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ARCHAEOLOGY AND MENTALITY: THE MAKING OF CHINA

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The great problem for a science of man is how to get from the objective world of materiality, with its infinite variability, to the subjective world of form as it exists in what, for lack of a better term, we must call the minds of our fellow men.

—Ward H. Goodenough¹

COMPARATIVE STUDY of the differing ways in which major civilizations made the transition from the Neolithic to the Bronze Age has, in recent times, generally emphasized such common factors as developing social stratification, emergence of complementary hierarchies in the political and religious spheres, and complex division of labor.² In China, the transition from a kin-based, Neolithic society to an Early State, Bronze Age civilization—represented by the Late Shang cult center (ca. 1200–1045 B.C.E.) at Yinxu in northern Henan (see fig. 1)—may be characterized in such universal terms. Increasing sophistication in tool production in particular, and in lithic, ceramic, and construction technology in general, may be associated with increasingly sharp distinctions in economic and social status, concentration of wealth, declining status of women, development of human sacrifice, and the religious validation of exploitation and dependency. By the Late Shang an elite minority of administrators, warriors, and religious figures was controlling, and benefiting from, the labors of the rest of the population.³

Such analyses show us how Chinese civilization followed certain general patterns of social development, how the early Chinese were the same as other peoples. But if we are to understand more deeply the development of the Shang, and of the classical Chinese civilization that followed, we also need to consider the features that made the Shang different.

The features which characterize early Chinese civilization include millet and rice agriculture, piece-mold bronze casting, jade working, centralized, proto-bureaucratic control of large-scale labor resources, the strategic role of divination, a logographic writing system, a highly developed mortuary cult, and the development of social values, such as *xiao* (filiality), and of institutions, such as ancestor worship and the custom of accompanying-in-death, that stressed the hierarchical dependency of young on old, female on male, ruled upon ruler. The complex



Figure 1 The major archaeological sites discussed in this essay.

manner in which these elements coalesced, fed upon, and encouraged one another lies at the heart of our understanding of Shang civilization.

All these and, no doubt, other features of early Chinese culture need to be studied comparatively and explained, that is, related genetically and structurally, to the other features of the natural and man-made environment if we are to understand what made China Chinese. The more modest intent of this article, however, is not to address such comparative questions directly but to suggest new ways of approaching the Chinese archaeological evidence as a preliminary to such comparative analysis.⁴ In what follows, I shall limit myself to the pre-Shang evidence, attempting to identify the particular features that reveal prehistoric habits of thought and behavior that were to play, I believe, a strategic role in the genesis of Shang culture.

I am aware that I occupy disputed ground in attempting to link artifacts to mentality. “New” archaeologists have declined to explain the past in mental terms, on the grounds that neither the thoughts nor the activities of individual actors are available to us.⁵ My own position is more traditional, in that I wish, so far as possible, to ask historical and cultural questions of the material data, directed to particular events and the meaning they had for their participants. This places me

among the ranks of the cognitive anthropologists, as indicated, for example, by the epigraph at the head of this essay. As Ian Hodder has written:

All daily activities, from eating to the removal of refuse, are not the result of some absolute adaptive expedience. These various functions take place within a cultural framework, a set of ideas or norms, and we cannot adequately understand the various activities by denying any role to culture....

Behind functioning and doing there is a structure and content which has partly to be understood in its own terms, with its own logic and coherence.⁶

I believe that material culture expresses and also influences, often in complicated, idealized, and by no means exact ways, social activity and ways of thinking, and that the goal of archaeology must be *comprendre* as well as *connaître*. I do not use the word *ideas* in what follows, but I do attempt to infer, from pots and other artifacts, some of the structure and content of the mental activities that underlay the behavior of China's Neolithic inhabitants. Readers must judge for themselves whether the risks taken in this exploratory essay are worth the insights gained.

The essence of my argument is twofold. First, I assume that the way people act influences the way people think and that habits of thought manifested in one area of life encourage similar mental approaches in others. I assume in particular that there is a relationship between the technology of a culture and its conception of the world and of man himself, that "artefacts are products of human categorization processes,"⁷ and that style and social process are linked.⁸ It is this assumed linkage that encourages me to think in terms of mentality, whose manifestations may be seen in various kinds of systematic activity. If it is true that "the philosophies of Plato and Aristotle [strongly] bear the imprint of the crafts of weaving and pottery, the imposition of form on matter, which flourished in ancient Greece,"⁹ and if pottery manufacture, in particular, can, in other cultures, be found to reflect social structure and cultural expectations,¹⁰ then we are justified in attempting to discern similar connections in the crafts of prehistoric China. Artifacts provide clues, incomplete and distorted by material constraints though they must be,¹¹ to both the social structure and the mentality of those who made and appreciated them. To quote Hodder again, "the artefact is an active force in social change. The daily use of material items within different contexts recreates from moment to moment the framework of meaning within which people act."¹²

Second, I assume that one of the essential features that distinguished Bronze Age from Neolithic mentality, in China as elsewhere, was the ability to differentiate customs that had hitherto been relatively undifferentiated, to articulate distinct values and institutional arrangements, to consciously manipulate both artifacts and human beings. This is not to claim that prehistoric man did not make distinctions or that he was not conscious of what he was doing. The difference is one of degree. In the prehistoric evidence, accordingly, I shall be looking for signs of enhanced differentiation, for signs of increasing order in both the material and mental realms, for signs of what Marcel Mauss called the "domination of the conscious over emotion and unconsciousness."¹³

Two Cultural Complexes

With regard to the purposes of this paper, I believe that we can make considerable sense of the Chinese Neolithic without having to reconstruct, prematurely, the entire picture of its cultural development, desirable though the attainment of such a goal eventually will be. If we are not yet able to map the development of every Chinese cultural trait with assurance, and if, in particular, we are not yet able to determine whether similarity of traits in various Chinese sites and regions is *homologous*, implying genetic connection, or merely *analogous*, implying independent invention but convergent development, I nevertheless hope that this paper will demonstrate the importance of mapping certain, strategic traits by both space and time.

Even though it is important to think, both first and last, in terms of a mosaic of Neolithic cultures whose edges blur and overlap (see fig. 1),¹⁴ I believe that, for analytical purposes, one can—with all due allowance being taken for the crudity of the generalizations involved—still conceive of the Chinese Neolithic in terms of at least two major cultural complexes: that of Northwest China and the western part of the Central Plains, on the one hand, and that of the East Coast and the eastern part of the Central Plains, on the other.¹⁵ I shall, for simplicity, refer to these two complexes, which should be regarded as ideal types, as those of the Northwest and the East Coast (or, more simply, East). There were numerous regional cultures within these two complexes. In the sixth and fifth millennia, for example, cultures like Laoguantai, Dadiwan, and Banpo flourished in the Northwest; cultures like Hemudu, Qinglian'gang, and Majiabang arose in the area of the East Coast. The interaction between the two larger complexes is of great significance. By the fourth and third millennia, one sees East Coast traits beginning to intrude in both North China and the Northwest, so that the true Northwest tradition reaches its fruition during the third millennium in Gansu and Qinghai while fading away in the region of the Central Plains and even in the Wei River valley.¹⁶ As we shall see, the emergence of Shang culture in the Central Plains (ca. 2000 B.C.E.) owes much, though not all, to this infusion of elements from the East.

