for the purposes of this chapter is therefore the second half of the second millennium B.C.

Bronze artifacts define the scope of the chapter. They are also one of its principal sources of information, for in the present state of archaeological knowledge many of the societies to which they draw our attention are known only from finds of bronzes. Fortunately much can be learned from objects which in their time were plainly of high importance – second only, perhaps, to architecture, of which scant trace survives. In second-millennium China the bronzes made for ritual or mortuary purposes were products of an extremely sophisticated technology on which immense resources were lavished. They have an individuality that sensitively registers differences of time and place; cultural differences and interactions can be read from their types, decoration, and assemblages. Because they served political or religious functions for elites, they reflect the activities of the highest strata of society; unlike the pottery on which archaeology normally depends, they supply information that can be interpreted in terms somewhat resembling those of narrative history. Moreover the value which has attached to ancient bronzes throughout Chinese history makes them today the most systematically reported of chance finds, with the result that the geographic distribution of published bronze finds is very wide.[23] No other sample of the archaeological record is equally comprehensive – no useful picture would emerge from a survey of architecture or lacquer or jade – and the study of bronzes is thus the best available corrective to the textual bias of Chinese archaeology.

Because firm understanding of the artifacts is the key to extracting information from their archaeological occurrence, the remainder of this section focuses narrowly on the bronze industry, tracing the unfolding of casting technology and bronze styles. The development of bronzes thus established is used in the next section as the organizing framework for a review of the archaeological record.

The Development of the Bronze Industry

SMALL-SCALE METALLURGY. The earliest metal industry known at present within the modern borders of China is that of the Qijia 齊家 culture of Gansu province.[24] Calibrated radiocarbon dates for Qijia fall in the neigh-

[23] On the place of ancient bronzes in Chinese culture since the Bronze Age, see Jessica Rawson, "The Ancestry of Chinese Bronze Vessels," in *History from Things: Essays on Material Culture*, ed. Steven Lubar and W. David Kingery (Washington, D.C.: Smithsonian Institution Press, 1993), pp. 51–73.

[24] A critical review of early metal finds by An Zhimin dismisses claims for earlier metalworking elsewhere ("Shilun Zhongguo de zaoqi tongqi," *Kaogu* 1993.12: 1110–19).

borhood of 2000 B.C.[25] Whether Qijia was ancestral to metallurgical developments in central North China remains uncertain.[26] It represents a stage more convincingly primitive than anything so far known there, however, and thus conveniently exemplifies the forerunners of large-scale metal industries. Some 350 Qijia sites are known in or near eastern Gansu, four of which have yielded altogether about fifty metal artifacts: mirrors, ornaments (finger rings, pendants), and tools (knives, awls, chisels, axes). Of these some were hammered and some cast in bivalve or slightly more complex molds. Twelve analyzed objects suggest that Qijia metalwork is mostly copper, occasionally alloyed with lead and/or tin. Arsenical copper has not been found, and this has sometimes been seen as a significant departure from the metallurgical sequence of the ancient Near East. Archaeometallurgists have recently begun to suspect that alloy sequences have more to do with the top-to-bottom geology of local ore deposits than with the laws of chemistry, however, and this view robs the sequence of larger implications for the history of metallurgy.[27]

A successor to Qijia still richer in metal, known from the Huoshaogou 火燒溝 site at Yumen 玉門 in Gansu, belongs apparently to the first half of the second millennium. Of 312 graves excavated at Huoshaogou, 106 yielded a total of more than 200 metal artifacts. Of 46 objects analyzed, 13 were copper and 33 were bronze containing tin or tin and lead.[28] The objects are axes, sickles, chisels, knives, daggers, spearheads, arrowheads, needles, bracelets, hammers, and mirrors. These are small and nondescript tools and ornaments, not distinctive items manufactured for the elite of a stratified society.

[25] *Zhongguo kaoguxue zhong tan shisi niandai shuju ji 1965–1991*, ed. Zhongguo Shehui kexueyuan Kaogu yanjiusuo (Beijing: Wenwu, 1991), pp. 274–86. The currently available dates, from seven sites, give little indication of the duration of the Qijia culture; it might have survived long after 2000 B.C. In general, radiocarbon dates are still too few to contribute importantly to the chronology of the period covered in this chapter; the statistical errors associated with calibrated dates in the second millennium are very large (for a clear discussion, see Sheridan Bowman, *Radiocarbon Dating* [London: British Museum, 1990]).

[26] An Zhimin ("Shilun Zhongguo de zaoqi tongqi") suggests that metallurgy could have come to Qijia from further west and inclines to see it as the source of later developments in central North China; Li Boqian ("Zhongguo qingtong wenhua de fazhan jieduan yu fenqu xitong," *Hua Xia kaogu* 1990.2: 82–91) dismisses it as one of several early traditions with minimal bearing on later developments.

