning was elaborated by the government itself, as a matter of cultural policy, and so came to be one of the most important traditions governing the structure and operation of the Chinese state. Indeed, this traditional system of urban civilization was so closely tied to social control and the application of political power that conquerors of China, such as the Mongols and Manchus, were compelled to become Chinese in order to secure the fruits of their conquests.

Just as the absorption of the Mongols and Manchus can be viewed as the outcome of a cultural confrontation between Chinese urban civilization and specific forms of "Asian barbarism," the recent history of China may be viewed as an analogous conflict between the Chinese urban system and the spread of the industrial revolution. This conflict, which is still far from resolved, poses the greatest external challenge ever faced by Chinese civilization. As the traditional structure of Chinese urban civilization interacts with the requirements of developing and maintaining a modern industrial state, a new system of urban adaptation is evolving which may have far reaching consequences in the world of the the twenty-first century. To appreciate these possibilities, we must understand the structure and development of traditional Chinese urban civilization over the three millennia preceding China's industrial revolution.

The Early Development of Urban Civilization

The earliest cities in China arose during the Shang Dynasty, a period also marked by the development of bronze technology, the first elaborate system of writing, ceremonial religious centers, public roads, monumental public architecture, large scale warfare, taxes and an agrarian peasantry. These, of course, are the trappings of the ancient state, and Shang cities were designed and constructed to personify the state and provide innumerable administrative functions required by a government which ruled a kingdom of more than 100,000 square miles and controlled several, smaller vassal states.

The technology required to build cities actually existed during the Neolithic period centuries before the construction of the first Shang city. By 2000 BC, villages were being constructed with walled ramparts or rammed earth enclosing as much as 35 acres. The rectilinear shape, position of gates and orderly division of space within late Neolithic villages clearly foreshadow the structure of early Chinese cities, while house foundations suggest the use of classical Chinese beam-and-frame construction easily adapted to the creation of large, public buildings.

Indeed, the first Chinese cities represent more of a political and religious development than a basic technological innovation. The ancient word for city is *yi*, which signified "urban center," "capital" or "ceremonial center" during the Shang period. The Shang ideograph for yi is a man kneeling beneath an enclosure (Fig. 1). The enclosure represents the wall of the city, the power of the capital as the center of the state and the moral authority of the state religion; the kneeling man represents the submission of all people to the temporal and spiritual authority of the state as personified in the creation of the city. Thus, the earliest cities contained the mound and alter to the local god of the earth, facilities for

divination, the mound and temple to the ancestors of the king, the palace of the king, and buildings given over to administration, storage of goods and food, and military offices.

Notice that the ideograph for yi appears lo exclude the concept of the city as a commercial center, or market, an omission which was evidently quite deliberate. Although the archetypical Chinese city included a market of sufficient size to serve the immediate needs of the capital, it was strictly controlled by the state and its independent commercial potential deliberately suppressed. Also, as at the Shang city of Ao, abandoned around 1,400 BC, commercial activities of an industrial character, including bronze working, bone working and pottery manufacture, were excluded from the walled portion of the city. It is only with the later spread of urban civilization that commercial markets come to be viewed as essential aspects of the city.

Urban civilization spread rapidly in China. By the Spring and Autumn Period (722 to 481 BC), there were at least 210 cities and several contending city states within China. Some of these were quite large and well organized in an urban, political hierarchy including national, provincial and district capitals. As China was unified under the Qin (221 BC) and the resulting empire elaborated and expanded under the Han (206 BC to 220 AD), the hierarchical structure of urban centers, city planning, and administrative and transportation networks between population centers were carefully developed to extend the principles used to organize the traditional capital (*yi*) as the administrative hub of the state.

In the 800 years preceding the unification of China, contending states elaborated the Shang concept of the city to develop competing urban traditions. These differed in detail but were expressions of shared cosmological concepts that were translated into principles of city planning that reflected the aims and organization of the state. In this cosmology, the capital city was the embodiment of the state, itself, and the link which unified heaven, man and earth, the three intelligible components of the universe. The supreme god ruled in the center of heaven, animating the universe with *qi,* the heavenly breath, and sanctioning the rule of worthy kings with heaven's mandate. The center of heaven was marked by the pole star, so qi was distributed to earth along the polar meridians. Hence, ancient Chinese cities were laid out along the polar meridian, with walls and gates spread to face the cardinal directions, encompassing the social world of men even as the bow of heaven encompassed the greater universe. The main entry, by which common mortals passed into the city, naturally lay at the south end of the polar meridian. The placement of the city and shape and location of its walled enclosures, the position of the palace, administrative buildings, temples and markets, and the architecture of buildings all flowed from these cosmological principles as they were interpreted by geomancers and architects.