With assumptions and terminology thus established, I should now like to turn to the two central questions of this essay: what did the peoples of prehistoric China do? And what significant cultural conclusions can we draw from their activities?

Pottery Manufacture

Broadly considered, the essential characteristics of the East Coast ceramic tradition (figs. 2–13) include the following features: 1) pots were unpainted; 2) angular, segmented, carinated profiles were common; 3) pots were frequently constructed componentially; and 4) pots were frequently elevated in some way.¹⁷ The ceramic tradition of the Northwest (figs. 14–15), by contrast, was characterized by a more limited repertoire of jars, amphoras, and round-bottomed

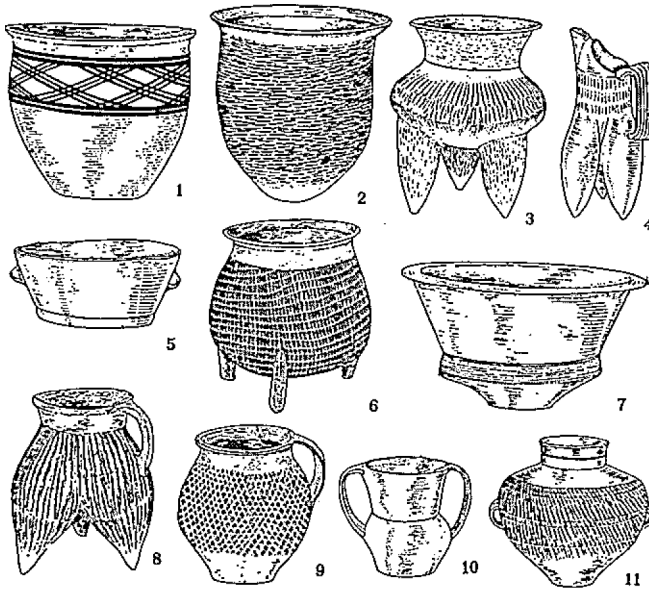
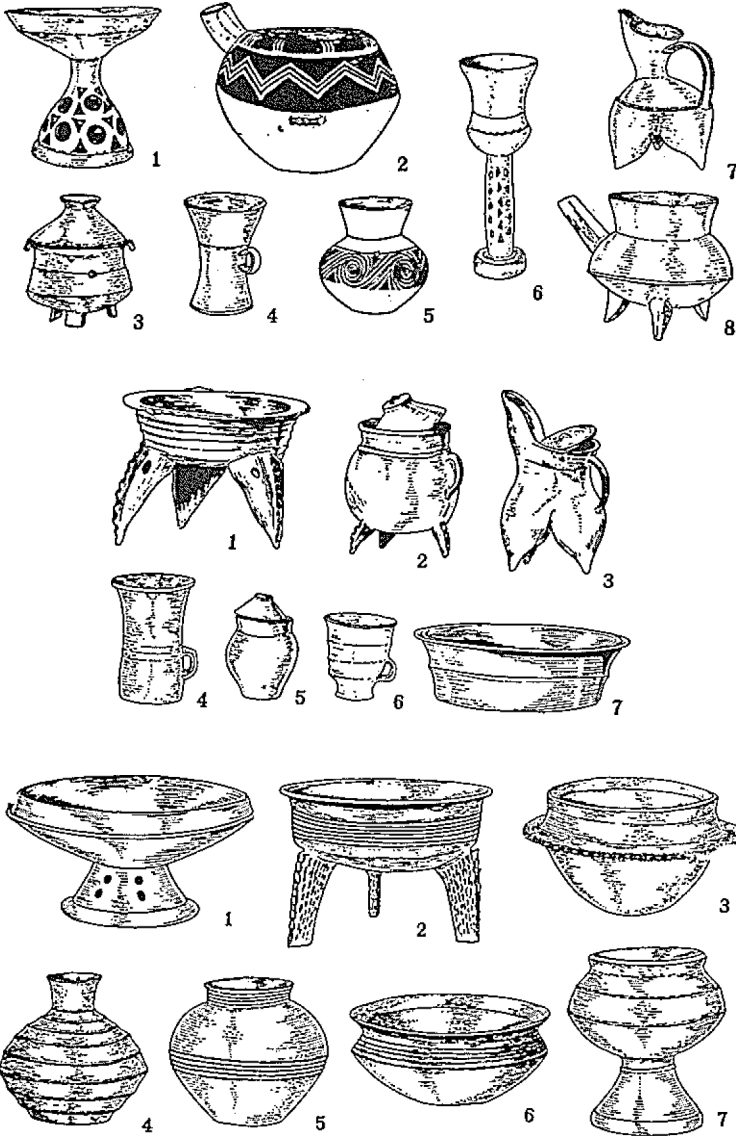


Figure 2 East Coast pots, Longshan. Reproduced from Feng Xianming, et al., *Zhong-guo laoci shi* (A history of Chinese ceramics; Beijing, 1982), 15.

bowls and basins, only a certain proportion of which were painted.¹⁸ What can these two ceramic traditions tell us about the mentality of, as well as the material constraints imposed upon, the potters who made the vessels and the people who used them?

From the viewpoint of manufacture, the tectonic formality of sharp, angular silhouettes and the absence of rapidly painted surface decoration in the East (figs. 2–13) suggest deliberation and control, a taking of time to plan the shapes, to measure the parts, and to join them together. The interest in silhouette, frequently articulated or “unnaturally” straight-edged, rather than in surface decor, further suggests a willingness to do more than simply accept the natural, rounded contours of a pot.¹⁹ It suggests a willingness to impose design rather than merely accept it as given by the natural qualities of the clay. It suggests, as we shall see, that Eastern pots, by contrast with the “all-purpose” pots of the Northwest, were designed with specific functions in mind.

