

Origins of the Jōmon Technical Tradition

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THE JŌMON era can be characterized in several ways. In strictly chronological terms, the name describes a portion of the Japanese past which dawned some 12,000 years ago and lasted until a few centuries B.C. This time span has also been somewhat unfortunately referred to as the Japanese "Neolithic" period. And in still another sense, this was the time of cord-marked—or Jōmon—pottery. All of these characterizations are, however, somewhat incomplete and arbitrary. The thesis of this paper is that the Jōmon era has a more basic identity and significance. Specifically, the cultures of the Jōmon era shared a core technological tradition that identifies them and sets them apart from all other prehistoric Japanese cultures. Once formed during the Incipient and early Initial Jōmon periods, this technical tradition, with alterations and additions to be sure, persisted until Yayoi cultures spread a different technical and economic base throughout Japan. The continuity of the Jōmon technological tradition reflects a very stable and enduring adjustment to the resources of the Japanese environment, and this adjustment, rather than chronological markers or pottery designs, is the important hallmark of the Jōmon era. This paper will outline the basic features of the Jōmon technological tradition by tracing its formulation during the Incipient and Initial Jōmon periods. For a more complete summary of Jōmon culture history and treatment of specific Jōmon developments after the Initial Jōmon period, the reader is referred to C. S. Chard's recent book (Chard 1974).

In 1949, when Paleolithic assemblages were finally recognized in Japan, there was no apparent link between them and any of the known Jōmon complexes. To distinguish them from Jōmon cultures, Japanese archaeologists assigned Palaeolithic assemblages to the "Preceramic period" with the clear semantic implication that the first appearance of pottery marked the opening of the Jōmon era. In the past

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twenty-five years the gulf between the Preceramic period and the Jōmon era has narrowed, but the origins and roots of the Jōmon era have proved more illusive than semantics alone might have suggested. With the discovery of stratified sites in several parts of Japan, the end of the Preceramic period has been brought to near the end of the Pleistocene. Furthermore, since the late 1950s, several styles of previously unknown pottery have been found in Japan and assigned to the period from 10,000 B.C. to 7500 B.C. Semantically, this pottery represents the earliest portion of the Jōmon era. In fact, however, this pottery and the assemblages it is contained in have little in common with Jōmon materials dating from after 7500 B.C. Because of these peculiarities, the early ceramic assemblages stand in a kind of cultural limbo and Japanese archaeologists disagree on how they relate to the Jōmon era. Some (e.g., Serizawa 1969) view them as entirely distinct from Jōmon cultures and assign them to a separate "Mesolithic" period. Others (e.g., Yamanouchi 1964: 159-161) have assigned them to a newly created separate period of the Jōmon era. Because only a relatively few early ceramic assemblages have been found and reported, knowledge of this period is limited. It seems clear, though, that in distribution and content, these early sites are unlike subsequent Jōmon material. The technological tradition that links subsequent Jōmon cultures together had not yet been completely formulated, although pottery and other features associated with it had begun to appear. In this sense the name Incipient Jōmon period fits this time span quite well and I have therefore chosen to use it in this paper.

During the Incipient Jōmon period, pottery with three strikingly different decorative styles appeared in Japan. These styles, linear relief, fingernail impression, and simple cord marking, are at least partially sequential and so can be used to mark subdivisions of the period from the end of the Pleistocene to the beginning of the Initial Jōmon period. When these pottery styles first came to light, their chronological relationships and historical affinities seemed rather simple, but with more data the picture has become quite complex. This is in part because recently reported sites show that the closing phases of the Paleolithic period were more complex than they were once perceived to be.

The earliest pottery in Japan is a coarse plain ware decorated with small clay ridges pinched on the upper vessel exterior. It is called "linear relief" pottery (*ryūsenmon*) and has been found in sites from northern Kyushu to the southern Tohoku district of east central Honshu. Linear relief ceramic assemblages are invariably small and hard to compare. Throughout its range, though, the pottery seems quite similar. In northern Kyushu, at Fukui Cave, the decoration on the pottery was at first fairly coarse but became progressively finer as time passed (Hayashi 1968). Sites in eastern Japan such as Tazawa in Niigata (Serizawa and Sudō 1968) and Ishigoya Cave in Nagano (Nagamine 1967) suggest that a similar progression occurred in that area. This variation no doubt indicates that real subdivisions of this pottery exist, but no significant typological variation has yet been demonstrated among the linear relief ceramic assemblages. The cultural inventories in which this pottery has been found, on the other hand, are remarkably diverse. In Kyushu the pottery appears in an assemblage characterized by a microblade technology which had developed in extreme western Japan during the latest stages of the Preceramic period (Hayashi 1968). From the Inland Sea to southern Tohoku the distribution of the pottery is spotty. It has, however, been

found at several interior cave sites where it occurs in assemblages which are characterized by small projectile points, other biface foliates, and stone adzes (Suzuki 1974). These artifacts also have a long history which predates the appearance of pottery. In this area too, then, ceramic technology was grafted onto existing material cultures without dramatic disruption. Radiocarbon and thermoluminescent dates from Fukui Cave in Kyushu and elsewhere in southern Japan suggest that linear relief pottery had appeared by 10,000 to 11,000 B.C. (see Flemming and Stoneham 1973).

