

27 Subsistence, Sedentism, and Social Complexity among Jomon Hunter-Gatherers of the Japanese Archipelago

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27.1 Introduction

Jomon is the name of the prehistoric period and culture on the Japanese Archipelago that follows the Paleolithic Period and precedes the agricultural Yayoi Period. Most scholars agree that the date of the oldest pottery in Japan (ca. 16,000 cal. BP) marks the beginning of the Jomon Period. The end of the Jomon Period is still controversial (see the Mizoguchi chapter in this volume). In Kyushu, the transition from the Jomon to the Yayoi Period may have occurred as early as 2900 cal. BP (e.g., Harunari et al. 2003; Fujio et al. 2005), but in northern Honshu (the largest island of the Japanese Archipelago), the end of the Jomon Period is likely to have been as late as 2400 cal. BP (Kobayashi 2008). Because the Jomon Period lasted for more than 10,000 years, and because the geographic characteristics within the Japanese Archipelago vary significantly, Jomon culture shows marked temporal and spatial variability.

Overviews and characteristics of Jomon culture are summarized by Habu (2014a, b). Monographs by Aikens and Higuchi (1982), Imamura (1996), Habu (2004), and T. Kobayashi (2004) are reliable English sources for understanding the development of Jomon archaeology up to the early 2000s. All of these sources are focused primarily on the development of Jomon social and cultural complexity in eastern Japan (the northeastern half of the Japanese Archipelago, including Hokkaido, Tohoku, Kanto, and Chubu regions; see Fig. 27.1), where site density and average site size are much greater than those in western Japan (southwestern half of the Japanese Archipelago, including the Kinki, Chugoku, Shikoku, and Kyushu regions and the Ryukyu Islands). Rather than attempting to provide another holistic review of Jomon archaeology, this chapter emphasizes two different Jomon cultural trajectories in eastern and western Japan from the Initial to Final Jomon Periods (for approximate dates of these subperiods, see Table 27.1), and outlines some new developments in Jomon archae-

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Fig. 27.1 Prefectures and regions of Japan, and locations of key sites discussed in this chapter

Table 27.1 Approximate dates (calibrated BP) for the six Jomon sub-periods

Sub-period	Approximate age (cal. BP)
Final Jomon	3300–2800/2300
Late Jomon	4400–3300
Middle Jomon	5300–4400
Early Jomon	7000–5300
Initial Jomon	11,000–7000
Incipient Jomon	16,000–11,000

ology. The Kaner and Taniguchi chapter in this volume covers several key issues regarding the transition from the Paleolithic to the Incipient Jomon Period.

27.2 Results of Rescue Excavations and Beyond

Since the 1970s, Jomon archaeology has benefited greatly from a large number of rescue excavations undertaken throughout the archipelago (see the Habu and Okamura chapter in this volume). Typically, these rescue excavations were conducted prior to the construction of buildings, highways, railways, airports, and other public as well as private land development projects. In some cases, efforts by local residents and archaeologists to protect archaeological remains led to the preservation of key sites. Examples of these saved sites include the Sannai Maruyama site (an Early-Middle Jomon settlement in Aomori Prefecture; see e.g., Okada 2003; Habu 2008), the largest Jomon site in Japan, the Goshono site (a Middle Jomon settlement site in Iwate Prefecture; Habu 2004:183), and the Isedotai stone circle site (a Late Jomon stone circle in Akita Prefecture). All three sites are designated as national historic sites, and they are on the list of the “Jomon archaeological sites in Hokkaido and Northern Tohoku” that are currently proposed to be inscribed on the World Heritage list (Kobayashi 2010; Secretariat for the Promotion of the World Heritage Inscription of Jomon Archaeological Sites 2016).

New discoveries derived from rescue excavations continue to enrich our understanding of Jomon culture. To name a few, at the Tatesaki site in southern Hokkaido, rescue excavation prior to the construction of power transmission towers for the Hokkaido Bullet Train Line has revealed 51 pit-dwellings dated to the Early and Middle Jomon Period together with a large midden (Bunkacho 2016). Because the dates of these pit-dwellings overlap with those of the Sannai Maruyama site in Aomori Prefecture (see above), it is expected that the results of this excavation will provide new information to infer exchange of goods and information between Honshu and Hokkaido. Another good example of a large-scale excavation is the Rokutanda-minami site in Niigata Prefecture, where a large Middle Jomon settlement and middens associated with over 2000 polished stone axes have been discovered as a result of rescue work prior to the construction of the Hokuriku Bullet Train Line and the Itoigawa-Higashi Bypass (Bunkacho 2016). Yet another example is the rescue excavation of the Mizukami and Kwaratai site clusters in Aomori Prefecture prior to the construction of the Tsugaru Dam. Archaeological findings of the rescue excavation of these site clusters included a Middle Jomon settlement associated with burials with stone coffins at the Mizukami No. 2 site (Fig. 27.2), and a Final Jomon settlement associated with a large water-logged midden at the Kwaratai No. 1 site (Fig. 27.3; Aomori-ken Kyoiku linkai 2013).