The existence of an East Coast disposition to manipulate and constrain is confirmed by a closer look at pot construction. Unlike the more practically shaped Northwest pots, most of which would have been built up *holistically* by coiling and shaping at one time, many of the characteristic East Coast pots—like the tall-stemmed *bei* drinking goblets (fig. 3, no. 6; fig. 6, nos. 1–6; fig. 10, nos. 12, 16, 17; figs. 11–13), the *ding* cauldrons (usually tripods; fig. 2, no. 6; fig. 4, nos. 1, 2; fig. 5, no. 2; fig. 6, nos. 10–20; figs. 8–9; fig. 10, no. 6), the *dou*



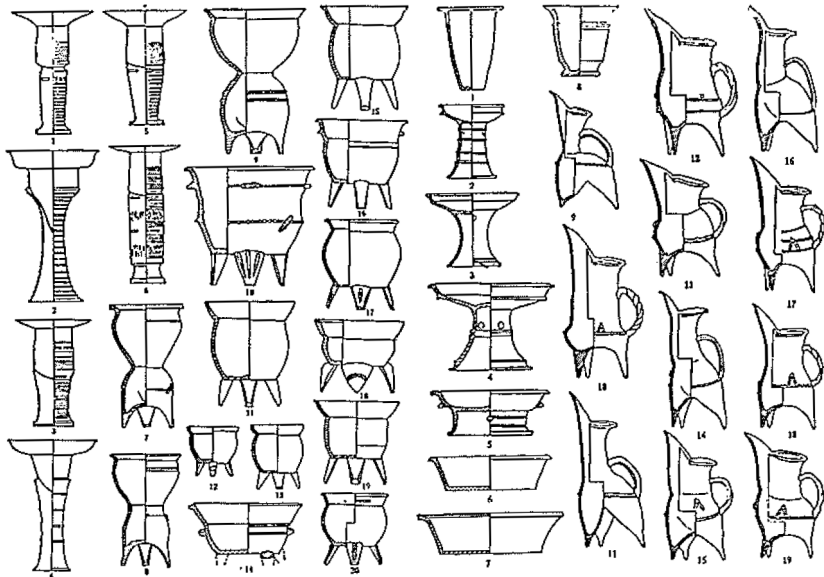
Figures 3–5 East Coast pots. *Top*: Dawenkou; *center*: Longshan; *bottom*: Majiabang. From *ibid.*, 21, 22, 28.

offering stands (fig. 3, no. 1; fig. 5, no. 1; fig. 7, no. 4; fig. 10, nos. 3–5), and the hollow-legged *gui* pouring jugs (fig. 3, no. 7; fig. 4, no. 3; fig. 7, nos. 8–19; fig. 13) and *xian* steamers (fig. 6, nos. 7–9)—would have required the separate molding and piecing together of several elements—feet, stand, legs, spout, neck, handle,

and so on, in a *prescriptive* method of manufacture. This distinction between holistic and prescriptive is of fundamental importance to my attempt to link artifacts to mentality.²⁰

The prescriptive, and thus componential, construction of pots²¹—which was inevitably involved whenever feet were prefabricated and added on to a vessel such as a *ding* cauldron, or whenever vessels were built up sectionally—appears to have developed as a significant method of manufacture in the Yangzi delta around the year 4000 B.C.E. In the fourth and third millennia, componential construction was frequently used in the Daxi and Liangzhu cultures of the Middle and Lower Yangzi and also in the Dawenkou culture area of Shandong and northern Anhui. It was present in the Late Neolithic Middle Yangzi culture of the third millennium, where, although the potter's wheel was in use, most pots were still handmade, and where large ones were frequently built up by coiling, being produced in sections with appliqué bands being added where the parts were joined.²² It was also present, of course, in the Central Plains and Northwest as East Coast pot forms became more prevalent (see note 16).

A simple but elegant tripod from Songze (ca. 4000 B.C.E.) illustrates the nature of East Coast componential construction (fig. 8): 1) the bottom was shaped first; 2) the sides were then built up on a slow wheel; 3) the rim was luted on; 4) legs were fabricated separately and 5) appended to the body. It should



Figures 6 and 7 East Coast pots from Shizihang. *Left:* Longshan; *right:* Dawenkou, Longshan. From “Shandong Wei xian Shizihang yizhi fajue jianbao” (Preliminary report of the excavation of the Shizihang site in Wei xian, Shandong), *KG* 1984, no. 8:678–79, figs. 7–8.

be noted that whenever tripod legs or ring feet, which were both characteristic Eastern features, were added to a bowl, the body of the vessel would presumably have been turned upside down at that stage of manufacture. Such inversion would have involved what may be seen as more deliberate manipulation than the potters of the Chinese Northwest, who generally made legless vessels, would have had to employ.²³ The procedure may be seen as more artificial, as well as more deliberate, because it reversed the orientation of normal use.

A certain amount of componential building certainly was used by the Northwest potters. The rims of at least some *ping* amphoras and *guan* jars at Banpo (fig. 15, no. 7), for example, were added on.²⁴ The flaring, wide-girthed Banshan pots were made by constructing the bottom and top of the pot separately by ring coiling and then luting the two parts together.²⁵ Painted pottery vessels with tall or collared necks would also have been made in two or three pieces. The rare three-footed *bo* bowls from Dadiwan I would have had their legs pieced on.²⁶ Similarly, the Northwest potters were certainly capable of making “impractical” shapes that were componentially constructed.²⁷ But such forms were not common in the Northwest. As with most studies of the Chinese Neolithic, comprehensive statistics would greatly increase the reliability of conclusions that are frequently subjective in nature. But there is little doubt, in this case, that tripods and other legged vessels, vessels constructed by section, ring feet, handles, spouts, fitted lids—all the elements that require prescriptive, componential construction—were far more prevalent in, much more characteristic of, far more valued by the cultures of the East Coast.

The point, in any event, is not merely one of numbers but of style. In the Northwest, such joinings were generally not integral to the design and visual impact of the pot; potters sought to conceal such joins so as to produce soft-cornered, harmonious, unified, globular shapes. The potters of the East, by contrast, tended to accentuate, to emphasize the discontinuities of silhouette and shape, so that their pots explicitly revealed the process by which they were made. The intentional “failure” of the slab legs to completely join with the body of the *ding* tripod (fig. 10, no. 2) found in a Huating burial at Dadunzi, for example, explicitly reveals the componential nature of its construction. The same aesthetic disjointure is found on Songze tripods where the shape, decor, and surface texture of the legs is at deliberate variance with that of the vessel body (fig. 9, nos. 4, 8, 9, 10).²⁸

It was not hard, in short, to discover, as the Northwest potters had also done from an early stage, the technique of sticking one pot part to another. But the practice became significant when it was emphasized, when it became integral, as in the cultures of the East, to the design and manufacture of major vessel types, and when it permitted the consistent and prevalent construction of vessel forms and shapes, such as the *ding*, *dou*, and *gui*, which the mere coiling or throwing of pots could not produce. The Northwest potters used the technique to continue making essentially holistic forms; the East Coast potters used it to make radically different, prescriptive ones that both required and emphasized the joining together of parts made separately but for each other.