[27] See, e.g., Wertime and Muhly, *The Coming of the Age of Iron*, chapter 9. The Western literature of archaeometallurgy has laid great stress on the intellectual achievement represented by metallurgical knowledge, and demonstrating that the achievement was indigenous has been correspondingly important to Chinese archaeologists. Archaeology has not supplied conclusive evidence one way or the other, however, and perhaps should not be expected to. The evidence for metallurgy in Precolumbian Peru is after all not now disputed, but whether it is interpreted as evidence for independent invention or for transpacific contact still depends on individual judgment as to which of those occurrences is less improbable.

[28] Analyses of Qijia, Huoshaogou, and Erlitou metal artifacts are reported in *Kaogu xuebao* 1981.3: 287–302; Zhang Zhongpei, "Qijia wenhua yanjiu (xia)," *Kaogu xuebao* 1987.2: 153–76, 173; and Zhang Zhongpei, *Zhongguo beifang kaogu wenji* (Beijing: Wenwu, 1986), chapter 20.

Since Qijia could have supplied all the technical knowledge that we find in use at the early-second-millennium Erlitou site, it is what we might expect a predecessor of Erlitou to look like. The contrast between its metal industry and that of Erlitou and the succeeding Erligang culture thus highlights for us the changes that took place in the middle Yellow River valley around the middle of the second millennium: first a shift to a seemingly total reliance on casting, and then an enormous increase in production. The difference between Qijia and Erlitou is not intellectual, not a matter of technical know-how, but a matter of the purposes to which metal was put and the resources mobilized to achieve those purposes. The difference manifests itself both in volume of production and in technical and artistic quality. The metal artifacts of Erlitou and Erligang are material traces of the urban revolution.

ERLITOU: THE TRANSITION TO LARGE-SCALE METALLURGY. Several important developments are first in evidence at Erlitou. Graves in the upper two levels there have yielded metalwork more ambitious than anything yet found in Qijia, notably some two dozen bronze vessels and a few bells and weapons (Figs. 3.12–3.13), and the quantity of metal unearthed so far may be deceptively small, for foundry remains are said to cover 10,000 sq. m. The most important feature of the vessels is that they were made by casting. Elsewhere in the ancient world vessels and other simple metal shapes were invariably made by hammering, a technique far more economical of material. The cast vessels at Erlitou thus represent the first sign of a characteristically extravagant use of metal in China. The prerequisites for this extravagance were both geological and social: a geological abundance of metal ores, and the labor resources required for large-scale mining (which probably required coerced labor), fuel procurement, transport, and workshops. Geology must be the controlling factor which made metal scarce in the Near East and common in China, for the necessary labor was available in both places. But in other civilizations the labor was mobilized for other enterprises; in China it was invested in metalwork, and metalwork thus becomes a clear symptom of social changes.

Both technologically and artistically, the metalworking tradition that arose in China is unlike any other in the world. The features which set it apart reflect the profound difference between metal-conserving traditions and a tradition of abundant metal supplies. Metal abundance made possible an exclusive reliance on casting, and this had two important long-term consequences. First, casting more than hammering encourages division of labor and invites the organization of efficient workshops limited in size only by the resources and requirements of the patron. Industrial organization, which has some claim to be a distinguishing feature of later Chinese civilization,

may well be a legacy of the bronze foundries.[29] Second, reliance on casting channeled subsequent technological choices because of the particular mold-making technique adopted by Erlitou casters. They constructed molds by applying clay to a model (made of any convenient material), removing the clay from the model in sections, and fitting the sections back together around a core (see Fig. 3.1, the mold assembly for an Erligang tripod). This procedure gave access to the interior of the mold, making it possible to carve decoration into the inner faces of the mold sections before casting. The few bronze vessels from Erlitou that have decoration accordingly bear simple patterns of lines and dots that were incised into mold sections and then transferred to the bronze in the casting operation (Fig. 3.13c). These vessels represent the beginning of a long tradition in which decoration was not cut into cold bronze, routine practice in metalworking traditions that employed hammering, but cast. This seemingly minor detail of technical procedure shaped artistic developments for the next millennium.

ERLIGANG PERIOD: DEVELOPMENT OF FABRICATION METHODS AND FORMATION OF AN ARTISTIC TRADITION. Bronze vessels are rare at Erlitou and all but unknown at other contemporary sites. By contrast they are abundant in the archaeological record of the next stage, the Erligang period, perhaps the fifteenth and fourteenth centuries B.C. The dramatically expanded Erligang bronze industry made technological and artistic advances that were of lasting importance.