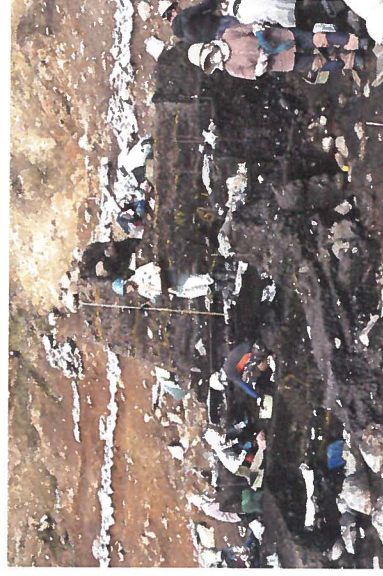
While rescue excavations continue to enrich our understanding of Jomon culture, it is clear that, on the whole, the flood of new discoveries is over. As shown in Figs. 2.1 and 2.2 of the Habu and Okamura chapter in this volume, the number and scale of rescue excavations reached their maximum during the mid-1990s, and the total number of rescue excavations and funding for such work have significantly decreased over the past two decades.

As a result, since the late 2000s, Jomon archaeology has gradually been moving into a new phase characterized by an emphasis on new interpretations; more systematic analyses of paleoenvironmental, zooarchaeological, and paleobotanical data; adoption of new analytical techniques; and incorporation of new theoretical approaches from abroad. These changes are reflected in the publication of the series *Jomon Jidai no Kokogaku (Archaeology of the Jomon Period)* from 2007 to 2010 edited by Kosugi et al. (2007–2010). In particular, studies in environmental archaeology and bioarchaeology have become more significant for Jomon archaeology. Of the 12 volumes covering various aspects of Jomon archaeology, four are dedicated to topics related to these research fields: Vol. 3 on paleoenvironment and paleoethnobotany (Kosugi et al. 2009); Vol. 4 on zooarchaeology, sea level change and stable

Fig. 27.2 Excavation of stone cist burials at the Mizukami No. 2 site, Aomori Prefecture (Photo by Junko Habu)



Fig. 27.3 Excavation of a water-logged midden at the Kwaratai No. 1 site (Photo by Junko Habu)



isotope studies of human skeletal remains (Kosugi et al. 2010); Vol. 5 on subsistence and technologies (Kosugi et al. 2007); and Vol. 10 on bioarchaeology, demography and social organization (Kosugi et al. 2008). New data from key wetland sites, such as the Higashimyo shell midden in Saga Prefecture (see Habu et al. 2011) and the Shimoyakebe site in Tokyo (Kudo 2012), have enriched our understanding of Jomon foodways as well as non-food uses of plant materials, including basket and lacquerware production. New analytical techniques, such as organic residue analysis (Craig et al. 2013; Heron et al. 2016; Horiuchi et al. 2015; Lucquin et al. 2016) and analysis of plant seed and insect impressions on pottery (e.g., Nakayama 2010; Obata 2016), have also contributed significantly to our understanding of Jomon food diversity. While still in the process of development, oxygen isotope dendrochronology by Nakatsuka (2015) may provide invaluable information about annual fluctuation of humidity with precise calendar dates as early as 4300 years ago.