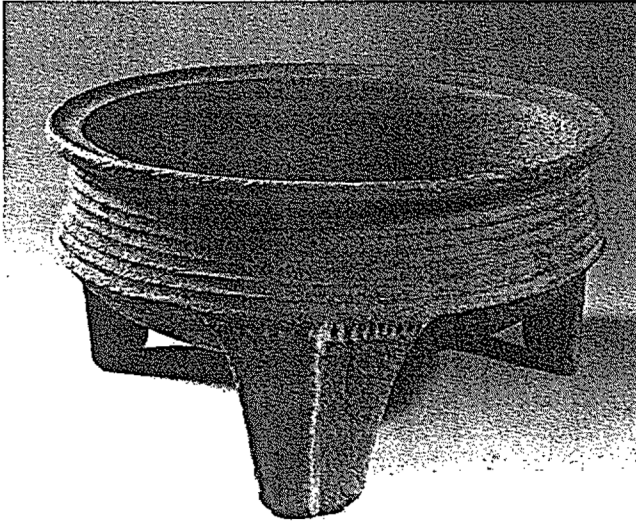


Figure 8 East Coast *ding* tripod from Songze. From René-Yvon Lefebvre d'Argence, ed., *Treasures from the Shanghai Museum: 6,000 Years of Chinese Art* (Shanghai and San Francisco, 1983), no. 3; reprinted by permission.

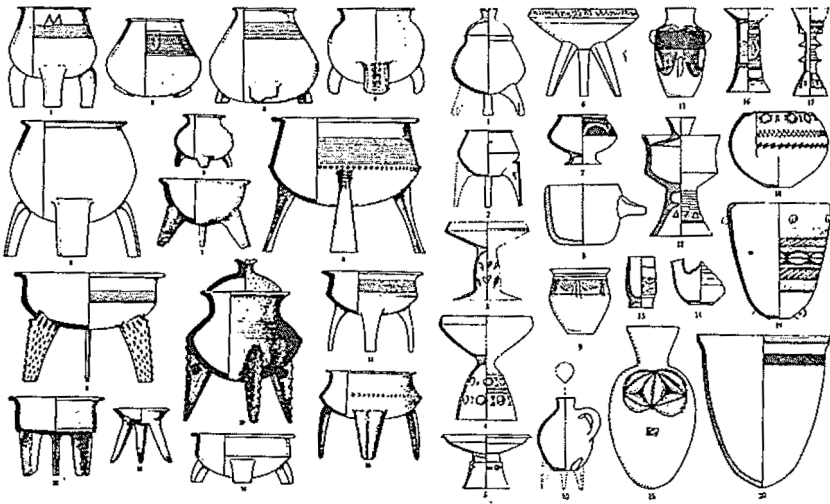


Figure 9 (left). East Coast *ding* tripod from Songze. From “Shanghai shi Qingpu xian Songze yizhi di shijue” (Trial dig at the site of Songze in Qingpu xian, Shanghai city), *KX* 1962, no. 2: 13, figs. 10.4, 10.8–10.

Figure 10 (right). East Coast pots from Dadunzi (Huating style). From “Jiangsu Pi xian Dadunzi yizhi dierci fajue” (The second excavation at the site of Dadunzi in Pi xian, Jiangsu), *Kaoguxue jikan* 1 (1984): 44, fig. 19.2.

Componential construction, furthermore, suggests the need for temporal coordination and scheduling in manufacture, for it requires that the bowl, legs, spouts, necks, handles, and so on be of the right, leathery consistency at the time they are joined together. The making of prescriptive, componential pots is, therefore, by its nature more rigorously scheduled than the making of holistic ones; it requires greater coordination on the part of the craftsman.²⁹ As the activities being coordinated become more complex, coordination is likely to have assumed increasing qualities of control. Such control in the Neolithic, to the extent that it existed at all, would probably have been personal and ad hoc, but it would have contained the seeds of the later “technical” and “bureaucratic” forms of control required by the prescriptive piece-mold bronze casting of the Shang.³⁰

One may note two final consequences of such construction techniques. First, Ursula Franklin has proposed that, in the sequential stages of prescriptive construction, “a considerable degree of abstraction and a thorough technical understanding is required to perceive a division of the process into unit processes dictated by the technical requirements of construction.”³¹ Prescriptive construction, in short, implies the ability to think more abstractly than does holistic construction. Second, the prescriptive nature of componential construction implies not only the allocation of time, and the planning and measurement of the component elements (see below), but it also implies talking. To the extent that certain potters might have specialized in the making of spouts, handles, legs, and so on (see note 29), the greater coordination of activities required to make a componential, prescriptive, East Coast pot implies more verbal communication, more articulation about final goals and immediate methods, than would have been required for the construction of a pot that could be coiled at one time and by one person, working in comparative independence, isolation, and silence about the task at hand. One cannot easily tell from the archaeological evidence if such Neolithic specialists did exist; it seems unlikely, however, that the tall, thin-walled, black ware of the classical Longshan (the four *bei* in fig. 11), for example, could have been turned on a fast wheel, constructed, and fired by amateurs (see too note 43 below). The East Coast articulation of pot components, in any event, admits the possibility of verbal as well as technical articulation. The greater variety of vessel types in the East further implies the existence of a larger vocabulary of vessel names.

Model Emulation

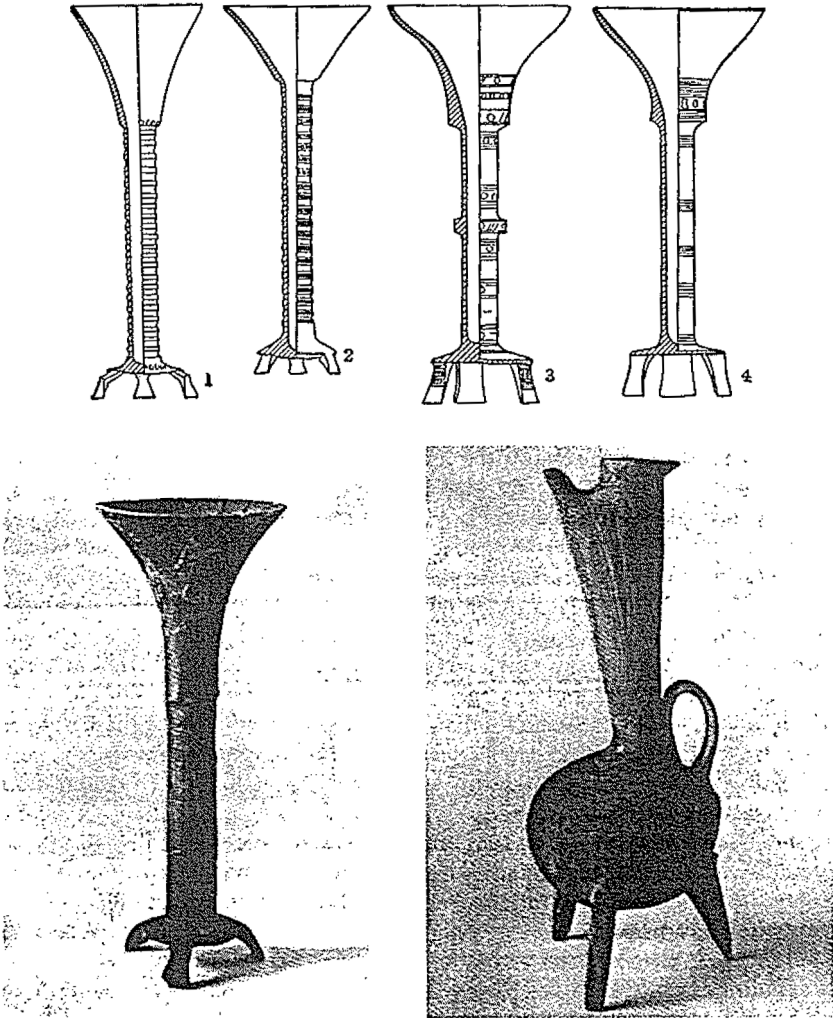
Still more is implied when we move from the solid-legged vessels to the hollow-legged ones like the mammiform *gui* tripod jug (fig. 3, no. 7; fig. 4, no. 3; fig. 7, nos. 9–19), the *xian* steamer (fig. 6, nos. 7–9), and the *li* tripod (fig. 2, no. 8), all associated in their origin or development with either the cultures of the East or the Central Plains. These vessels imply more than the technical skill to standardize lengths and shapes, to successfully coordinate the separate