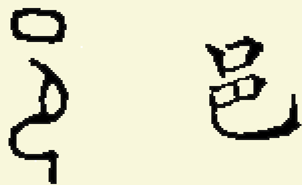

Figure 1. Archaic and modern forms of *Yi*, the ancient word for city.

But this symbolism was not simply the abstract domain of architects and geomancers. It pervades the functional infrastructure of ancient Chinese cities. Since the city is seen as the sacred and political essence of the state, it is us.,d to house only those persons, institutions and activities which are clearly required to operate the administrative and religious functions of the state. Thus, commercial functions are not intrinsic to the concept of the city, per se, because they are not required for its excluded altogether, but as cities grew in size and complexity, economic interests were incorporated into the structure of capitals by creating a city *outside* of a city. Looking at maps of ancient Chinese capitals, we naturally think of the imperial enclave as a city *within* a city, but this is incorrect. The greater city surrounding the sacred and administrative core of the state evolved to accommodate commerce as urban civilization spread throughout China. This development was seen as the natural outcome of the distribution of qi, which flowed out of the secular and sacred embodiment of the state within the core city, *yi*, creating the greater urban environment of the commercial city.

At one level of existence, the ancient state and its cities were cosmic constructions designed to capture, channel and distribute the life-giving force of *qi* throughout the state, thus justifying the structure of the state as embodied in the structure and interrelationships of its cities. Every city created by a king to serve the state was designed to carry forward this sacred task, locally directing *qi* and securing the mandate of heaven. Qin Shihuangdi, founder of the Qin dynasty (221 to 206 BC) and the first emperor to unite all China, took this responsibility very seriously indeed. He is reported to have copied exactly the palace of each rival capital which he defeated, erecting it within the precincts of his own imperial capital at Xian in order to focus there all the *qi* from heaven's mandate. He also razed the ceremonial mounds, public buildings and city walls of every conquered city, removing the secular and religious infrastructure of his rivals. Thus, he united China spiritually and sanctified his own bold actions.

These rudimentary theories of urban planning and the structure of the state form the basis for the development of later planning codes and are reflected, even today, in the organization of modem China.

Beijing, the present capital of China, retained this traditional structure until 1949, when the government of new China began to remove the outer city walls to accommodate urban growth. The capital, the essence of the Chinese city, still survives to this day, however. Here the Forbidden City (Gu gong) is surrounded by the Imperial City (Zhong Nan Hai) which now sits amidst the less well defined urban sprawl of Beijing. The southern gate of the Forbidden City is still called the Meridian Gate and the leaders of China still reside within the old Imperial City. It is tempting, though no doubt naive, to believe that Chinese philosophers a thousand years from now will view the leaders of new China as true masters of *qi*, directing its vast energies through the Chinese people to create a modern industrial state.

Reformation and Codification of City Planning in the Han Dynasty

The process of unification under the Qin was brutal and destructive. By 215 BC, all the great capitals of ancient China outside the state of Qin were raised utterly, their officials killed or dispersed and their archives largely destroyed. Although much ancient knowledge was centralized in the great archive at Xian, this in turn was destroyed in the great civil war which led to the establishment of the Han empire in 206 BC. The Han, bereft of codified rules for city planning and government administration, instituted a great search for surviving scraps of archival data which they used to create an elaborate code that governed city planning and the administration of the state. This synthesis drew on the principles of archaism, centralism, organicism and moralism.

Archaism sought to trace heaven's mandate through the succession of previous dynasties, using ancestor worship, ancient architectural forms, and principles of spatial and administrative organization to justify the Han imperial state. Hence, the structure of cities should accord with ancient tradition and the capital should contain embodiments of the ancestral halls of earlier dynasties to facilitate dynastic ancestor worship and so obtain their blessing and mandate.

Centralism held that China was the Central Kingdom in the universe, the capital was the center of the empire as a geocosmic entity, and the emperor was the animating pivot around which the activities of the empire revolved. Sanctification and power devolved from the imperial capital in a concentric, compartmentalized hierarchy in accordance with a model not unlike central place theory. Hence, the imperial capital was linked to the empire through an urban hierarchy of provincial capitals, state capitals, county capitals, district seats, communes (10 per district), and hamlets (10 per commune). Hamlets were divided into wards of five or ten families which had collective responsibility for one another's conduct. All capitals were walled cities. At the height of Han power, there were 14 provinces, 103 states and 1,577 counties, a total of more than 1,650 cities employed in the administration of the empire.