Progress has been made in Japan in the study of climate change and the reconstruction of environmental history from the Late Paleolithic through the Jomon Periods (e.g., Anzai 2014; Matsushima 2013; Tsuji 2013; see also Habu 2014a). This is closely related to the development of high resolution AMS ^{14}C dating (e.g., Kobayashi 2008). In his recent monograph on AMS ^{14}C dating, environmental reconstruction and Jomon culture history, Kudo (2012) attempts to provide new insights on subsistence strategies and human-environmental interaction at several key sites. These include the Odai Yamamoto I site (ca. 15,000–16,000 cal. BP) in Aomori Prefecture, an Incipient Jomon site associated with the oldest Jomon pottery; the Incipient Jomon Higashi-Kurotsuchida site (ca. 13,000 cal. BP) in Kagoshima Prefecture; the Initial Jomon Okinoshima site in Chiba Prefecture (ca. 10,000–9500 cal. BP) associated with the oldest remains of hemp (*Cannabis sativa*); the Middle and Late Jomon Shimoyakebe site in Tokyo; and the Late and Final Jomon Terano-higashi site in Tochigi Prefecture (ca. 4400–2750 cal. BP). In particular, Kudo and his collaborators' work on the Shimoyakebe site, including AMS ^{14}C dating and C/N stable isotope analysis of charred remains and plant seeds attached to pottery and macro plant remains analysis (see Kudo 2012), has revealed changing human-environmental interaction in relation to shifts in reconstructed vegetation on the basis of pollen data from the Kanto Plain (Yoshikawa 1999). Middle Jomon soy beans (ca. 4900 cal. BP) reported from this site are currently the oldest known archaeological examples.

27.3 Two Different Pathways in Jomon Culture: the East–West Divide

The Jomon people have frequently been labeled as sedentary hunter-gatherers. However, the definition of sedentism in hunter-gatherer archaeology is a complicated one (see e.g., Kent 1989). This is particularly so in the case of the Jomon of the Japanese Archipelago: settlement data from the Jomon Period seem to indicate varying degrees of sedentism over its long time span along with marked regional variability (e.g., Habu 2001, 2014a, b). As a result, the question of how to evaluate the degree of Jomon sedentism in relation to subsistence strategies and social complexity has been a major topic of debate in Jomon archaeology (e.g., Anemiyama 2009; Doi 1988; Habu 1996, 2001, 2004; K. Kobayashi 2004).

Within the tradition of Jomon settlement archaeology, many scholars have suggested that the presence of “circular settlements” (large settlement sites associated with semicircular or horseshoe-shaped layouts of dwellings) is evidence of year-round sedentism (see Habu 2004:80–81). “Circular settlements” first appeared in the Kanto and Chubu regions of eastern Japan during the latter half of the Early Jomon Period. The relative frequency of this type of settlements increased from the Early to the Middle Jomon Periods in these regions. In contrast, large “circular settlements,” the development of which seems to have been related to an increase in population size and density (Taniguchi 2002), are practically nonexistent in western Japan. This has been interpreted as evidence of much lower population size and density in western Japan, possibly with a lower degree of sedentism.

Some researchers argue that the presence of large “circular settlements” does not necessarily imply that these sites functioned as large, fully-sedentary villages throughout their “life histories.” For example, Doi (1988) suggests that the large number of pit-dwellings at these sites could have been a result of repeated short-term occupations. In any case, the orderly spatial configuration of pit-dwellings, burials and other features within each “circular settlement,” which were maintained for at least several generations, seems to indicate the presence of shared social rules and common ideological views that were associated with everyday life.

If one takes a bird's-eye view of changes in Jomon settlement and society, one can see that there is a general trend towards more sedentary lifeways through time from the Incipient to Late Jomon

Periods, and that the trend was associated with an increased degree of social complexity through time, which is reflected in the development of symbolic artifacts and ceremonial features. Yet, archaeological data seem to indicate that Jomon societies in eastern and western Japan followed different pathways. It is a general consensus among Jomon archaeologists that the degree of sedentism and the level of social complexity remained much lower in western Japan than in eastern Japan throughout the Jomon Period.

The reason for this east–west dichotomy has often been attributed to environmental factors. Historically, Yamanouchi, in a 1947 lecture, proposed that Jomon hunter-gatherers in eastern Japan, whose subsistence was based on both salmon fishing and deciduous acorn collecting, were more prosperous than those in western Japan who were primarily relying on evergreen acorns (such as *Lithocarpus* and *Castanopsis*) (Yamanouchi 1964; see also Habu 2004:60). Alternatively, Izumi (1985) suggests that the two distinct regional trajectories may have been due to differences in the degree of forest biodiversity. In eastern Japan, deciduous forests with a limited number of species dominate the vegetation, while evergreen forests with a wider variety of species are more common in western Japan. Because of the lower biodiversity in the forest, the harvest time in eastern Japan tends to be relatively short. Izumi argues that the formation of labor-intensive social organizations would have been very effective for eastern Japan. Conversely, the harvest time in western Japan, with higher biodiversity in the forest, would have been less seasonally intensive, thus requiring less labor control. If we follow this argument, we find that differences in vegetation between eastern and western Japan led to the development of two distinct subsistence strategies, settlement patterns and social complexity throughout the Jomon Period.