elements. To produce such bulbous-legged vessels, identity of leg size and shape was essential; it required, in some cases, the use of a central core about which the three legs could be individually molded.³² This is of significance technically, since it is from such procedures and conceptions that the piece-mold casting of the Shang bronze makers, who used a central core model and outer ceramic molds, developed.³³ But it is also of significance socially and conceptually, since it implies a vision of creation as one of molding, of conformation to a model, of standardization—of “engineering” in short. It is no surprise that the emulation of moral exemplars was to play such a central role in later Chinese social and political thinking.³⁴

Analogous conceptions lie behind the technique of rammed-earth construction, associated with the Late Neolithic cultures of Shandong and northern Henan, in which moist earth was rammed hard between the molding boards.³⁵ The same inspiration may also be related to the East Coast customs of skull deformation and tooth extraction—further instances of “engineering,” now applied directly to the human body.³⁶ It is plausible to think that such techniques for molding and modeling, whether applied to the human body, to clay, or to earth, must, by analogy, have reinforced, and been reinforced by, social and religious conceptions of discipline, order, and obedience to prescribed pattern.

Upward and Onward

Elevation—through the use of ring feet, legs, and stands of various sorts—was another characteristic feature of the East Coast pots, the elevation frequently being emphasized through the aspiring, upward-reaching shapes of the vessels themselves (e.g., fig. 2, nos. 3, 4; fig. 3, nos. 1, 6, 7; fig. 4, no. 3; fig. 6, nos. 1–6; fig. 7, nos. 9–19; fig. 9, nos. 8, 9; fig. 10, no. 6; figs. 11–13). The “legginess” and lightness of many of the East Coast *bei*, *dou*, *ding*, and *gui* lends them a certain perky, rapid, birdlike quality. The judgment is subjective, but the bird motifs carved on certain Eastern jades and bone implements, together with later legends of bird ministers and bird tribes in the region,³⁷ encourage us to view the cultures of the East as more “airborne” than those of the Northwest, whose more earth-bound disposition can be discerned in their “semi-subterranean” pots (see below) and houses, and even in the construction of the querns used for grinding grain. At Banpo sites in the Wei River valley, for example, the querns were not footed and were presumably set directly on the ground;³⁸ in Peiligang sites in the Central Plains, by contrast, they were uniformly provided with four feet.³⁹ These querns from the sixth millennium, incidentally, may be some of the oldest four-footed objects in China. Since the legs were carved out of the grinding stone, the querns would have taken considerable effort to manufacture. The preference for feet, and generally for four feet rather than three (which were rarely found),⁴⁰ implies that, in the Central Plains, the users of these grinding stones had a level surface on which to place them, an implication that may also be drawn from the precarious,



Figures 11–13 Tall-stemmed *bei* goblets and a *gui* pourer from the East Coast. *Top:* four *bei* from Dadunzi, Jiangsu. From “Jiangsu Pi xian Sihu zhen Dadunzi yizhi tanjue baogao” (Trial diggings at Dadunzi in Sihu zhen, Pi xian, Jiangsu), *KX* 1964, no. 2:37, fig. 30. *Bottom left:* *bei* from Liulin, Jiangsu. From *Jiangsu shen chutu wenwu xuanji* (Selection of cultural relics excavated in Jiangsu province; Beijing, 1963), no. 43. *Bottom right:* *gui* from Taiganshi, Xishanqiao, Jiangsu; from *ibid.*, no. 18.

footed or tall-stemmed *bei* of the East (figs. 11–12). Once again, one is struck by the implied neatness and regularity in the lives of those who made and used these objects, and by the implied absence of such traits among those who did not.

The motivations for what may be seen as this upward-reaching aesthetic of the East were undoubtedly complex and, quite possibly, not fully articulated by its practitioners. On the technical level, the construction of tall, thin ceramic objects is an indication both of technological skill (involving in particular the development of the fast wheel) and of an interest in shaping materials in new and artificial ways.⁴¹ It also provides additional clues to the mentality of the potters.

First, the throwing of pots on a fast wheel indicates the greater care with which the clays involved would have had to have been selected and washed.⁴² This provides one example of the greater precision required by the potters of the East compared to those of the Northwest. It also suggests the emergence of specialized craftsmen.⁴³

Second, to the extent that elevated pots might have saved kiln space,⁴⁴ one may detect a possible concern with efficiency on the part of the East Coast potters that may not have been present in the Northwest; the greater the height and smaller the girth, the greater the number of vessels that could be fired with the same amount of fuel. The development of oxygen-poor, reduction firing, which produced the characteristic grey and black ware of the East and classical Longshan (e.g., the *bei* from Liulin in fig. 12), may have been stimulated by the desire to economize on fuel; it indicates that, once again, the potters of the East were more willing to experiment than the “natural” potters of the Northwest, who were still firing their pots in open kilns.⁴⁵ Any efficiency of fuel use, however, must have been balanced against the evident inefficiency of the Eastern pot shapes themselves, which, by contrast with the globular, holistic pots of the Northwest, would have generally provided less capacity for the amount of clay used. The contradiction suggests that the potters of the East may have been willing to give aesthetic concerns priority over economic ones and that fuel may have been in shorter supply than fine clay.