Organicism was elaborated in the context of the Confucian tradition form the augury system in the *Book of Changes*, the school of the Five Elements, the *Dao* elaboration of the ideal world, the school of opposites *(yin-yang)* and the theory of emblematic numbers in which three, nine and twelve were of particular importance. Three is the number of components in the universe. Nine is three times three and is emblematic of the ancient Chinese world because Emperor Yu established the original nine provinces of China. Twelve is nine plus three and the number of months in the year. Divided by the four seasons, which quarter time just as the directions quarter space, twelve yields three months, devolving to the root of all fundamental numbers. Hence, the central government was headed by a cabinet of three ministers for finance, defense, and public works. Lower in rank were nine administrative ministers for other essential state functions.

Moralism established the moral right of the emperor to rule and utilized the classic writings of ancient Chinese scholars to interpret the moral universe and justify the social organization of Chinese society.

The synthesis of these four principles led, in the pursuit of urban planning, to Han reinterpretation of the *Zhou li*, an ancient document attributed to a statesman of the early Zhou period (ca. 900 BC). This synthetic Han view (Fig. 2) established an elaborate structural and organizational ideal which has been a major influence in the development of all subsequent traditional cities in China The ideal capital city is a perfect square, each nine *li* on a side, bisected by a central meridional axis so that it forms the ideographic character for earth and China, and models the structure of the earth which the Han thought to be square. The palace city is at the center, surrounded by an administrative complex and finally the outer city, mirroring the division of the universe into three levels as well as symbolizing the moralist division of Chinese society into the emperor, scholar-administrators, and commoners.

The outer city was divided into four quarters

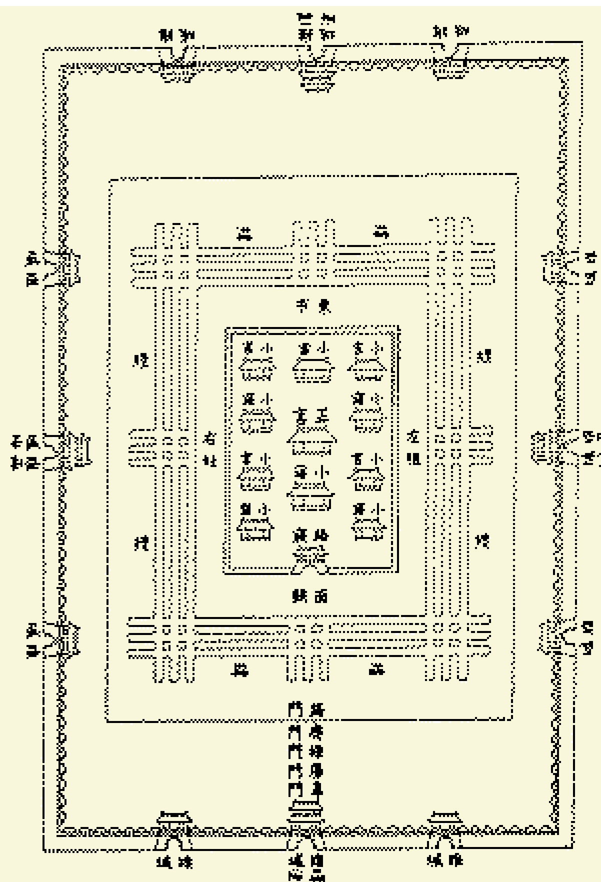

Figure 2. The ideal structure of the capital as conceptualized during the Han dynasty (from Paul Wheatley, *The Pivot of the Four Quarters*, Aldine, 1971).

along the cardinal axes. Each quarter was subdivided into wards with enclosing walls and gates, and each ward was divided into four quarters. There were twelve city gates, three in each of the walls, representing the twelve months of the year. These gates define a grid work of major thoroughfares of which the north/south are of primary importance in defining the use of space and movement within the city. This is in keeping with the orientation of the city to heaven's pole, with its principle gate where the meridional axis bisects the south wall. Secondary avenues arc distributed among the major thoroughfares to produce a grid of nine north/south and nine east/west streets. Palaces, administrative buildings, temples, ancestral halls, cemeteries, living quarters, parks and other activities are assigned specific spaces within the city in accordance with their religious and political functions within the structural cosmology as adduced in the *Zhou li.*

The correspondence between architectural space, social status and social role is so close that royal and civil titles often reflect the geometry of the city as much as they do the function of the official, e.g. gentlemen of the left palace, major of the seventh gate, assistant secretariat supervisor of the right, bureau for superintending guests of south and north, director of the yellow gates.