The technological advances were simple but liberating extensions of the Erlitou mold-making procedure. The most ambitious products of the Erlitou casters had been tripod cups cast complete with strap handle in one pour of metal (Fig. 3.13a–b).[30] To cast such an object in one pour required a mold of half a dozen fitted sections; to cast a more complicated shape in one pour would have required more sections, and technical problems would multiply. Complicated shapes make it difficult to withdraw mold sections from the model; more important, they make it difficult to fill the mold without trapping pockets of air. The lost-wax process, invented in the Near East in the fourth millennium, solves the first problem but not the second; Erligang casters devised a stepwise procedure that solves both. Casting in a sequence of pours, the part cast in one pour being embedded in the mold for the next, opened the way to shapes of unlimited complexity. Thus, an elaborate handle

[29] See Robert Bagley, "Replication Techniques in Eastern Zhou Bronze Casting," in *History from Things*, ed. Lubar and Kingery, pp. 234–41; and idem, "What the Bronzes from Hunyuan Tell Us About the Foundry at Houma," *Orientations* 26, 1 (1995): 46–54; and compare the description of Egyptian mass production in Kemp, *Ancient Egypt*, pp. 289–91.

[30] Technical examination of Erlitou vessels has not found evidence of casting in more than one pour (Su Rongyu et al., *Zhongguo shanggu jinshu jishu* [Ji'nan: Shandong Kexue, 1995], pp. 96–9).

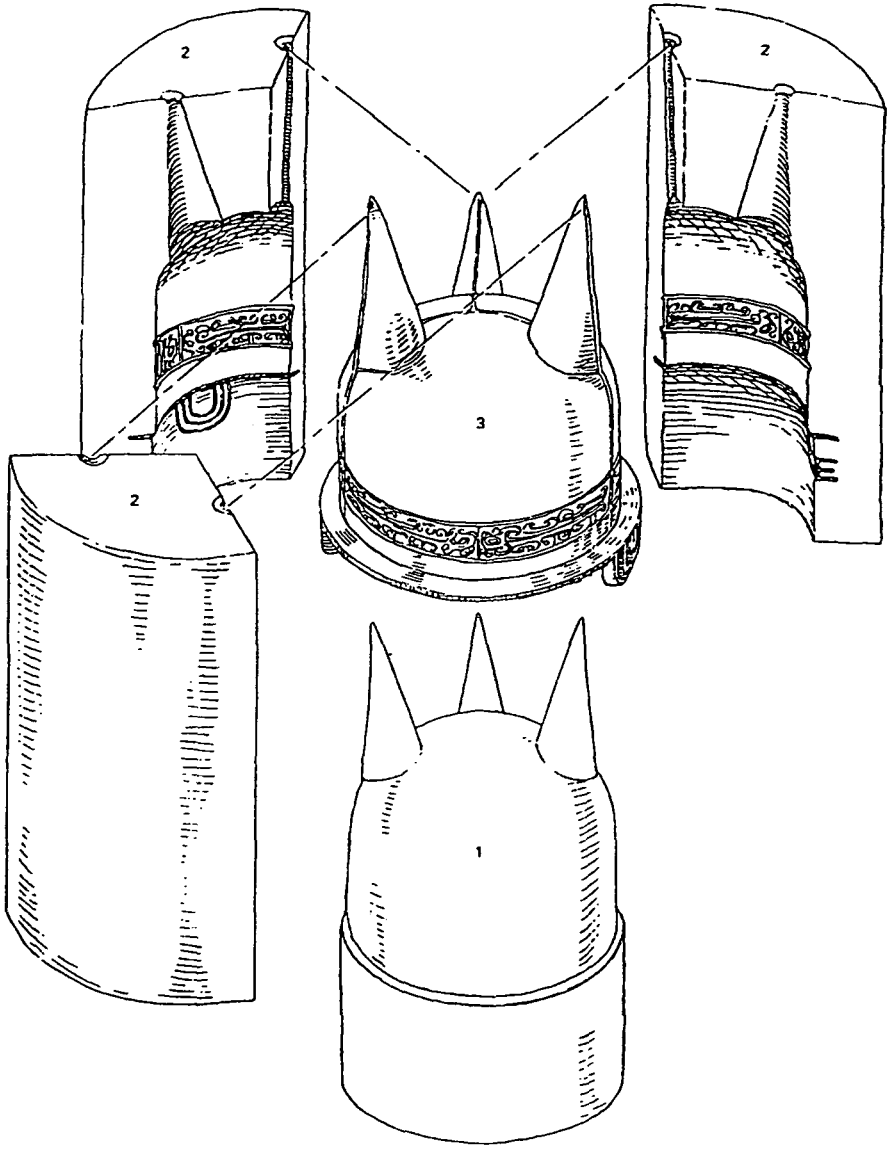

Figure 3.1. Diagram showing the relationship between the *ding* of Figure 3.2 and the mold used to cast it. 1, clay core; 2, clay mold sections (these were formed on an undecorated model, and the decoration was then carved into them); 3, finished bronze, showing mold marks along the lines where the mold sections met. After Wen Fong, ed., *The Great Bronze Age of China: An Exhibition from the People's Republic of China* (New York: Metropolitan Museum of Art, 1980), p. 72.