This pottery was replaced some time later by another very widely dispersed pottery style which had exterior decoration consisting of fingernail impressions; so-called *tsumegata-mon* or fingernail-impressed pottery. Again, this pottery occurs in interior situations—often in cave sites—and with a diverse range of cultural inventories. Its geographic range extends from the Uwaba site in southern Kyushu (Ikemizu 1967) to the Hashidate Rock-shelter (Serizawa et al. 1967) on the edge of the Kanto Plain, and on to Kosegazawa (Nakamura 1960) and Ichinozawa caves and elsewhere in the hilly interior of the Chubu and southern Tohoku districts (Kashiwakura and Kato 1967).

The diversity of the stone-tool assemblages found with fingernail-impressed pottery shows that it was made by groups with markedly dissimilar technologies. Throughout central Honshu small projectile points with or without base tangs are common in fingernail-impressed ceramic assemblages (Suzuki 1974). Ground stone adzes and axes have also been frequently found with this ware in central Japan (Oda and Keally 1973a). The appearance of fingernail-impressed pottery and the new stone tools may not have been functionally linked, however. New hunting tools and the increased importance of woodworking tools may only have been a result of climatic changes and the expansion of subtropical and temperate forests that occurred with the onset of the Holocene period. In Kyushu at the Uwaba site (Ikemizu 1967), Fukui Cave (Hayashi 1968), Senpukuji Cave (Aso 1973), and the Iwadohara site (Suzuki 1973), fingernail-impressed pottery has been found in association with a microblade technology that appears to have persisted in this area where climatic changes were minimal. Recent work in the Musashino Upland area of the southern Kanto Plain has shown that while the linear relief and fingernail-impressed pottery were being made in interior central Honshu and elsewhere in Japan, the Kanto Plain was occupied by cultures that did not make pottery (Nogawa Iseki Chosakai 1971; Oda and Keally 1973b). In sum, then, all the evidence available indicates that during the period of fingernail-impressed pottery Japan continued to be a culturally complex area characterized by regionally diverse and distinctive technologies. This kind of complexity and regional diversity is also apparent during the succeeding cultural horizon.

Throughout central Honshu, fingernail-impressed pottery was replaced by ceramics finished with simple exterior cord marking. Such cord-marked ware is the first well-established pottery found on the plains of the Kanto district. Thus, the idea of exterior cord marking was broadly spread although the actual techniques used to cord mark this pottery were highly diverse. The new ceramic finish therefore hardly witnesses a major period of cultural homogeneity. As with the preceding ceramic horizons, the ceramic innovation of cord marking appears to have diffused widely and to have been added to pre-existing patterns without making basic

changes in local cultural developments. As I said, pottery which can be typologically linked to this horizon has been reported from open and lowland sites, although most of the early cord-marked pottery has been found at interior cave sites such as Muroya Cave, Niigata (Nakamura 1964), Hibakoiwa Cave, Yamagata (Kashiwakura and Kato 1967), and the Hashidate Rock-shelter in interior Saitama (Serizawa et al. 1967). Tanged points and other artifacts which had persisted from the Preceramic period had essentially disappeared by this time. Stone grinding remained a widely spread technique, but the most apparent features shared by these assemblages are small chipped stone arrowheads. In a variety of shapes, small stone projectile points are the most characteristic tool associated with this early cord-marked pottery. Some of these point styles, together with the idea of exterior cord marking, persisted into the Initial Jōmon period.

In sum, then, the Incipient Jōmon period saw a number of gradual changes in the cultures of central and western Japan. Patterns which had been characteristic of the Paleolithic period faded slowly and in many cases old patterns overlapped with new ones. Pottery making and a few specific ceramic techniques spread across the area from Kyushu to Tohoku, but these developments never eclipsed regional cultural variation. Eastern and western Japan (at least south of Hokkaido) did not form separate spheres, but Japan was a complex cultural mosaic.

Knowledge of Jōmon archaeology becomes more firm and complete with the opening of the Initial Jōmon period about 7500 B.C. In most parts of Japan, the known sequence of Jōmon cultures starts at about this time and continues without a gap until the appearance of Yayoi cultures. Knowledge of individual Jōmon cultures also becomes fuller after the opening of the Initial Jōmon period. These changes in the archaeological record were paralleled and no doubt caused by cultural changes that were taking place at this time. The cultures that opened the Initial Jōmon period must be derived and descended from those of the Incipient Jōmon period. The striking differences between Initial and Incipient Jōmon assemblages are, however, far more apparent than the few similarities which link them, and thus a genuine gulf seems to exist between the two periods. The presently available evidence indicates that the complex of basic technological traits and patterns typical of the entire subsequent Jōmon era came into being rather quickly during the opening phases of the Initial Jōmon period.