Third, elevation may also have been connected to a more general desire to get off the ground, to distinguish and separate oneself and one’s possessions from the earth. This impulse was evidently present in the pile dwellings built at Hemudu, for example,⁴⁶ and it may indeed have been originally a response to the dampness of the low-lying lands and house floors of the Yangzi delta. Whatever the origins of this upward-reaching feature of the East Coast cultures, it stands in contrast to the more “down to earth” aesthetic of the Northwest potters, whose houses, as well as pots, tended to be semi-subterranean or seated in the ground (see the narrow, unpainted pot bottoms in figs. 14–15) rather than placed above it.

Fourth, one may note that the upward vision of the East Coast peoples appears to have been maintained even in death. My preliminary research suggests that, in the cultures of the Northwest, there was a tendency for grave goods to be placed near the legs and feet of the deceased. Most painted Northwest pots, being decorated only on their upper surface, were designed to be viewed from the top;⁴⁷ the dead maintained that same vantage point. By contrast, grave goods and tools in the Eastern cultures were more likely to be placed all around the deceased or near the hands, waist, or upper abdomen.⁴⁸

Fifth, one may speculate that the willingness to think in vertical terms and to value height may also have been connected to emerging social stratification

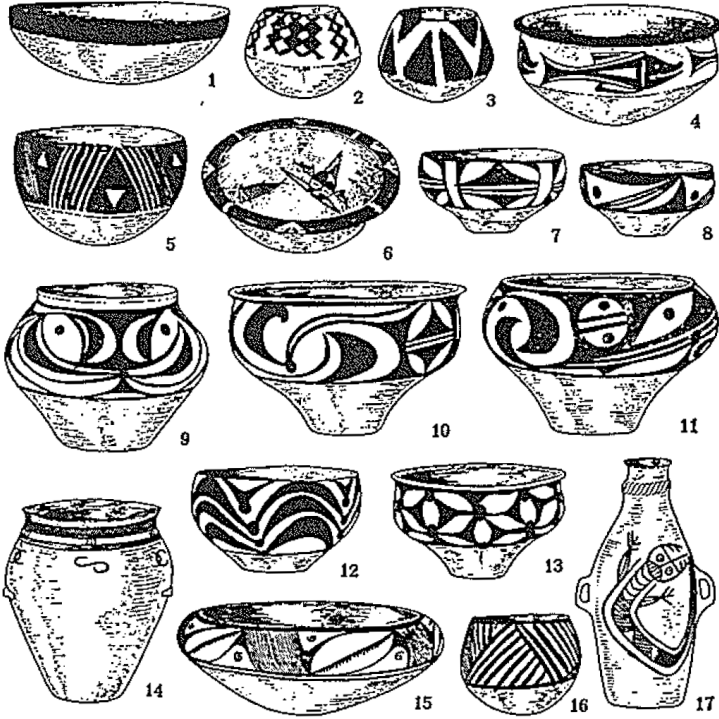


Figure 14 Northwest pots, painted ware. From Feng, *Zhong-guo taoci shi*, 10.

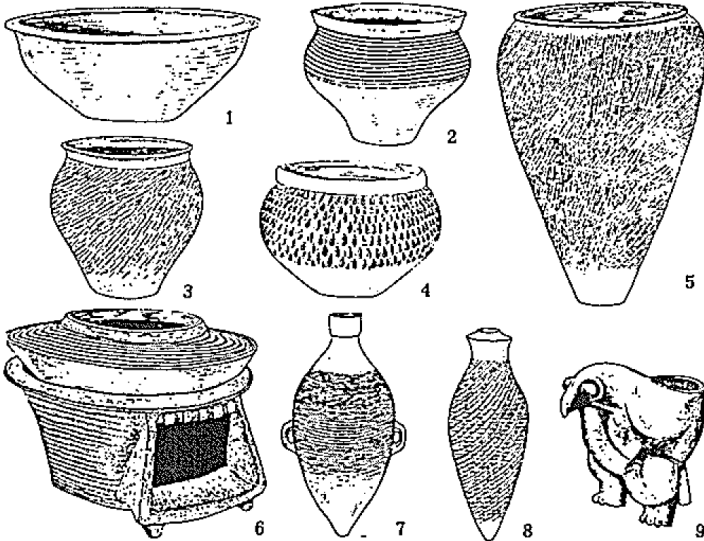


Figure 15 Northwest pots, unpainted ware. From *ibid.*, 11.

in the East, and thus to the way in which Eastern-derived culture traits, such as upwardly aspiring pot forms and rammed-earth housing platforms, together with the culture bearers of those traits, eventually dominated, became ascendant over and superior to, the Northwest cultures of the Central Plains and beyond. The connection between elevation and dominance, which may be a human universal, was certainly appreciated by the Shang and Zhou Chinese.⁴⁹

Pottery Use

Now that we have considered pot shape, pot manufacture, and mentality, I should like to turn to pot shape and usage, with a view to discovering what further clues the functions of these vessels can provide about the mentality of not just their makers but their users.

The first and most obvious point is that the East Coast peoples and the later cultures that derived from them made and used a far greater variety of shapes (figs. 2–13) than did the peoples of the Northwest, whose repertoire consisted essentially of round-bottomed bowls, jars, and amphoras (figs. 14–15), used, so far as we can tell, rather indiscriminately. Apart from the broad and by no means rigorous or consistent distinction posited by modern scholars between pots used for cooking, eating, and storing, the Northwest vessels seem in general to have been vessels of general purpose. There is no way, for example, to tell, on the basis of shape, what might or might not have been a ritual vessel. Pot usage, and presumably other aspects of life, was not yet differentiated in this way.

In the East, by contrast, in addition to the bowl and jar shapes, one also finds *ding* tripods, *dou* serving stands, *bei* drinking goblets, *gui* pouring jugs (see figs. given at p. 14 above), *he* spouted kettles (fig. 3, no. 8), and, in the Late Neolithic, Eastern-derived cultures of Henan, Shaanxi, and, rarely, Shandong, the mammiform, three-legged, *li* cooking tripod (fig. 2, no. 8).⁵⁰

This greater variety of pot forms implies, in the first place, a greater willingness to experiment, to devise new solutions. Franklin has argued that an “essential predictability” is inherent in the prescriptive process; “there is no room for surprise.”⁵¹ This is undoubtedly true at the level of the craftsman who works on only one part of the manufacturing process. But there is no reason why the overseers could not, within the limits of invention permitted by the technology, plan for new shapes. Certain of the componential forms did indeed manifest a considerable degree of variability.⁵² As Friedrich Engels is said to have noted, “The separation of planning for labor from the labor itself . . . contributed to the rise of an idealistic world outlook, one that explains people’s actions ‘as arising out of thoughts instead of their needs.’”⁵³ To the extent that supervision of componential construction implied divorce from the actual labor, one may detect the seeds of such labor-free “idealism,” so potent for the development of civilization, in the ceramic technology of the East Coast Neolithic.