might be cast by itself, then embedded in the mold for the body of the vessel in such a way as to be mechanically locked in place when the body was cast. Alternatively, the body might be cast first and the mold for the handle built against it (though the same in principle, the two procedures are sometimes distinguished as precasting and casting on). Perhaps these methods were first devised for making repairs: defective or damaged castings were routinely repaired by casting patches onto them. The result was a technology which could make complicated shapes by making an object in pieces, but which had no need of joining techniques such as soldering and riveting because all joins were effected in the casting process. Outside China, joining techniques figure prominently in the metalworker's repertoire simply because outside China a large proportion of metalwork was not cast.

One further small but important technical device introduced by Erligang casters was the metal spacer. A chip of bronze wedged between the core and the outer part of a mold would serve to maintain the separation between the two during casting; by choosing a chip with the thickness desired for the object to be cast, the caster spared himself any finishing of the cast bronze, for the chip simply became part of the object. Spacers could be put wherever needed to stabilize the mold assembly, not only between core and outer mold, but also between independent cores, such as the core for the interior of a tripod bowl and separate cores for its legs. Along with precasting and casting on, therefore, the use of spacers assisted in the fabrication of complex shapes. Though simple to describe, these techniques were enormously versatile in application. Artistic developments for centuries to come unfolded within a technical repertoire that was complete before the end of the Erligang period.[31]

The artistic contribution of Erligang casters was a decorative system in which we must include not only the decoration itself, but also a remarkable relationship between the decoration and the shapes on which it appeared.[32] The character of this relationship suggests that Erligang casters did not

[31] For more detailed accounts of casting technology, see Robert Bagley, *Shang Ritual Bronzes in the Arthur M. Sackler Collections* (Cambridge, Mass.: Harvard University Press, 1987), pp. 37–45; and Su Rongyu et al., *Zhongguo shanggu jinshu jishu*, chapter 3 (which reconstructs mold assemblies and describes post-Erligang refinements such as inset molds and composite models). The demonstration that ancient Chinese foundry practice depended on section molds is owed to Orvar Karlbeck, "Anyang Moulds," *BMFEA* 7 (1935): 39–60; the basic techniques were elucidated by Rutherford John Gettens, *The Freer Chinese Bronzes, Vol. 2: Technical Studies* (Washington, D.C.: Smithsonian Institution, 1969). Further details have emerged from studies of bronzes from Fu Hao's tomb (Hua Jueming, Feng Fugen, Wang Zhenjiang, and Bai Rongjin, "Fu Hao mu qingtongqi qun zhuzao jishu de yanjiu," *Kaoguxue jikan* 1 [1981]: 244–72); and from Xin'gan (see note 69). Joining techniques somewhat more varied than those described here are seen in bronzes from Sanxingdui (see note 153), but all are straightforward extensions of section-mold casting.

[32] Bagley, *Shang Ritual Bronzes*, pp. 18–22; idem, "Shang Ritual Bronzes: Casting Technique and Vessel Design," *Archives of Asian Art* 43 (1990): 6–20.

borrow wholesale a decorative vocabulary already existing in some other medium but gradually elaborated patterns adapted to their mold-making procedure, a procedure that allowed them to open and carve the mold before casting.

Erlitou metalworkers had invented cast decoration by carving the mold in just this way. They could equally well have chosen to carve on the model, however, and much depended on the chance that they carved the mold sections instead. Decoration applied to the model would have had no reason to reflect the sectioning of the mold. But decoration applied to the mold was executed by a draftsman dealing one by one with individual mold sections, and he naturally enough improvised patterns that would be complete and self-contained on each section. As a result the decoration on the finished bronze had boundaries wherever the mold had divisions. In a subtle way, therefore, the subdivision of the mold was imprinted on the bronze, expressed in the layout of the decoration. Moreover that layout could hardly fail to suit the shape of the object, since the placement of the divisions had been decided by the practical need to remove the mold from the model in the smallest possible number of sections. In other words, the shape of the model determined the subdivision of the mold, and the subdivision of the mold presented the caster with fixed areas for which to design patterns. The major artistic development of the Erligang period was the elaboration of patterns within those fixed areas, and as the patterns became more elaborate, the subdivisions automatically became more prominent. The result was a tight relationship between decoration and shape that dominated bronze casting for centuries, disappearing gradually only in the latter part of Western Zhou.