27.4 Early Evidence of Sedentary Lifeways and the Emergence of Social Complexity: The Initial and Early Jomon Periods

The appearance of pit-dwellings, the construction of which would have required a significant amount of labor investment, is an indicator of a prolonged stay at a particular location. So far, no clear evidence of Paleolithic pit-dwellings has been acknowledged, although a small number of house-like structures have been reported. The earliest examples of Jomon pit-dwellings are dated to the Incipient Jomon Period.

Characteristics of Incipient through Early Jomon sites in eastern Japan are discussed in detail in Habu (2004, 2014b). In a nutshell, signs of increasing exploitation of so-called *r*-selected species, including plants, fish, shellfish, and small mammals, can be found at Initial Jomon sites. Settlements from this period are typically small, and most of them are associated with only a few pit-dwellings. A notable exception includes the Nakano B site in Hokkaido, from which over 500 pit-dwellings have been reported. By the Early Jomon Period, the presence of larger settlements associated with scores of pit-dwellings became quite common. The total number of sites also increased significantly from the Initial to the Early Jomon. These changes are particularly notable in the Tohoku, Kanto and Chubu regions. It is also likely that an increase in the number of ritual artifacts, including shallow bowls for burial goods and ceremonial features during the latter half of the Early Jomon Period, may indicate emergent social complexity (see Habu 2004:252).

In western Japan, the number of pit-dwellings remains low until the Early Jomon Period. It is worth noting that the timing of the earliest examples of clay figurines (*dogu*), anthropomorphic females believed to have been ritual artifacts, coincides with the first appearance of pit-dwellings. Three pieces of clay figurines have been reported from two Incipient Jomon sites: one figurine from the Aidani Kumahara site in Shiga Prefecture, and the other two from the Kayumi Jiri site in Mie Prefecture, both of which are located in western Japan. These two sites are associated with five and

four pit-dwellings, respectively. Because discoveries of clay figurines from the Incipient Jomon Period are so rare and because the figurines from these two sites are stylistically different from each other, it is possible that the residents of these two sites invented clay figurines independently.

The Uenohara site in Kagoshima Prefecture represents an independently developed tradition of sedentary lifeways with evidence of emergent social complexity (Morita 2002; Pearson 2006; Shinto 2013). Located on the southern edge of the island of Kyushu in western Japan, the Uenohara site is known as an example of a large settlement dated to the early part of the Initial Jomon Period (Area 4 of the site), followed by the appearance of symbolic artifacts dated to the latter half of the Initial Jomon, including a clay figurine found in Area 3 of the site. Evidence of the Initial Jomon settlement in Area 4 consists of 52 pit-dwellings, 16 fire pits with ventilation shafts and 39 clusters of burned rocks. Some of these features were below the P13 ash layer (Sakurajima tephra) from the eruption of Sakurajima Volcano (ca. 9400 uncal. bp or 10,600 cal. BP; Shinto 2013). This places the beginning of the site occupation at the early part of the Initial Jomon Period. The occupation of these pit-dwellings is divided into four phases, with the eruption of the volcano in the middle of the sequence. It is likely that, at each phase, at least several households simultaneously occupied the site. Amemiya (1998) suggests that the Initial Jomon Uenohara settlement was occupied year-round while Incipient Jomon sites in the same area, such as Sojiyama and Kakoinohara, were only seasonally occupied.

Emergent social complexity at the Uenohara site, represented by the amount and variety of symbolic artifacts and evidence of symbolic activities at Area 4, culminated during the latter half of the Initial Jomon Period. Various kinds of symbolic artifacts, including a clay figurine, miniature pottery, clay earrings, and bifacially flaked stone tools with denticulate edges, are reported from this site. The fact that these artifacts are all dated to the latter half of the Initial Jomon Period is significant, because in eastern Japan, similar kinds of symbolic artifacts did not appear until much later.

The early development of sedentary lifeways and social complexity in southern Kyushu was subsequently terminated by the eruption of Kikai Caldera (a submarine volcano located near Kagoshima) at around 6400 uncal. bp or 7300 cal. BP. Scholars believe that the degree of sedentism and group size in the area decreased considerably during the following period, and the production of symbolic objects became stagnant. Clay figures were not produced again in western Japan until the latter half of the Middle Jomon Period.