In the second place the greater variety of pot forms suggests greater practicability in such basic activities as pouring accurately or in cooking, where a *ding*

tripod, placed over a fire, would presumably have been more efficient and easier to use—in terms both of heat transfer (when the legs were hollow) and stability—than a round-bottomed pot. Globular Heartland pots, presumably placed directly in the ashes, might have been more susceptible to thermal shock and would certainly have been less stable than the tri-legged vessels of the East.⁵⁴ I suspect that the peoples of the East particularly valued the stability that legs gave to steamer vessels. These *zeng* and *xian* (fig. 6, nos. 7–9), popular in the East,⁵⁵ necessarily involved a certain tallness of design, for the grill on which the food was steamed had to be placed above the boiling liquid below; globular-based steamers would have been prone to tipping over. Some of the Northwest pots were certainly marvelously well designed for their function—one thinks in particular of the *ping* amphoras for drawing water from rivers (fig. 14, no. 17; fig. 15, nos. 7, 8)—but the larger, more varied repertoire of East Coast vessels indicates a greater willingness to innovate and specialize.

When routinized and standardized, the separate fabrication of the various elements suggests, as we have seen, specialization of manufacture. It also suggests specialization of use, for some of the vessels that resulted were so thin and fragile (figs. 11–13) that they imply special, and probably ritual, function. Not only did such vessels require a compartmentalization of manufacture, therefore; their specialized shapes also imply an analogous compartmentalization of experience, with some pots being reserved for nonroutine, perhaps nonsecular, functions.⁵⁶ In accordance with Louis Sullivan's dictum that form follows function, the variety of Eastern forms suggests a greater variety of functions.

One may suppose that if Eastern pots were being assigned special functions, so were human beings—and not just in the ceramic workshops but in other social and political activities. It must be noted that the relationship is not merely analogical. Specialized pots would have been made to satisfy specialized functions; greater differentiation in pottery would have resulted from a more socially differentiated society.⁵⁷ Once again, it is worth stressing that we are dealing with matters of degree. There would have been no reason for a hypothetical Northwest conservative, looking at the ceramic technology of the East, to lament, as Thomas Carlyle was to do the impact of the Industrial Revolution, that “men have grown mechanical in head and in heart, as well as in hand.”⁵⁸ Nevertheless, Carlyle's protostructuralist assertion that “the same habit regulates not our modes of action alone, but our modes of thought and feeling” is relevant. The “sprouts” of such compartmentalization, of a social, political, and above all intellectual, revolution in human organization, were certainly present in the making, and in the using, of the pots of the Neolithic East Coast.

Channels of Constraint

Vessel shapes and vessel use affect one another in a variety of miniscule yet cumulative ways. This is well demonstrated if we consider such seemingly insignificant innovations as pouring lips, pouring spouts, single handles, lids, and legs.⁵⁹

These were rarely present on Northwest vessels of the sixth to fourth millennia, whose makers evidently found no special virtue or pleasure in such refinements. Spouts, handles, lids, and legs variously appeared in the Yangzi delta area starting in the fourth millennium and continued to figure prominently in the developing cultures of the Middle Yangzi and the East, frequently serving as characteristic horizon markers for the regional Late Neolithic cultures.⁶⁰ (The degree to which such features appear in the bronze and ceramic vessels of the Shang needs no emphasis here.)⁶¹

Lips, spouts, handles, and legs constrain the way in which pots can be used. Pots so furnished are designed for, and indeed they require, a particular kind of use. Unlike the Northwest peoples, who could, in general, pour from or pick up their all-purpose bowls and vases in a variety of ways—and presumably did so, for safety's sake, with two hands⁶²—the East Coast peoples would have been likely to pick up a single-handled *gui* pitcher, *he* pourer, or handled *bei* cup, for example, in a certain way, usually with their right hands, and would have poured from a lip or spout in a certain direction. Handles give man a better grip on, a better control over, his creations.⁶³ Like spouts, they standardize the way vessels are to be used.

This channeling of options implies greater efficiency. It also implies greater care for the handling of vessels. Given the design of their vessels, there would

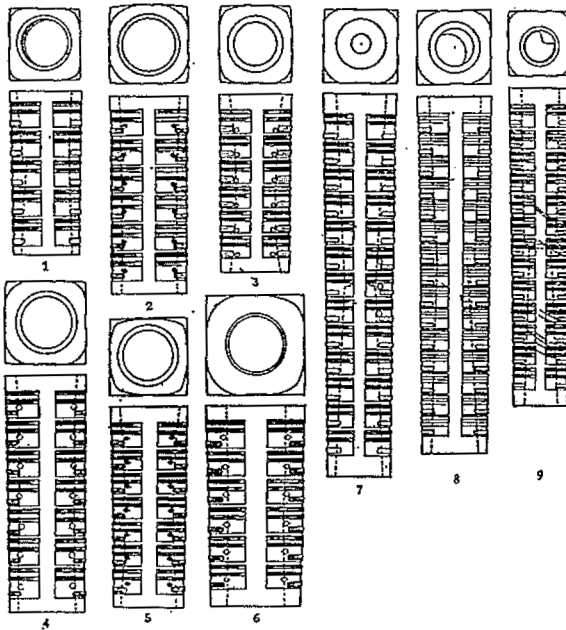


Figure 16 Jade *cong* tubes excavated at Sidun. From “1982 nian Jiangsu Changzhou Wujing Sidun yizhi di fajue” (The 1982 excavation of the site at Sidun in Wujing, Changzhou, Jiangsu), *KG* 1984, no. 2:119.

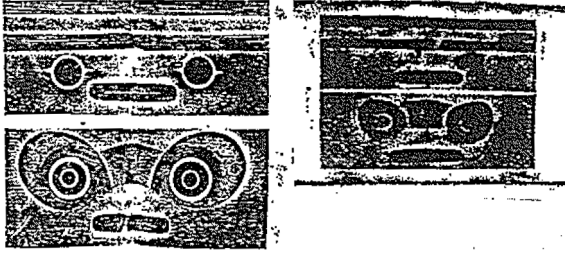


Figure 17 Animal face designs on the corners of *cong* excavated at Sidun. From *ibid.*, 120.

now have been, for the peoples of the East Coast, *a right way* and *a wrong way* to do things, a rightness and wrongness that would have been less likely to confront the users of typical, handleless, spoutless Northwest pots that lacked orienting appendages. It may be noted, incidentally, that this concern with correct placement is also revealed by the jade *cong* tubes so characteristic of the Lower Yangzi cultures of the fourth and third millennia (see below). Recent archaeological discoveries have revealed that the *cong* were placed with the slightly narrower end at the bottom so that the highly abstract, “animal mask” designs carved onto the corners of the registers were suitably oriented (figs. 16–17).⁶⁴ Once again, there was a right way and a wrong way to do something, that rightness and wrongness being designed into the artifact itself. Similarly, the bird profiles carved onto the surface of certain East Coast jade *bi* disks⁶⁵ required that they be oriented in one correct direction. These “unipositional” pots and jades stand in contrast to the multipositional pots of the Northwest cultures, whose flowing, abstract designs, even when divided by cartouches into a “four quarters” pattern, did not require, or even provide, an indication that one orientation was to be preferred to another.