The relationship is seen at an early stage in the tripod bowl of Figure 3.2. The shape of the vessel was inherited from Neolithic pottery, but the decoration, whatever inspiration it might owe to earlier motifs in jade or pottery, was in essential respects a bronze caster's invention. The mold was removed from the model in three sections, ease of removal dictating that the divisions between sections should be aligned with the legs (Fig. 3.1). Because the sections were equal arcs, the draftsman carved the same self-contained pattern into each. The result on the finished bronze was a pattern that repeats three times in the circumference, the boundaries between pattern units falling at the legs. In this early example the relationship between shape and decoration might seem too simple to deserve remark, but as the elaboration of shapes and patterns progressed the relationship became subtly compelling. Its effect must have been felt and valued already in the Erligang period, for Erligang casters continued to carve subdivided decoration even after they switched from carving on mold sections to carving on the model, a shift which removed any technical reason for subdivision. Transferring

Figure 3.2. Bronze *ding*, from Panlongcheng, Huangpi, Hubei (= Fig. 3.15, no. 36), fifteenth to fourteenth century B.C. Height 54 cm. Loehr Style I. After *Chûka Jimmin Kyôwakoku kodai seidôki ten*, no. 4. Tokyo: Nihon Keizai, 1976.

the carver's activity from mold to model meant a change from thread-relief lines standing proud on the finished bronze to more varied forms of relief, but it did not change either the character of the motifs or their layout. If we think of the dissolution of subdivided designs as an adjustment to the decorated model, it is an adjustment that did not take place until late Western Zhou.

STYLISTIC DEVELOPMENT. The forms of pre-Zhou bronze decoration were arranged in a developmental sequence of five styles, each growing out of the last, in a closely reasoned argument published by Max Loehr (1903–1988) in 1953.[33] Having traced his sequence in unprovenanced bronzes, Loehr connected it with the Anyang site because at the time he wrote no pre-Anyang site had been excavated. Subsequent discoveries have shown that

[33] Loehr, "The Bronze Styles of the Anyang Period."

the development he charted took place somewhat earlier than he supposed, beginning with the first decorated bronzes at Erlitou and reaching his fifth style by about 1200 B.C. (the Anyang tomb of Fu Hao 婦好). Remarkably, however, the forms of decoration which archaeologists encountered at pre-Anyang sites proved to be exactly those that Loehr had singled out as early, and the line of reasoning that enabled him to anticipate archaeology continues to be instructive. Since a deposit that contained bronzes in several styles neatly stratified one above another would not explain why they occurred in that order rather than some other, while Loehr was able without the help of stratigraphy to order his styles and reason his way from one to the next, his analysis evidently went beyond description to detect an internal logic of development.[34] It strongly supports the still hesitant recognition by Chinese archaeologists of a so-called transition period intervening between the Zhengzhou and Anyang sites, and it can be extended beyond the body of material he studied to trace branching developments in different regions. Elaborated to incorporate new material, Loehr's sequence is taken to supply the chronological and geographical framework for the survey of finds presented in the next section. The sequence can only be sketched here, and since a brief description unavoidably gives it the look of a classification system, the point should be stressed that Loehr's styles are only conveniently described points in a continuous development. In particular, since each style survived after the invention of subsequent ones, they should be thought of not as mutually exclusive period styles, but as steps in the elaboration of a growing repertoire.[35]

Loehr's Style I is the thread relief seen in Figure 3.2. The pattern lines stand proud on the bronze because they were carved into the mold sections. Style I accounts for all the decorated bronzes so far found at Erlitou and many bronzes of the succeeding Erligang period. Loehr took it to begin his sequence because of the primitiveness of the vessel shapes on which it occurred. His choice is supported by the subdivided layout characteristic of the bronze designs; subdivision is characteristic of the bronze decoration in all five of Loehr's styles, but only in Style I, when the decoration was carved in the mold, was there any technical reason for it. It follows that the bronze decoration came into being at a time when Style I was the prevailing technique, acquiring from the technique a subdivided character that was preserved in later stages because its coordination with vessel shapes was admired.

[34] It should therefore be contrasted with purely descriptive typologies of shapes and motifs, which can give no indication of continuity or discontinuity and which can also mislead by encouraging essentialistic thinking about evolving motifs (see Ernst Mayr, *The Growth of Biological Thought* [Cambridge, Mass.: Harvard University Press, 1982], chapter 4, "Macrotaxonomy: The Science of Classifying").

[35] For a more detailed presentation, see Bagley, *Shang Ritual Bronzes*, pp. 19–36, which applies Loehr's analysis to forms of decoration unknown at the time Loehr wrote.

Figure 3.3. Bronze *jia*, from Panlongcheng, Huangpi, Hubei, fifteenth to fourteenth century B.C. Height 30.1 cm. Loehr Style II. After *Chûka Jimmin Kyôwakoku kodai seidôki ten*, no. 2. Tokyo: Nihon Keizai, 1976.