Economic Organization and the Growth of Urban Civilization in China

The ancient Chinese concept of the city state is a rigid administrative hierarchy modeled in the structure of the city and the specific needs of its rulers. Incorporation of early Confucian moralist concepts in the Han system of Urban planning and the judicial codes held that the wealth of any community could only be enjoyed by some at the expense of others. Since this wealth was determined by primary production, necessary occupations were encouraged and inessential occupations suppressed. Therefore, commercial and financial operations for private gain were inherently immoral and were tolerated to the extent they were considered necessary to the function of the state. Yet urban civilization depends on resources and people who are not found in cities, on economic relationships between cities and on the commerce and financial transactions which must transcend the hierarchical structure of the state.

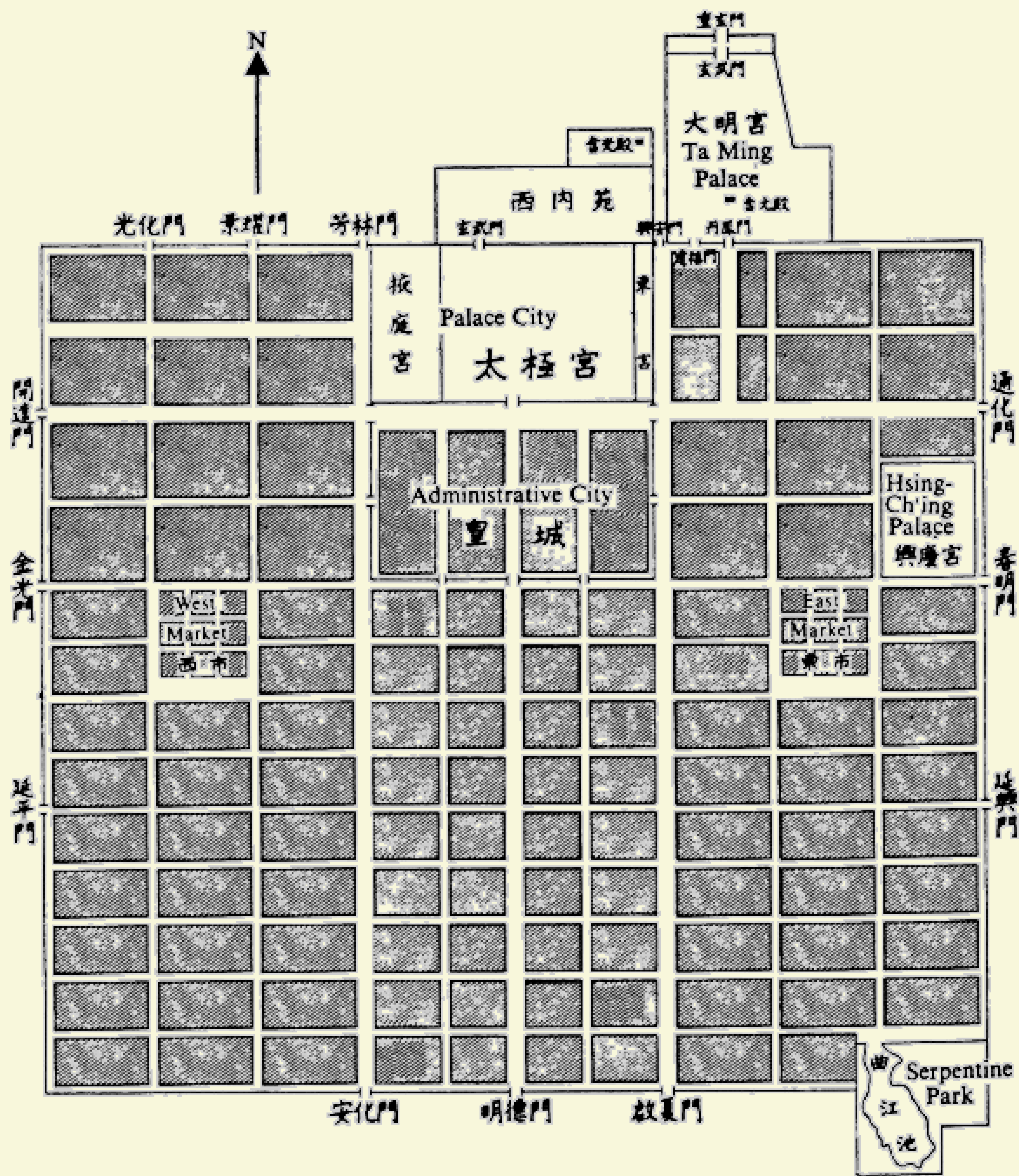

Figure 3. The Tang capital of Chang-an
(after G.W. Skinner, *The City in Later Imperial China*, Stanford University Press, 1977).

