

The Yayoi Period

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IN THE long course of Japanese history, the Yayoi period (200 B.C.—A.D. 300) is recognized as a time of remarkable change. During the Yayoi period, the transition from food gathering to food producing occurred simultaneously with the transition from stone technology to metallurgy. Also, the foundation of the ancient Japanese state was laid as individual small local primitive communities were unified and as specialization of labor and social stratification developed. It is interesting to note that these changes required several thousand years in Southwest Asia and China, but that in the Japanese archipelago they occurred more rapidly. The dramatic cultural change of the Yayoi period can be compared with that of the Meiji era, for since that time the Japanese have had significant contact with the continent. Indeed, since the Yayoi period Japan has recognized itself as a member of the East Asian world.

DEFINITION

Archaeologists customarily have defined the Yayoi period on the basis of its pottery. They believed that typological studies would enable them to distinguish Yayoi pottery from Jōmon or Haji pottery; they defined the Yayoi period as the period during which Yayoi pottery was produced and used. But, more recent investigations reveal a remarkable consistency of pottery technique through the Jōmon to the Haji, thus reducing the usefulness of this view. Accordingly, the authors of this paper define the Yayoi period as beginning when the people came to depend upon paddy cultivation as the major means of support for society and ending with the emergence of the first keyhole-shaped burial mounds, that is, the beginning of the Kofun period. Thus we define Yayoi pottery as the pottery which was produced and used in this period.

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DATING AND CHRONOLOGY

On the basis of typological studies of pottery, the Yayoi period has been roughly divided into early, middle, and late stages. These divisions also correspond to the social changes of the period. Materials imported from the continent are of significant help in fixing the calendar of the era. For example, during the middle stage, the Yayoi people of northern Kyushu customarily placed imported bronze mirrors and bronze weapons in their tombs. The fact that tombs belonging to the earlier half of the middle Yayoi bear only Western Han (206 B.C.–A.D. 8) and Hsin (A.D. 8–22) mirrors, and the tombs of the later half of the era bear Eastern Han (A.D. 25–220) mirrors indicates that the middle of the middle Yayoi can be fixed at the beginning of the Christian era. But, there is a lack of archaeological evidence which can be used for dating the beginning of the Yayoi period. Some archaeologists place it as early as the 4th century B.C., but, we believe that it should be placed later in the 3rd century B.C. There are several reasons for this view:

1. Bronze daggers with narrow blades were often found in Yayoi tombs and also in tombs in Korea. These swords have been classified into old, middle, and late types. An example of the old type was found in a Korean tomb, accompanied by a Chinese coin of the Ming-tao type (3rd century B.C.).
2. Polished stone-hafted daggers which are considered to be imitations of the bronze dagger mentioned above are also distributed widely in Japan and in Korea. It is commonly known that this type of stone dagger was often found in Korean tombs accompanied by long polished stone arrowheads. Consequently, these artifacts can be dated in or after the 3rd century B.C.
3. At the earliest Yayoi site at Itazuke, northern Kyushu, arrowheads of the same type were excavated. These archaeological facts suggest that the beginning of the Yayoi period should be dated at or after the 3rd century B.C.

According to several studies of bronze mirrors that were imported from China and buried in burial mounds during a later period, the emergence of the keyhole-shaped burial mound has been dated at the very beginning of the 4th century A.D. Thus, we hypothesize that the Yayoi period lasted around 500 years from 200 B.C. to A.D. 300.

These archaeological dating methods seem more useful than ¹⁴C (Carbon-14) methods because the results of the latter are stated in too long a time frame to permit detailed discussion, especially for so relatively short an era as the Yayoi period.

EXTENT OF THE YAYOI

Yayoi culture spread over all the Japanese islands except the Ryukyus and Hokkaido. The southern boundary of the culture lay at the Satsunan Islands. However, some Yayoi pottery was imported into the Ryukyus. Hokkaido's cold climate was not suitable for rice cultivation in that period, and the hunting and food gathering life of the Jōmon period continued.

CULTURAL ELEMENTS FROM THE CONTINENT

The Yayoi culture was characterized by new technologies and knowledge introduced from China, Korea, and possibly from the cultural circle of northeastern Asia through the Korean peninsula. We will describe briefly some of the features and cultural elements which appear to have been adopted from the mainland.