27.5 Social Dynamics from the Middle to Final Jomon Periods

27.5.1 Regional and Temporal Variability in Population Estimates

Scholars agree that the number and size of settlements in western Japan remained much smaller than those in eastern Japan throughout the Jomon (see e.g., Koyama 1978). Table 27.2 summarizes Koyama's (1984) population estimates for eastern and western Japan in each Jomon subperiod.

Because Koyama's (1984) population estimates are based on a number of assumptions, the numbers shown in Table 27.2 would change significantly if we adopted different assumptions. Nevertheless, most scholars agree that these estimates reflect the general patterns of growth and decline in Jomon population as well as its regional variability, including the east-west difference. It is also worth noting that, while the average size of Jomon settlements in western Japan is smaller than that in eastern Japan, Koyama's estimates do not take this factor into account. Thus, the actual difference in population size between eastern and western Japan might have been even greater. Even though the archaeological data from western and eastern Jomon share certain cultural characteristics, such as pottery and stone tool production technologies, it is highly likely that characteristics of their

Table 27.2 Jomon population estimates by Koyama (1984) for eastern and western Japan (Hokkaido, Okinawa and small islands are excluded)

Sub-period	Initial	Early	Middle	Late	Final
East					
Tohoku	2000	17,300	96,500	43,800	39,500
Kanto	9700	42,800	95,400	51,600	7700
Hokuriku	400	4200	24,600	15,700	5100
Chubu mountain	3000	25,300	71,900	22,000	6000
Tohoku	2200	5000	13,200	7600	6600
West					
Kinki	3000	2800	1700	9500	4400
Chugoku	400	1300	1200	2400	2000
Shikoku	200	400	200	2700	500
Kyushu	1900	5600	5300	10,100	6300
Total	20,100	105,500	261,300	160,300	75,800

lifeways and societies were considerably different, including the degree and nature of sedentism and social complexity.

27.5.2 Eastern Japan

As shown in Table 27.2, the population estimates for all regions of eastern Japan achieve their maxima during the Middle Jomon Period. Characteristics of Middle Jomon settlement patterns in the Tohoku, Kanto, and Chubu Mountain regions are summarized in Habu (2004:252–255). While the direct cause of the population growth and decline from the latter half of the Early Jomon to the end of the Middle Jomon Period is currently unknown, scholars have argued about the conditions, causes, and consequences of these changes in relation to climate change (e.g., Kawahata et al. 2009) and the importance of plant cultivation and environmental management, including the possibility of tending chestnut trees (e.g., Tsuji 2011; Yoshikawa 2011). Habu (2015, 2016) suggests that, at the Sannai Maruyama site and in its vicinity in Aomori Prefecture, increasing subsistence specialization with a focus on limited types of plant food was able to support a larger population for a while, but a decrease in subsistence and food diversity made the Middle Jomon society more vulnerable in the long run. Fine-grained analyses of settlement size and distribution data within each region, such as Sekine (2014) and Ichikawa (2012), as well as starch grain analysis (e.g., Shibutani 2014) and organic residue analysis (e.g., Heron et al. 2016), may be a key to understanding the population dynamics at the local level. Results of summed probability distribution analysis of calibrated ^{14}C dates by Crema et al. (2016) are informative when considering regional divergences in demographic changes within eastern Japan.

The Late Jomon culture in eastern Japan was characterized by the sophistication of its material culture, including lacquerware production, an increase in the number of ritual artifacts and ceremonial features and the development of long-distance exchange networks of exotic goods (see Habu 2004: Chaps. 5 and 6). These signs, along with an increasing diversity in burial types during the Late Jomon Period, have commonly been interpreted as a reflection of increasing social inequality (see Habu 2004:254–258). It should be noted that the degree of the decline of estimated population in Tohoku is much smaller than in Kanto and Chubu, the reason for which has yet to be systematically examined.

The extremely low population estimates for the Final Jomon Period present another enigma that requires further investigation (see Habu 2004:259–261). The rapid decrease in the population estimates for Kanto and Chubu from the Late to Final Jomon, from 51,600 to 7,700 and 22,000 to 6,000, respectively, is particularly intriguing. In Tohoku, the decrease, from 43,800 to 39,500, is not as dramatic as in Kanto and Chubu, but most of these Final Jomon sites in Tohoku are small, non-residential sites, and the reports of large residential sites are still exceedingly rare. In this regard, the recent excavation of the Kawaratai No. 1 settlement in the mountainous part of Aomori Prefecture, which revealed the presence of Final Jomon pit-dwellings together with pit burials and large water-logged middens (Aomori-ken Kyoiku Iinkai 2013), may offer a key to understanding Final Jomon subsistence-settlement systems in this region.