The Qin, Han and their successors realized these things and adopted numerous measures to make the state a more efficient political and economic institution. The most successful of these measures, such as the improvement of roads and canals, the building of the great wall and the establishment of a secular (non-religious, non-royal) civil service, were designed to isolate and reduce the functional geography of the empire so that it more closely resembled in scale the ideal model of the ancient city state. However, these improvements also served to entrench that ideal, making it even more difficult to adopt radical political or economic solutions. Thus, even in Han times, after commercial markets were accepted as necessary institutions in the city and state, they were still ideally relegated to the north side of the outer city, the least important area in the Daoist interpretation of spatial opposites. Moreover, they were rigorously regulated as state monopolies. Similarly, important commercial activities, such as those surrounding the trade and use of iron and salt, were held as government monopolies. Merchants were tolerated as a necessary anomaly in the structure of human society and treated as second class citizens, their sons prohibited from achieving administrative or scholarly rank within the civil service.

The close regulation of commercial activities can still be seen in the capital city of Chang-an during the Tang dynasty (618 to 907 AD) when it contained upwards of a million people (Fig. 3). Here, the palace and administrative cities have been moved to a block backing on the north wall of the city. Gate, street and ward structure is more complex than prescribed in Han ideals, but still uses the correct alignments and integrates the proper numerological formula, maintaining spatial units in groups of 3, 9, 12, 36, and 108. Buildings with religious functions are correctly placed and the markets, though large and conveniently located, are not allowed to intrude on traditionally sacred or political space and are still tightly controlled by the government.

The first imperial capital which fully integrated and promoted the development of commercial activities was Kaifeng, center of the Liang and Northern Song dynasties. By 955 AD it had grown into the largest and most complicated urban center in the world. Here both public and private commercial enterprises were pursued throughout the administrative and outer cities, being excluded only from the imperial city and imperial way which led, as of old, from the southern gate. As commercial cities arose in China, the concept of the city, itself, changed. This is reflected in the modern ideograph for capital, which combines the symbols for "market" and "walled city" (Fig. 4). This signifies the inclusion of commercial activities with the walled city as well as the coeval status of the commercial world of the greater city and the imperial world of the ancient walled city glossed by the ideograph for yi. Linguistically, these are treated as though they are separate and equal. The importance of commerce is also reflected by the increasing numbers of cities and towns at which there we not administrative centers. By the end of the Qing dynasty (1893 AD), 13% of regional cities, 10% of greater sub-regional cities, 16% of local cities, 34% of central market towns, 98% of intermediate market towns and 99.5% of small market towns existed outside the official administrative hierarchy of the empire.

Figure 4. *Du*, the modern word for capital, in its modern and archaic forms.

As the state evolved in China, three semi-independent systems for social and economic control were developed. Because the state defined itself in religious and administrative terms, the formal apparatus for social and economic control centered on a pyramidal hierarchy of corporate groups controlled by religious and administrative institutions. This hierarchy began with the emperor and terminated with all the individual households making up the population of the state. Its organizing principles, which articulated people across urban and rural spaces, required that populations be immutably fixed and stable. Hence, the movement of individuals between the geographic spaces and social levels with this hierarchy was strictly controlled by law, administrative policy and custom. Administratively, these were enforced by an hierarchy of administrative centers associated with cities of descending size and complexity that were organized and staffed by the government of the imperial capital.

Smaller communities, and the wards and quarters of cities, were organized and staffed locally, but directed by the administrative elite. Religiously, every space down to the level of the individual ward was provided with a temple which organized a wide variety of social activities and helped to identify and fix the membership of each local residential unit. Movement between these residential units was closely monitored and controlled by the state, an organizational principle which inhibited and restricted the growth of a commercial class. In sharp contrast, economic organizations such as guilds developed as private associations with their own codes of conduct. contractual forms, offices, penalties and services. Such associations fostered an environment in which commercial activities could take place, mediated between merchants and officials of the empire, and assured contractual relationships in the absence of a civil penal code.

Note that sharp organizational distinctions were not made using the Western urban/rural dichotomy. In the traditional Chinese point of view, the urban/rural continuum is truly continuous and urban civilization is a complex web of relationships which must be carefully fostered as one might foster a social ecology. Given the population and size and density of new China, great care must be taken in introducing the technology of industrial urban planning or the fabric of Chinese civilization could be altered disastrously. Indeed, it can be argued that such introductions have already played an important part in the violent restructuring of Chinese civilization in the twentieth century.