Many elements of the rice cultivation complex were accepted. Storage pits in which carbonized grains of rice were discovered were dug on the tops of low hills by the Yayoi people. Since the 4th millennium B.C., the same type of storage pit was used by Chinese farmers in North China, which is comparatively dry. Another type of storage facility used by the Yayoi people was the wooden house built on piles. These had also been common in the damp areas of South China since the neolithic period. Other products for dry-field cultivation such as wheat and barley were also introduced.

Bronze mirrors and weapons, iron tools and weapons, and glass ornaments were also imported. The metal and glass industries were established at almost the same time (Plate I). Weaving cloth from a kind of linen thread was introduced. Evidence of weaving is seen in the discovery of spindle whorls, pieces of looms, and fabric remnants.

Stone implements were still used in the earlier half of the Yayoi period. But the types of stone axes and adzes for cutting wood were not the same as preceding Jōmon types. Rather they were imitations of continental stone implements found at neolithic sites in China and Korea. Stone reapers for cutting rice heads emerged during the Yayoi period. It is known that similar implements were also widely distributed in China and Korea.

The potter's technique and the ornamentation of the earliest Yayoi pottery are quite similar to those of late Jōmon pottery. Therefore it is thought that both are the product of the same tradition. However, the combination of Yayoi vessel shapes was completely changed by the influence of continental culture.

Burial customs were influenced as well. During the early and middle stages, the Yayoi people in northern Kyushu built tombs similar to the dolmen in northern and western Europe. Examples of this type of tomb are widely distributed in the Korean peninsula, and one example was found at Tai-shih Shan in Chekiang, China. Other artifacts such as wooden birds and oracle bones thought to be used for ceremonial purposes indicate that the spiritual life of the Yayoi people was also controlled by the continental mode of life.

Among these continental cultural elements, some—for example, bronze mirrors and iron swords—were the newest fashion in the central part of China in that period, while others, such as stone implements and bronze weapons, had already been replaced in central China. Thus, it can be said that at the beginning of the Yayoi period new and old elements entered Japan together. The old cultural elements had survived on the periphery of China.

But not all elements characteristic of continental culture were introduced and adopted. Animal domestication, walled cities, horseback riding, the potter's wheel, letters, and advanced systems of thought did not enter. Some of them were introduced after the Kofun period and some were never introduced. The Yayoi people missed the opportunity to begin animal domestication, and the Japanese

did not develop the custom of eating domestic animal meat until the latter half of the 19th century. Walled cities were similarly unknown. The lack of these elements may have had not a small influence over Japanese thought and behavior.

CULTURAL ELEMENTS FROM THE JŌMON

Although the major cultural elements of the Yayoi period were introduced from the continent, some techniques and customs were Jōmon survivals. The Yayoi people retained the semisubterranean dwellings of the former period but improved upon the superstructure. In the earlier half of the Yayoi period, people made stone arrowheads, gimlets, and other stone implements by chipping. Obviously, these were survivals of the Jōmon tradition since chipping did not exist in the areas surrounding Japan at that time. Some Yayoi ornaments, such as combs, hairpins, and comma-shaped beads made of jade, clearly originated in the Jōmon. The custom of tooth extraction was practiced continuously from the middle Jōmon to the earlier half of the Yayoi period.

Basically, the Yayoi potter's technique was an extension of the Jōmon technique. The cord-impression pattern disappeared from the surface of pottery in western Japan by the last phase of the late Jōmon stage, and western Yayoi pottery had never had this pattern. On the other hand, in eastern Japan, the cord-impression pattern was continuously used as pottery ornamentation throughout the Jōmon and Yayoi periods.

Generally, it can be said that Jōmon traditions were more prominent in eastern Japan than in the west, where the influence from the continent was stronger.

YAYOI ADVANCES

Cultural elements unique to the Yayoi were already well-defined by the earliest stage. For example, the chipped spearhead-shaped stone implements excavated at Itazuke, because they were not produced during the latest stage of the Jōmon period and also because we cannot find similar objects in areas contiguous to Japan, are considered to be one of those elements. Fired clay projectiles for slinging which were found at the same site are regarded as objects peculiar to the early Yayoi people. Square burial mounds surrounded by ditches were first built during the early stage of this period. The oldest example of this kind was excavated at the lowest stratum of the Ikegami site in Osaka. Since this type of tomb has never been found at Jōmon sites and since the form is unknown outside Japan, we can define it as one of the unique elements of the Yayoi culture.