In the same way, well-made lids, especially fitted ones that were more characteristic of the East Coast and descendant cultures,⁶⁶ imply a concern with careful storage, with cleanliness, even with that ultimate indicator of civilized man, delayed gratification. And they imply the willingness to design and construct permanent containers to satisfy those concerns. The Northwest potters (who may have used stoppers made of perishable materials) were more casual about lids, generally preferring to invert a bowl over the mouth of another vessel.⁶⁷ The issue, in this case, is not one of efficiency—such makeshift lids can provide an excellent seal—but of the Northwestern potters’ indifference to making objects for precise functions and to precise specifications. Such indifference is entirely consonant with the awkwardness of their early, and generally abortive, experiments with legged or footed vessels.⁶⁸

The users of the East Coast pots, in short, were faced with a series of mini-constraints that would have produced greater convenience and efficiency—there

is less spilling when spouts are used, for example, less risk of dropping a pouring vessel when there is a handle by which to hold it—but which also standardized and structured the routines of daily life: vessels were expected to be picked up in a certain way, and even to be placed in a certain position, with the handle oriented so that they could be picked up easily again. Vessels with legs, and cups and pedestals with high feet or stems, had to be set down with care, lest they tip over (figs. 11–13). Similarly, fitted lids were not only troublesome to make, but they had to be replaced with some precision.

Each one of these mini-constraints—involving legs, feet, spouts, handles—would, taken individually, have had minimal impact on the mental habits of the users, but the cumulative effect, of both using these prescriptive vessels and of designing and making them, would, I suggest, have been sufficiently significant to distinguish, in terms of both material and mental culture, the inhabitants of the East Coast from those who lived in the Northwest. People who make their pots differently live their lives differently and, it goes without saying, vice versa.

Fit and Mensuration

The prescriptive style of their ceramic technology provides further indication that the peoples of the East Coast were more concerned than those of the Northwest with precise measurement and fit. This is seen in the identical size required of the legs on *ding* tripods, *gui* pitchers, and *he* kettles. It is seen in the way the separately formed elements of any of the componentially constructed vessels had to be planned and shaped with precision. It is seen in the way close-fitting lids had to be shaped and fired so that they would fit their parent vessels.

Turning from clay to wood, we find an equal concern with mensuration in the Southeast. This is seen in the exactitude of the mortise and tenon construction used in the pile dwellings at Hemudu (stratum 4, ca. 5000 B.C.E.).⁶⁹ It is seen in the remarkable regularity—remarkable, given the stone axes, adzes, and chisels available to the carpenters—with which the planks used in house construction in Majiabang sites of the fourth millennium had been trimmed.⁷⁰ It is seen in the exact measurements used to construct a late Liangzhu well (ca. 2000 B.C.E.?) with the boards of the shaft braced by cross struts fitting into measured holes.⁷¹

The most striking precision, however—striking both for the difficulties involved and for the early date of the evidence—is surely that manifested by the craftsmen working in jade. The sawing, drilling, grinding, and polishing of ritual and ornamental jade and jadelike hard stones (nephrite, tremolite, and actinolite) is perhaps the most characteristic and most revealing of all the horizon markers of the East Coast cultures from Qinglian'gang and Hemudu onwards.⁷² The *bi* rings and *cong* tubes were crafted with remarkable precision. At Sidun, in Jiangsu, for example, in Liangzhu strata of the third millennium, the diameters of the individual *bi* did not vary by more than about 1 millimeter in any direction, and the differences in the sizes of the registers found on individual *cong* were

even smaller.⁷³ These multiregistered *cong*—which resemble rulers in appearance, though not perhaps in function—represent the essence of prescriptive, standardized, design, each register being identical to the rest (fig. 16).⁷⁴ The central hole in both the *bi* and *cong* was bored from both sides of the object, resulting in a hole that was slightly wider at its opening than at the center where the two bores met. In a fair number of instances, especially in the case of the *cong*, which might be as tall as 36.1 centimeters (fig. 16, no. 7, with thirteen registers), the two boreholes did not meet exactly in the middle, so that a small ridge was left inside the jade (e.g., fig. 16, nos. 1 and 8). But these ridges are remarkably small—only 0.05–0.1 millimeters wide—and occur in less than half of the *cong* found at Sidun,⁷⁵ and in only one of the four *bi* found in the Liangzhu site at Jialingdang, near Changshu in Jiangsu.⁷⁶ In at least half of the *cong*, therefore, the drilling from one side through some 10 to 15 centimeters of jade was so skillful that it could meet with great accuracy a bore drilled the same distance from the other side with no ridge being left at all. Such results could only have been achieved by the most persistent attention to precise measurement.⁷⁷

In the pot making, carpentry, and jade working of the East Coast, therefore, measurement was vital and may well have been associated with—to the extent that numbers must have been used—a more mathematical view of the natural world than the peoples of the Northwest would have found necessary or congenial. These were workers who followed a prescribed plan, who conformed to molds or models (either real or conceived), who employed their sophisticated tools with care and precision, who manifested a comprehensive competence in designing and building structures of various sorts.

I would note, finally, that, in the Aegean, writing seems to have developed as an aid to overcoming problems of mensuration and reckoning.⁷⁸ Such a connection is not out of the question in the East Coast cultures of China, especially when we recall that the componential construction of vessels required some form of scheduling, that is, the mensuration of time. And one might even see a significant correlation in the nature of the subsequent written script which, at least by Late Shang (ca. 1200 B.C.E.) was as “componential” in its construction, with graphs being composed of both phonetic and semantic elements, as were the vessels of the East Coast tradition and their piece-mold, cast-bronze descendants. The “componential” protograph designs found on certain Liangzhu jades⁷⁹ and Huating pots⁸⁰ are predictable products of the componential cast of mind I detect in the cultures of the East; the origins of the writing system of the Shang, which is characterized by its combination of semantic and phonetic symbols, may well have been associated with these mental dispositions. Few if any of the marks scratched on Northwest pots are similarly componential in character.

One cannot, in conclusion, assign particular meaning to the shapes of the pots or jades of the East Coast. But the shapes of these East Coast artifacts, and the planning and technology involved in their manufacture, suggest a world view that was more fundamentally controlled, precise, measured, standardized, mathematical, componential, articulated, and differentiated. And the special, fragile quality of some of the East Coast vessels, together with the impressive amounts