In the Kanto district, the first Initial Jōmon period assemblages contain large amounts of simple cord-marked conoidal pottery. The continued use of cord marking is, of course, one of the links between these assemblages and those which have been assigned to the end of the Incipient Jōmon period. Unlike earlier cord-marked ceramics, however, the pottery found in assemblages of the earliest Initial Jōmon period is remarkably similar throughout large portions of the Kanto and Chubu districts. This, of course, suggests a higher degree of cultural uniformity than was typical of the preceding period. At first this cord marking was done by rolling a single cord over the plastic vessel surface. As time passed, the technique gave way to cord roughening which was achieved by rolling a coil of cord over the vessel surface. A closely related technique was used to finish the early Initial Jōmon period pottery of western Japan. In the area west of the Kanto district, the earliest Initial Jōmon pottery is finished with *oshigata-mon* or roller-stamped designs. On this pottery, a carved stick, rather than a coil or cord, was rolled over the plastic clay.

The results of this technique appear to be quite different from coil-rolled pottery although the two techniques themselves, of course, are basically similar. The pottery of the early Initial Jōmon period is important for two reasons. First, cord rolling or a finish created with a related rolled technique is a persistent feature of most subsequent Jōmon ceramic complexes. Secondly, the difference between the cord-marked pottery of the Kanto and the roller-stamped ware of western Japan is the first reflection during the Jōmon era of a basic east-west cultural dichotomy, a dichotomy that existed until the advent of the Yayoi.

More important than cord-marked pottery was the appearance, early in the Initial Jōmon period, of shell middens and the apparent development of a coastal gathering economy. It has often been suggested that if fishing or coastal gathering and other maritime activities had been important during the Incipient Jōmon period, subsequent changes in sea level would have destroyed the coastal sites that would evidence it. Thus, the fact that the earliest coastal sites known from Japan date from the Initial Jōmon period is not necessarily evidence that can rule out the possibility of earlier maritime economies. I personally find it hard to believe, however, that at least some part of Japan's long coastline would not have preserved a trace of coastal activity from the Incipient Jōmon period, if it had been present. It also seems that there are a disproportionately large number of interior sites assignable to the Incipient Jōmon period. Most of these, furthermore, were abandoned early in the Initial Jōmon period. This is all circumstantial evidence, but it strongly argues that inland hunting and gathering were the primary economic bases of the Incipient Jōmon period.

There is also some positive evidence from the Kanto district which indicates that a coastal economy was new with the Initial Jōmon period. The first phase of the Initial Jōmon period in the Kanto is named for the Igusa ceramic complex. It is associated with a well-defined cultural assemblage that has frequently been found in either open or rock-shelter situations in interior portions of the Kanto and Chubu districts. However, a few Igusa phase components have been found at sites and even shell middens near the coast of the southern Kanto (Serizawa 1956; Sugihara and Serizawa 1957; Okamoto and Tsukada 1962). At all of these, however, Igusa phase pottery and artifacts have been found below shell-bearing strata rather than in direct association with marine fauna. The artifact assemblages found at such coastal sites are usually remarkable primarily for their small size. Rough, partially polished stone axes and small triangular stone arrowpoints are the most characteristic tools from these sites. At the Nishinojo shell midden the circular floor of an Igusa phase house (see Esaka 1974:108) was found associated with Igusa phase artifacts. Larger Igusa phase assemblages, with irregular slab metates, large numbers of rough flaked and ground cobble axes, triangular points, and even storage pits and small semisubterranean houses have been found at interior sites like the Hashidate Rock-shelter and site number 52 in the Tama New Town tract in the western suburbs of modern Tokyo (Tama Nyutaun Iseki Chosakai 1966). These Igusa phase artifacts are basic elements in succeeding Jōmon assemblages. The interior Igusa phase sites seem clearly to have been created by groups specifically adapted to hunting and utilization of plant resources. The coastal Igusa phase sites appear to indicate that these groups also exploited coastal niches, although it is certain that they did not yet have a coastal gathering economy like that of succeeding Jōmon cultures. Paren-

thetically, it might be said that in other parts of East Asia assemblages as old as and not unlike the Igusa phase assemblages have been linked to simple agricultural economies. I would not be surprised to learn that a part of the Igusa phase economy included some cultivated produce, although the data necessary to support this contention are not yet available. The major development of the Igusa phase that is clearly apparent now is the appearance of a remarkably well-defined cultural assemblage which was distributed throughout a large part of east central Japan.