The bronze bells and weapons which are recognized as representative art of the Yayoi period originated in Korea where they had practical use. But, as they developed their metal industry, the Yayoi people increased their size and used them for ceremonial purposes. Among the products of the new technology were bronze whorl ornaments, possibly for shields, whose shape imitated natural shells. Comma-shaped beads, made of glass, and bronze bracelets are other examples of implements whose design was borrowed from Jōmon originals. Generally speaking, the Yayoi people exhibited an ability to innovate.

YAYOI PEOPLE

Physical anthropologists provide two main theories regarding the birth of the Yayoi people. One theory asserts that the differences in physical features between Jōmon and Yayoi skeletons were caused by changes in the environment and not by racial mixture. This view was based upon materials excavated in the southern Kanto plain. Another claims that at the end of the Jōmon period new immigrants came from the continent, possibly from southern Korea, and mixed with the Jōmon people. This theory was based on materials excavated from early cemeteries of the Yayoi period in western Honshu and northern Kyushu. The fact that the height of the early Yayoi people in western Japan was somewhat greater than that of the Jōmon people and greater still than that of the Kofun people and the modern Japanese who live in the locality suggests that racial mixture had occurred there by the time of the transition from Jōmon to Yayoi. These facts suggest again that the number of immigrants was not sufficient to cause changes in physical features on a large scale and that the features of the immigrants were gradually assimilated.

These two theories are both acceptable from the archaeological point of view. It can be surmised that in western Japan racial mixture on a considerable scale produced the Yayoi people while, on the other hand, in eastern Japan, Jōmon people adopted new cultural elements and transformed themselves into Yayoi people. Three facts support this hypothesis:

1. Synthetic research on modern Japanese physical features by anthropologists has revealed certain differences in the physical features of eastern and western Japanese. These differences are also perceptible in such hereditary features as blood type.
2. Throughout the Jōmon period, cultural elements and physical features seem to have kept their consistency.
3. Since the Kofun period, no historical records show a large-scale invasion which might have resulted in physical changes among the western Japanese.

THE NATURAL ENVIRONMENT

It is well known that the Japanese archipelago lies within the monsoon climatic zone. Hot temperatures in the summer and sufficient water supply provide the best conditions for rice cultivation. In the late Jōmon period the sea level declined and coastal plains were gradually formed. Soon afterwards sand dunes formed along the shore and blocked rivers. Finally, marsh land was created behind the sand dunes. The first paddy fields cultivated by the Yayoi people were located on these marshes. The mean temperature and the humidity of the Yayoi period were almost the same as at present. But, the flora around the settlements was different. According to pollen analysis, the peripheries of the early Yayoi settlements were covered by evergreen leaf trees such as the Japanese evergreen oak and chinquapin; these were gradually replaced by pine and other trees which had resistance to poor soil. It is especially noteworthy that the ratio of pine to evergreen leaf trees increased rapidly during the middle Yayoi stage. This phenomenon indicates that the Yayoi people cleared much land. Animal and bird bones excavated at the sites and figures repre-

sented on the surface of bronze bells and pottery show that the fauna of the period does not vary significantly from that of the present day.

POTTERY

The basic unit of Jōmon pottery was a deep jar used for cooking. Indeed this was the sole vessel shape of the era until the late stage when the bowl emerged. Consequently, the deep jar and bowl form a nuclear set within the Jōmon pottery assemblage. In northeastern Japan, the variety of pottery at the latest stage of the Jōmon period was extremely rich. This seems somewhat abnormal for a hunting and food-gathering society. On the other hand, in western Japan, the deep jar and bowl formed a set and few other vessel shapes existed.

At the beginning of the Yayoi period, this combination of vessel shapes was suddenly replaced by the Yayoi pottery assemblage. This comprised three vessel shapes: storage pot, cooking vessel, and serving bowl. Obviously, this combination is more characteristic of a farming society. The ratio of the number of pots in the whole variety is more than 50 percent. In the latter half of the middle Yayoi stage, pedestal dishes emerged as a fundamental element of Yayoi pottery. At the same stage, storage pots and bowls with stands were produced, and sometimes stands were produced independently. These phenomena show that pottery for ceremonial purposes was necessary for a society with differentiated agriculture.