The principal motif of Style I is the two-eyed, animal-like pattern unit seen in Figure 3.2, conventionally called *taotie* 饕餮.[36]

Style II differs from Style I in that the raised lines of the pattern are no longer uniformly thin (Fig. 3.3). Modulated lines might have resulted from drawing the patterns with brush and ink before carving them. The drawing

[36] The term comes from Eastern Zhou texts, but its application to bronze designs is purely conventional. Some scholars prefer the term *shoumianwen* 獸面紋 (animal-face pattern) as avoiding irrelevant textual associations, but *taotie* has the advantage of brevity and a more specific range of application. The motif has sometimes been assumed to derive from the facelike motifs seen on jades of the Liangzhu culture (see, e.g., Li Xueqin, "Liangzhu Culture and the Shang Dynasty *Taotie* Motif," in *The Problem of Meaning in Early Chinese Ritual Bronzes*, ed. Roderick Whitfield [London: School of Oriental and African Studies, 1993], pp. 56–66), but the occurrence of similar motifs in many parts of the world suggests that the features which the *taotie* shares with Liangzhu motifs could have been independently reinvented. On the origin of the bronze ornament, see Bagley, *Shang Ritual Bronzes*, pp. 19–24. On efforts at iconographic interpretation, about which no consensus has been reached, see Roderick Whitfield, ed., *The Problem of Meaning in Early Chinese Ritual Bronzes*.

could have been done either in the mold (then excavating the ink-covered portions) or on the model (then excavating around the inked portions), yielding much the same result either way. At the stage of Style II, the *taotie* was joined in the bronze decoration by another motif, a one-eyed animal seen in profile. This can reasonably be called a dragon, since it is ancestral to at least some of the animals normally called dragons in the decoration of later bronzes.[37] The pattern unit visible in Figure 3.3 is a dragon; the adjacent pattern unit to the left, barely visible in Figure 3.3, is a *taotie*. The *taotie* and dragon, staple motifs of the bronze decoration until middle or late Western Zhou, were part of an enduring artistic tradition, all of whose essential features were established in the Erligang period. Styles I and II, along with early versions of Style III, were the characteristic forms of Erligang decoration, and by the end of the period, when about twenty distinct vessel types were in use, a high order of inventiveness had been achieved in shape and decoration alike. The *ding* 鼎 of Figure 3.2 is a clumsy caldron whose maker was evidently too preoccupied with the new decorative patterns to give much thought to the shape, but it was soon succeeded by more elegant versions. It was succeeded also by such mannered objects as the *jia* 斝 of Figure 3.3, which is not a familiar container translated into a new material but a shape consciously designed. Erligang bronzes are formidably accomplished objects. We cannot doubt that we are dealing with the potent visual style of a court, or perhaps of many courts.

Style III was an elaboration of Style II (there is no sharp dividing line between the two) in which the patterns became increasingly intricate and spread to cover more of the vessel surface (Figs. 3.4–3.6). At this stage a rapid diversification of designs and forms of relief took place. Since these developments accompanied a wide dispersal of the bronze industry and the first appearance of regional styles, tracing the variants of Style III is an important means of bringing order to an otherwise incoherent assortment of archaeological finds. Early versions (Fig. 3.4) are an easy step beyond Style II. From this stage onward the bronze decoration was executed on the model: in Figure 3.4 the raised surfaces vary in width but the sunken lines are uniform in width, arguing that the carver's tool cut into the model the sunken lines we see on the bronze. The same procedure must have been used for the looser Style III patterns seen in Figure 3.5, which here spread to cover the whole of a large bronze drum, one of the earliest known products of the bronze indus-

[37] The literature of Chinese archaeology commonly applies the label "dragon" to almost any imaginary animal and then takes it for granted that the animals so labeled, because they are all dragons, are all related (see, e.g., Sun Shoudao and Guo Dashun, *Wenming shuguangqi jisi yizhen: Liaoning Hongshan wenhua tanmiaozhong* [Beijing: Wenwu, 1994], pp. 140–1). The problem of actual relationships has therefore hardly been addressed.

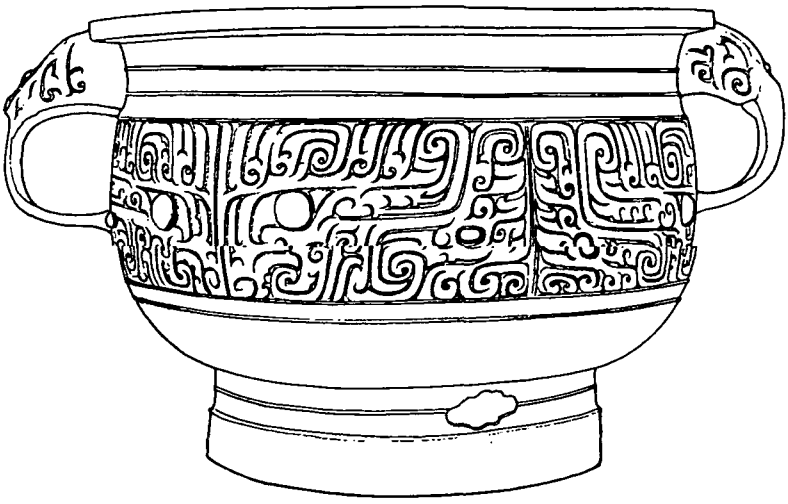

Figure 3.4. Bronze *gui*, from Panlongcheng, Huangpi, Hubei, fifteenth to fourteenth century B.C. Height 17.4 cm. Loehr Style III. Drawing by Li Xiating.