The Natsushima phase, which follows the Igusa phase in the Kanto sequence, saw the development of an economy which combined inland hunting and gathering with clear and effective exploitation of coastal and marine resources. The number of known Natsushima phase sites is not great, but the best-known representatives, including the site which gave the phase its name, are small shell middens. These contain not only the remains of coastal mollusks and saltwater fish, but also the bones of domestic dogs and of such wild land animals as pigs, deer, small mammals, and several kinds of birds. Plant processing and hunting tools of the Igusa phase are also typical of Natsushima phase tool kits. The new artifacts linked with the phase are bone fishhooks, stone net sinkers, and other tools which were used in maritime activities (see Sugihara and Serizawa 1957). During this phase, use of the coasts of Japan was added to the older utilization of inland resources, and the basic outlines of essentially all subsequent Jōmon economies were in this way established. Due to environmental change and adaptation to local resources, some later Jōmon cultures came to emphasize and refine the exploitation of specific interior or marine resources, but after the Natsushima phase no basic economic change can be noted, in eastern Japan at least, until the appearance of Yayoi cultures.

Soon after the Natsushima phase, two more technical developments were made that deserve special mention because they survived through most of the rest of the Jōmon era. The first clay figurines of the Jōmon era date from the Hanawadai phase, which is one of the later phases associated with coil-rolled pottery. The Hanawadai figurines are triangular slabs of clay with human features very simply indicated. More refined figurines, however, persisted as a typical feature of subsequent Jōmon cultures (Esaka 1960). Another apparently minor but extremely long-lived Jōmon artifact is a bifacially flaked tanged knife. These typically Jōmon artifacts made their first appearance during the Lower Tado phase (Akaboshi 1935) which is associated with seashell-impressed pottery. Neither of these developments is significant in itself, but their persistence points up the technological continuity of Jōmon cultures.

By stressing the economic and technical continuities of Jōmon cultures, I do not wish to imply that the Jōmon era was unchanging or devoid of innovation. In fact, the Jōmon era saw continual alteration and cultural movement which have been carefully traced by Japanese archaeologists. A pattern is discernible in Jōmon cultural developments, however, and although this is not the place to review the culture history of the Initial Jōmon period, the later part of the period is of interest since it illustrates the kinds of cultural innovations and trends that marked the Jōmon era.

Coil-rolled pottery, like that of the Natsushima phase and other early Initial Jōmon phases, was replaced by a series of distinctly different ceramic wares (see Okamoto and Tozawa 1965). This series of new ceramic finishes and decorative

techniques which developed and diffused widely throughout Japan fills out the archaeological record until about 4500 B.C., which is the arbitrary end of the Initial Jōmon period. In eastern Japan, cord-marked pottery briefly gave way to roller-stamped and smooth-surface pottery, which in turn was replaced by pottery finished with incised decorations made with the edge of a sharp seashell. Next fiber-tempered ware decorated with wavy shell-edge impressions spread across eastern Honshu as far as Hokkaido. Finally, at the end of the period, pottery with shell-scraped surfaces spread into the Kanto district. This series of widespread ceramic styles most likely represents a series of major cultural horizons that affected much of Japan, but the complex host of archaeological phases that represent these horizons are technologically continuous with the Natsushima phase. Aside from ceramic innovation they represent nothing new. They are, however, much like the recurrent cultural horizons which are a feature of the archaeological landscape of Japan from the Initial Jōmon period onward. Most of the horizons are most clearly marked by the wide diffusion of clusters of ceramic motifs, although some of them also spread other artifact types and economic patterns throughout the archipelago. Invariably these horizons represent only reworkings or reorganization of techniques and patterns developed during the Initial Jōmon period.

The Initial Jōmon period was thus an exciting and critically important time. After the long Incipient Jōmon period, when Palaeolithic patterns faded slowly and new technical adaptations started to appear, the Initial Jōmon period marked a real watershed. At this time the basic lifeways of the entire Jōmon era, the major geographic divisions of the Jōmon world, and the essential style of Jōmon cultural development were all established. From this period onward there was a clear thread of technical and economic continuity that linked together all Jōmon cultures. Interpreting the significance of this thread of continuity is, unfortunately, more difficult than pointing out its existence. At the very least, the continuity identifies the Jōmon era as a significantly separate portion of the Japanese past. It may also be linked in some way to the relative isolation of the Japanese islands. Here we must be very careful, though, for if Jōmon Japan was separated from the Asian mainland, it was never completely isolated. It would certainly be incorrect to equate the continuity of Jōmon technology with stagnation that could be broken only by the introduction of foreign cultural stimulus. The continuity of the Jōmon technological tradition is best viewed not as stagnation, but as stability resulting from a highly successful adaption to the Japanese environment.

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