Potters of the Yayoi period did not use the potter's wheel and did not build kilns to fire pottery. Their basic techniques followed Jōmon potters' methods and were succeeded by those of the Haji potters of the Kofun period and later.

DIFFUSION OF YAYOI CULTURE

Soon after the Yayoi people settled in northern Kyushu, they moved along the coast looking for cultivable land. The distribution of early Yayoi settlements stops west of a line between present-day northern Kyoto and western Aichi prefectures. In other words, early Yayoi pottery, or Ongagawa pottery as it is generally called after the site at which it was first found, exists as an assemblage only in areas west of the line mentioned above. Further, the movement of Yayoi culture to this line occurred quite rapidly. This is shown by the fact that pottery of the earliest stage is distributed throughout the area between northern Kyushu and the line between Kyoto and Aichi. It is possible to estimate that such movement required between two and three generations. Although individual bits of Ongagawa pottery were imported eastward across the line to western Kanagawa Prefecture on the Pacific Coast and to the Iida basin along the Tenryu River valley, settlements in which the Ongagawa pottery was actually produced and used never existed in these areas. Limitations on early Yayoi expansion are explained as follows:

1. The relatively small amount of sunshine in eastern Japan made rice cultivation difficult. Therefore the Yayoi people could not settle the area until suitable types of rice evolved.
2. Since such prerequisites for Jōmon culture as boar, deer, fish, and nuts were more abundant in the east, the society was better supported and therefore more resistant to change.

For several decades the Yayoi and Jōmon peoples coexisted on both sides of the line and enjoyed contact through trade. Then, the Jōmon people of eastern Aichi Prefecture gradually adopted new cultural elements and began to cultivate rice. Afterwards, their pottery assemblage changed to include the storage pot and cooking vessel as well as the early Yayoi pottery. However, the late Jōmon potter's tradition of using shells to etch a surface design endured. People who lived in the eastern part of Aichi Prefecture and who turned themselves into Yayoi people played an important role in spreading Yayoi culture farther eastward. During the earlier half of the middle stage, people in Chubu, northern Kanto, and southern Tohoku began to accept a somewhat evolved Yayoi culture from this district. Yayoi pottery with etched decoration has been found at several sites from Chubu to southern Tohoku. It is thought that these were brought from eastern Aichi Prefecture as rice-seed containers. Thus, the Yayoi culture spread over large areas of eastern Japan during the earlier half of the middle stage, and such characteristics of Jōmon culture as pottery assemblage, stone implements for ceremonial use, and peculiar ear ornaments disappeared. But little is known of the first Yayoi cultural elements in these areas except for a custom related to burial. After the first interment, bones were collected, placed into urns, and reburied. As yet no village sites have been found.

It is curious that the first Yayoi culture in eastern Japan did not diffuse to the large southern Kanto plain, though it did spread from the basins in Yamanashi and Nagano prefectures to the northern Kanto by way of the base of the Asama mountains and then into Fukushima Prefecture. The reason for the nonacceptance of Yayoi culture by the people of the southern Kanto remains to be clarified. When the social and environmental conditions of the southern Kanto at the latest Jōmon stage are compared with those of other areas at the same stage, we do not find any essential difference between them. But it should be pointed out that in the southern Kanto plain after the middle Jōmon stage, when large settlements existed and large shell mounds were formed, the economic vitality of the society waned. Evidence of this decline is seen in the decrease of the number of sites and in a reduction in the scale of each. Perhaps this decline made it difficult to accept new cultural elements. It was probably not until the beginning of the latter half of the middle stage that Yayoi culture came to be accepted there.

At the same stage, Yayoi culture spread farther north to Iwate Prefecture and the southern part of Akita Prefecture. The many Yayoi cultural elements that have been excavated in these areas, such as stone implements of continental origin, square burial mounds surrounded by ditches, and settlements surrounded by ditches, prove acceptance of the new culture. Little is known in regard to the acculturation of northernmost Honshu, including northern Akita and Aomori prefectures. Some archaeologists feel that Yayoi culture diffused to these districts at the same time. Their view is based upon discoveries of carbonized rice grains and potsherds with rice-grain marks. An alternative view is that the inhabitants of these districts remained in the hunting and food gathering stage and that they received rice through trade.