try of the middle Yangzi region. In Figure 3.6 the uniform mesh of ordinary Style III patterns has been superimposed on undulating high relief (a form of relief that would surely never have been invented by carvers working in the mold). This undulating relief, which appeared late in the history of Style III, restored emphasis to designs that had become less readable as the carvers elaborated more intricate patterns: though still elusive, an animal face does speak more forcibly in Figure 3.6 than in the almost featureless design of Figure 3.5. Early versions of Style III are known from Zhengzhou, Panlongcheng, and other Erligang sites, but its full development belongs to the transition period (Figs. 3.5–3.6, 3.16–3.18).[38]

Style IV (Figs. 3.7–3.8) achieves more decisively the visual emphasis sought, tentatively and incoherently, in Figure 3.6. It amounts to an abrupt change in the nature of the bronze decoration, from patterns of uniformly dense sunken lines to patterns in which the density of lines is varied so as to distinguish an image (low density) from a ground (high density). On the *jia*

[38] Chinese archaeologists do not agree on the continuity or discontinuity of the Zhengzhou–Anyang sequence (see Meng Xianwu, "Anyang Sanjiazhuang, Dongwangducun faxian de Shang dai qingtongqi ji qi niandai tuiding," *Kaogu* 1991.10: 936–8). The present chapter assumes that the sequence is indeed discontinuous and that it is necessary to assign some sites and finds to a "transition period" (this is a literal translation of the rather unsatisfactory term used by Chinese archaeologists, *guodu shiqi* 過渡時期). The difficulty of defining the period archaeologically and giving it absolute dates is, of course, only a reflection of the difficulty of defining and dating the periods to be associated with Zhengzhou and Anyang. For convenience it is here equated with the thirteenth century B.C.

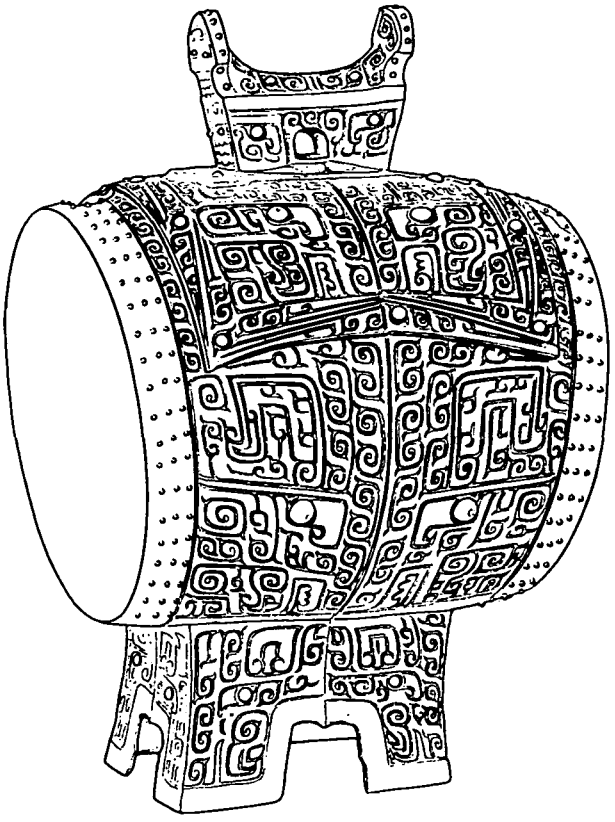

Figure 3.5. Bronze drum, from Chongyang, Hubei, fourteenth to thirteenth century B.C. Height 75.5 cm. Loehr Style III. Drawing by Li Xiating.

of Figure 3.7 the register at the neck still belongs to Style III, but the decoration lower down qualifies as Style IV, for the *taotie* faces are perfectly distinct from the nearly homogeneous ground patterns. The ground patterns derive from Style III embellishments. In Figure 3.7 they are still comparatively large in scale, and their origin in Style III is clear (compare Fig. 3.18). In Figure 3.8 a stronger contrast has been obtained by miniaturizing them, producing the fine spirals conventionally called *leiwen* 雷文, and only a few telltale remnants survive to betray the connection with Style III. The contrast between image and ground was sometimes further heightened, as in Figures 3.7–3.8, by filling the sunken lines with a black pigment.