It is interesting to trace the route through which the Yayoi culture diffused. In western Japan, Yayoi people moved mainly along the coast. On the other hand, in eastern Japan the route followed river valleys and mountain passes. These facts seem to indicate that the original Yayoi people in western Japan were seafarers and

that the Jōmon people who accepted the Yayoi culture in eastern Japan were originally land-oriented.

RICE CULTIVATION

It is well known that paddy cultivation requires intensive labor and that more intensive labor brings a greater harvest. It is also known that rice contains more calories per unit than other farm products. Therefore, rice cultivation can support a greater population than can the cultivation of other grains. Although the rice plant cultivated in the Yayoi period was *Oryza sativa japonica*, which is similar to modern Japanese rice, it is thought that Yayoi rice was more primitive. This is because each grain had an awn on the end of the husk. It is also thought that this kind of primitive rice was more easily cultivated by rudimentary agricultural techniques than are the improved varieties of the present day. The Yayoi people of the early stage made their paddy in the damp areas of the coastal plain which had less fertile soil. Although they could not expect good harvests from these areas, the high water table obviated the need to construct irrigation works and these damp areas were more convenient for their agricultural techniques. Therefore, collecting edible plants, fishing, and hunting remained important.

At the middle stage, people actively engaged in forest clearance and constructed irrigation works. They removed their paddy from the lower damp areas to comparatively dry land where the soil was more suitable for rice cultivation. Thus, specialized agricultural villages were gradually formed. At the late stage, they enlarged their paddy. The excavation at Toro, Shizuoka Prefecture, reveals that the paddy fields of the late stage were divided by levees and drainage ditches both of which were reinforced by piles.

The early Yayoi people used various wooden implements. By the latter half of the middle stage iron blades were attached to the end of these wooden implements which made possible multiple-purpose use. Consequently, the variety of implements decreased. Stone reapers for cutting rice heads were also replaced by iron reapers. Interestingly, the Yayoi people harvested by reaping rice at the head and only occasionally used iron sickles.

HUNTING AND FISHING

Obviously, hunting and fishing were not so important in the Yayoi period as in the earlier period. But, bird and animal meat, fish and shellfish were still necessary as sources of protein. Like other rice-eating peoples, the Yayoi people derived the larger part of their caloric intake from rice and supplemented this basic diet with protein from meat and fish. The decoration on a bronze bell reveals that they used bow and arrows for hunting and were assisted by dogs (Plate II). Fishhooks, gaffs, and harpoons made of horn and animal bone were used and were later replaced by bronze and iron fishhooks. Gill-net and drag-net techniques of fishing developed. Evidence of the latter methods is seen in the many stone sinkers of various weights that have been discovered. Salt manufacturing was also important. Already at the late stage of the Jōmon period, people of the Tohoku and Kanto regions sporadically practiced salt manufacture by boiling seawater. At the end of the middle Yayoi period this technique spread and was continued in the Inland Sea region until later times.



Plate I Stone mould of a bronze bell excavated at Higashinara, Osaka Prefecture. Height 43 cm.



Plate II A man and dogs hunting a boar: a relief on a bronze bell traditionally from Kagawa Prefecture.

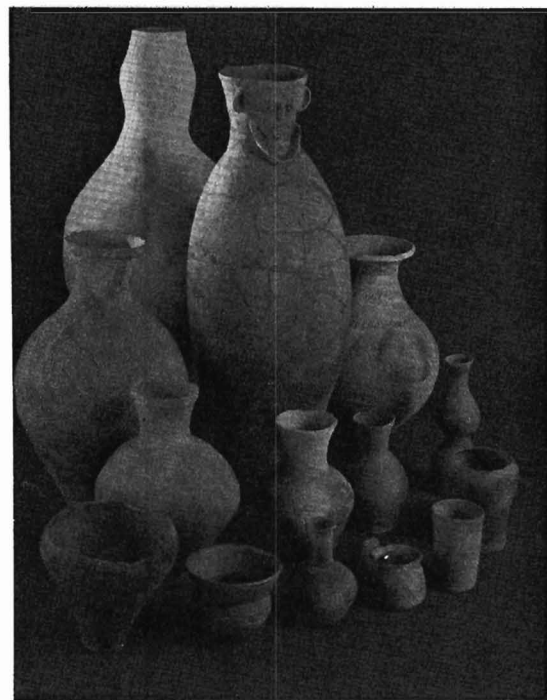
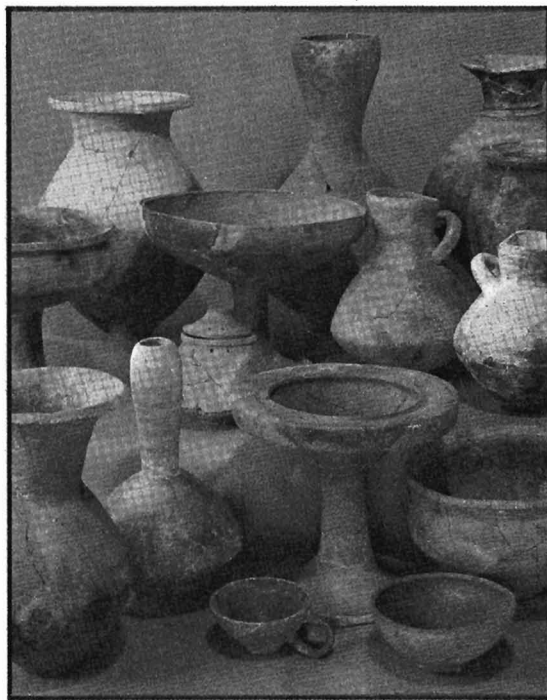
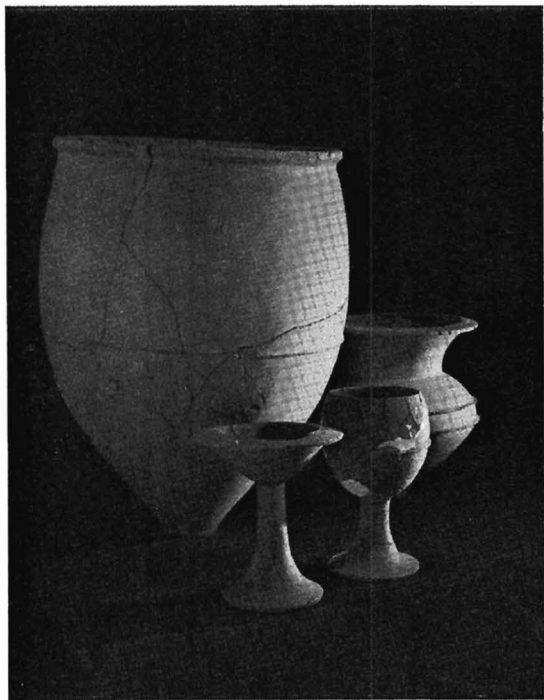


Plate III Localities of middle Yayoi pottery: *left*, Kyushu; *middle*, Kinki; *right*, Kanto.

LOCALITIES

As was mentioned earlier, the pottery of different localities produced during the earlier half of the early stage is remarkably similar in shape and ornamentation. But, during the later half of the early stage, local variations emerged in reflection of the establishment of self-sufficient economic territories. For example, Nara, eastern Osaka, southern Osaka, and western Hyogo prefectures all developed distinctive pottery styles. The localization of pottery style and other customs became more observable at the middle stage. Generally, the most remarkable difference is seen between eastern (Plate III, *right*) and western Japan. However, western Japan can be further divided into western and eastern areas. The former includes Kyushu, westernmost Chugoku and Shikoku while the latter includes the Kinki, most of Chugoku, and Shikoku and western Chubu. Pottery produced in the western area of western Japan had little ornamentation but was distinguished by refinement of shape and line (Plate III, *left*). The pottery of the eastern portion of western Japan was delicately ornamented by the use of a comblike implement (Plate III, *middle*). It should be pointed out that in the former area, large bronze spearheads with sockets were made for the purpose of ceremonies while in the latter, bronze bells, bronze halberd-blades, and bronze double-edged flat daggers were produced for the same purpose. In the late stage, the pottery of the Kinki region gradually decreased in size and the ornamentation technique was also simplified. These fashions soon spread widely, and eventually pottery lost its ornamentation completely. This fact indicates that pottery was now being produced by specialists for daily use as well as for ceremonial purposes.