Style IV gave the bronze decoration new impact. Emphasizing the motifs laid emphasis also on the subdivided framework in which they were arranged,

Figure 3.6. Bronze *zun*, from Funan, Anhui, fourteenth to thirteenth century B.C. Height 47 cm. Loehr Style III. After *Anhui Sheng Bowuguan cang qingtongqi* (Shanghai: Shanghai Renmin meishu, 1987), no. 2.

and this in turn reinforced the relationship between decoration and shape. The introduction of an image–ground distinction moreover converted the dragon and *taotie* from rectangular pattern units into animals of well-defined shape; these Style IV animal *images* thus differ essentially from the animal-inspired *patterns* of Styles I–III.[39] Converting dragon and *taotie* into concrete images opened the way to an enlargement of the decorator's vocabulary, for motifs drawn more directly from nature could now be set next to the imaginary animals without disharmony. The new borrowings from nature nevertheless remained within the animal kingdom. In the ancient Near East, Egypt, Crete, and the European tradition descended from them, the principal raw material of decoration has always been real or imaginary plant motifs. Decoration that incorporates staring animals differs crucially in having the power to focus the viewer's attention on particular points. Even a design as simple as that in Figure 3.2 draws the viewer's gaze to a single point, and at

[39] The common description of the early patterns as "abstract" or "stylized" should be avoided, since it assumes the existence of concrete versions that had not yet been invented.

Figure 3.7. Bronze *jia*, said to be from Anyang, thirteenth century B.C. Height 39.5 cm. Loehr Style IV. Museum für Ostasiatische Kunst, Köln (C76, 2). After Hans Juergen von Lochow, *Sammlung Lochow, Chinesische Bronzen II* (Beijing: [FuJen], 1944), no. 9.

the stage of Style IV the bronze decoration achieved an almost hypnotic effect. This psychological power has channeled the attention of modern scholars no less than that of Bronze Age patrons, with the result that study of the bronzes has concentrated overwhelmingly on motifs, but any analysis of effects shows that the motifs are not to be separated from a system in which motifs, layout, and vessel shape operate jointly. A *taotie* lifted out of context is much diminished.

Style V is dependent on Style IV in the sense that it employs the same contrast between motifs and *leiwen*, but the motifs are no longer flush with the *leiwen*, rising now in high relief (Fig. 3.9). The older form of high relief that appeared transiently in Style III (Fig. 3.6) differs from Style V high relief by the even density of the intaglio lines, a difference which signifies its independence of the Style IV image–ground distinction. (On certain bronzes with high-relief decoration from the Yangzi region, such as the bell of Figure 3.29c, the absence of *leiwen* and of variable density linear patterns

Figure 3.8. Bronze *hu*, said to be from Anyang, thirteenth century B.C. Height 31 cm. Loehr Style IV. Gugong Bowuyuan, Beijing. After *Kunstausstellung der Volksrepublik China* (East Berlin: Staatliche Museen Berlin, 1951), p. 85.

is important evidence of local developments that originated in Style III high relief rather than in the later high relief of northern Style V designs.) The heavy emphasis supplied by Style V was given additional weight by the vertical flanges marking subdivisions which became common at this stage (Fig. 3.9). From this point on Style V was the usual form of decoration on major bronzes (Fig. 3.10b), though varieties of low relief remained common on lesser items, perhaps simply because easier execution made them cheaper.

The evolution of decoration just sketched is one aspect of a complex development that involved interrelated changes in vessel shapes, motifs, forms of relief, and decorative layouts. These changes cannot be described here, but some sense of their cumulative effect can be suggested by juxtaposing versions of a single vessel type a few centuries apart. Figure 3.10 shows two *he* 盉, one of about 1200 B.C., the other perhaps two centuries earlier. The drawings cannot convey the delicate execution of the earlier vessel, but they

Figure 3.9. Bronze *fangyi*, provenance unknown, twelfth century B.C. Height 29.8 cm. Loehr Style V. Winthrop Collection, Harvard University Art Museums (1943.52.109).

convey clearly enough the theatricality of the later one. These two objects are not separated by aimless drift. They are landmarks in a sustained and intensely self-conscious artistic development. The bronzes owe their individuality to their designers' concern with visual effects, and it is this individuality which makes them promising sources for the following attempt to read historical information from material artifacts.

The Archaeological Record

The rise of civilization will always lie beyond the reach of narrative history. By the time written records become available, the first urban societies belong to the past, and such understanding as we can have of formative ages must come from material evidence alone. Later texts do speak of early times, but when they seem most credible they are also most vague, readily accommodating themselves to almost any reconstruction of the past we might wish to propose. If we are to come to grips with archaeological realities we must