SETTLEMENT

The Yayoi people dwelt in semisubterranean houses that usually had hearths. But in damp regions, they were forced to build circular wall-like foundations at ground level and then to construct a superstructure. These examples were excavated at Toro. During the early stage, slightly elevated land near the paddy was chosen for settlement. In the middle stage, when the paddy was moved to high dry land, settlements appeared on the crests of low hills. It is interesting that during the later half of the middle stage in the areas along the coast of the Inland Sea, some villages were built on hilltops or mountainsides more than 100 m above sea level. Physical security dictated the choice of such inconvenient sites. At this stage the increased population at times competed violently for cultivable land and for water rights. First individual villages and later multivillage units engaged in such conflicts; as a result, sites on high land came to be preferred locations for settlement.

Characteristic features of Yayoi settlement are the separation between living space and burial areas, the emergence of separate storage facilities, and the ditch-encircled living space. The scale of the early Yayoi settlements was almost the same as that of the Jōmon period. But, at the middle stage, some villages were remarkably enlarged. The organization of early Yayoi villages is unknown. However, it has been determined that at the middle stage, several houses formed a unit. When the area of paddy was limited these units formed separate entities; when paddy was widespread several units comprised a community in which religious ceremonies and military operations were performed cooperatively. Yayoi settlements can be divided

into three types. The first is the successive type in which people lived at the same place continuously. The second is the intermission type in which people resumed their residence at the ruined site after a short intermission. The third is the extinction type, which was never inhabited after it had been ruined. The settlements of northern Kyushu are mostly of the extinction type, while those in the Kinki belong to the successive or intermission types. Nara Prefecture has more settlements of the successive type than any other region in the Kinki. Since the extinction or intermission of settlements is thought to be caused mainly by natural disasters such as typhoons or floods, these facts indicate that the Kinki district was more habitable than Kyushu and also that Nara Prefecture was the best land within the Kinki. This condition was a major reason why Nara Prefecture became the center of the ancient Japanese state.

BURIALS

By the transition from Jōmon to Yayoi, burial customs also changed. Cemeteries became independent and, generally, burials were practiced more carefully than in earlier times. Localization of burial customs eventually became as distinct as that of pottery styles. In northern Kyushu, during the first stage, wooden coffins and stone cists were used for burial. So-called dolmens were also built at the cemeteries from the early stage to the beginning of the middle stage. But these were gradually replaced by urn burials and later by stone cists and pit graves. In the Kinki, wooden coffins (Plate IV) were used continuously. In many cases, these wooden coffins were placed in square mounds surrounded by ditches. Pots and bowls were used as coffins for the interment of children, and were buried in cemeteries or at times near the houses. These customs were practiced widely from Kyushu to eastern Japan. In northern Kyushu and its vicinity some cemeteries had special tombs in which were placed rich burial implements such as bronze mirrors, bronze and iron weapons, and jade and shell ornaments. But not all the cemeteries had such special tombs. These facts indicate that a difference in status between the nuclear community and the subordinated community had already developed and, further, that within the nuclear community there existed a special person who was privileged to possess such treasures. On the other hand, the Yayoi people in the Kinki and its vicinity did not customarily place treasures in their tombs. It is thought that in this area treasures belonged to the community rather than to one person, and that they were either handed down through the generations or periodically recast.

Because the people of the Jōmon buried their dead in shell mounds, many skeletons from that period were well preserved. But, at the Yayoi cemeteries well-preserved skeletons have been excavated only rarely. One of these exceptions is Doigahama, Yamaguchi Prefecture, which is located in westernmost Honshu and situated at a sand dune near the coast of the Sea of Japan. At the Doigahama cemetery, which belonged to the early stage, more than 200 skeletons were excavated. The arrangement of the skeletons shows that there were two areas in the cemetery: a central area, occupying a slightly elevated spot, and the surrounding area. Burials were concentrated at the center. It is interesting that nearly three times as many male skeletons were found than were female skeletons. There were also many children's bones in this location. On the other hand, in the surrounding area, male and female bones were found in equal number, although only one child's skeleton was recovered.



Plate IV Wooden coffin excavated from Ama, Osaka Prefecture. Length 208.5 cm.



Plate V Square burial mound surrounded by ditches found at Uryudo, Osaka Prefecture.

Furthermore, the cists in which old people were buried were built only at the central area, and only people who were buried at the central area possessed jasper and shell ornaments. Similar examples of Yayoi cemeteries were also known in Yamaguchi and Fukuoka prefectures. It seems possible to surmise that the people who were buried at the central area were natives of the community to which the cemetery belonged, and those who were buried in the surrounding area were outsiders who entered the community through marriage. This supposition is supported by folkloric research on recent burial customs. Therefore, we deduce that in the society to which the Doigahama people belonged, bilateral marriage was customary and the age-grade system was strict. These social institutions were kept by some fishing villages in western Japan until recent times.

Cemeteries in the Kinki generally comprised groups of square mounds surrounded by ditches (Plate V) and also by pit graves. The latter are almost always subordinated to the former. For example, in the Uryudo cemetery, Osaka Prefecture, a ditch separates the square mounds surrounded by ditches and the area of pit graves. Whether this fact indicates the emergence of social stratification or mere discrimination for other reasons is not clear, because no skeletons remain in these tombs.

UNIFICATION

In the Jōmon period, hunting implements were also used as weapons. This situation was maintained through the early stage of the Yayoi period. For example, a skeleton excavated at the Doigahama cemetery is thought to have been killed by stone arrowheads which are identical to those used for hunting. By the middle stage, however, weapons were developed from hunting implements. The bronze arrowheads found in the skull of a skeleton excavated at Nejikome, Nagasaki Prefecture show this development. Imported bronze weapons such as spears, daggers, and halberds were thought to have been kept as treasures rather than as weapons. Although iron weapons were also used, bows and arrows with stone heads continued to be a most helpful weapon for the Yayoi people. Increasing frictions involving villages and eventually whole areas drove people to produce stronger weapons. In the Kinki district, the people improved stone arrowheads and produced a large quantity of heavy and sharp instruments. Chipped stone spearheads and polished stone daggers were also developed. The first center of the stone weapon industry was in the southern Kinki including Nara and Osaka prefectures. But, a little later, the people who lived in the areas along the coast of the Inland Sea began mass production of these strong stone weapons. Evidence of the development of weapons production appears simultaneously with that of highland settlement. Thus, we hold that in the large areas of western Japan and especially in its eastern part, fierce battles occurred, possibly as part of the process of unification of the ancient Japanese state. Remains of casualties of these battles were excavated at Katsube, Osaka. One had been killed by a spear while the other bore the marks of five arrows. These mass-produced stone weapons suddenly disappeared at the beginning of the late stage and have never been produced since. At the same time, most highland settlements were abandoned. The settlements which were built during the late stage were mainly situated at the low plain. It seems that the fundamental work of unification was already completed by this stage.

According to the *Hou Han Shu* [History of Eastern Han], Emperor Kuang-wu granted a gold seal to a king of one of the domains of Japan in A.D. 57. The discovery of a gold seal at Shikanoshima, Fukuoka Prefecture with the inscription "King of *Nu* of *Wo* of *Han*" proves the authenticity of the historical description and further indicates that some regional domains were already established in part of Japan.

Toward the end of the Yayoi period, Ch'ên-shou, a historian of Ch'in, wrote *San Kuo Shu* [Histories of the Three Kingdoms]. In this work he described *Wo* (Japan). He related that once there were many domains in *Wo*, but now *Hsieh ma t'ai* (Yamatai), a domain ruled by a queen, had leadership among them. Before the leadership was established, war had persisted for several years. The description of the war seems to correspond with the results of archaeological studies mentioned earlier. The location of Yamatai has not yet been identified, and this remains one of the most exciting subjects in Japanese history. Some scholars argue that Yamatai refers to northern Kyushu, while others hold that Yamatai lies in the Nara basin. The facts established thus far seem to suggest that the first unification of ancient Japan was probably accomplished by the inhabitants of the Nara basin.