27.5.3 Western Japan

In western Japan, the timing of a major increase in the number of sites shows a geographical shift from the northeast to the southwest. In the Kinki region, the shift occurred as early as the end of the Middle Jomon. In the Chugoku region, an increase did not occur until the first half of the Late Jomon. Finally, in Kyushu, the timing of an increase occurred slightly later, during the middle-to-the-late half of the Late Jomon. This sequential increase in settlements from the east to the west may indicate a population movement from eastern to western Japan. It is also possible that this change may have been triggered by the cooling climate that corresponds to the Bond 3 event (Yasuda 1980; Koyama 1984).

27.5.3.1 Kinki, Chugoku, and Shikoku

The migration hypothesis discussed above is supported by other lines of archaeological evidence. Many artifacts and cultural practices that originated in eastern Japan began to appear when the number of sites increased in each region (Ueda and Seguchi 2001; Yano 2004). These include the common production of clay figurines and other symbolic objects, the mortuary customs associated with burial jars, and tooth ablation. Tools for subsistence activities that were common in eastern Japan in the earlier subperiods, such as chipped stone axes (probably digging tools) and fishhooks, also became prevalent. These lines of evidence may suggest that a new subsistence-settlement system with a higher dependency on plant food, which characterized eastern Japan during and after the Middle Jomon Period, was brought into western Japan. It is likely that this shift was closely related to the overall population increase in western Japan. In spite of all of these changes, the level of sedentism in western Japan never reached the same level as in eastern Japan.

Settlement, subsistence, and ritual data from the Kinki, Chugoku, and Shikoku regions indicate that regional variability is quite large among these regions and that the differences do not necessarily demonstrate a geographic pattern. Seguchi (2009), on the basis of his analysis of the distribution and number of sites, feature configurations within individual settlements and lithic assemblage characteristics in six prefectures in the Kinki region (Shiga, Kyoto, Hyogo, Nara, Osaka, and Wakayama) from the Early to the Final Jomon Periods, hypothesizes that the scarcity of large settlements and complex ceremonial features in the Kinki region might reflect the presence of social rules that emphasized the autonomy of individual households with less communal subsistence activities. In this region, the total number of excavated pit-dwellings for each phase remains extremely small throughout the Jomon Period. The total number of 90 from the first one-third of the Late Jomon is the highest. Given the fact that Seguchi's study area covers a large area (over 27,000 km²), 90 is extremely small. These 90 pit-dwellings have been reported from 29 settlement sites out of the 199

sites dated to this phase, and the majority of these 29 settlements are associated with only a few pit-dwellings.

It is also important to note that, unlike in the case of the Tokai and Hokuriku regions, the relative frequencies of chipped stone axes in the Kinki region did not show a significant increase from the Middle Jomon to the beginning of the Late Jomon Periods (Seguchi 2009). What did increase along with the total number of sites in this region is the total number of storage pits. Citing Sahllins (1974), Seguchi (2009) concludes that the autonomy of individual households in subsistence strategies was more important than increasing overall productivity or the production of surplus: i.e., ideologies concerning resource exploitation and human agency based on traditional cultural practices hindered the emergence of large-scale sedentary settlements in the Kinki region.

In the Chugoku and Shikoku regions, population density seems to have remained even lower than in the Kinki region from the late phase of the Middle Jomon through the Final Jomon Periods. By the middle phase of the Late Jomon Period, burial practices became more complex. For example, at the Shimoyama site in Shimane Prefecture, burial pits associated with cover stones or standing stones are aligned in an arc shape (Shimane-ken Kyoiku-cho Maizo Bunkazai Center 2002). Skeletal remains from Final Jomon shell middens in the Chugoku region indicate that intensive tooth ablation was practiced (Harunari 2007). Scholars have suggested that the patterns of tooth ablation may reflect the social identity of the deceased, such as membership of a moiety and gender (Funahashi 2010). While archaeological data that reveal complexities in the ritualistic domain exist, evidence for residential sites is strikingly scarce. It is likely that Jomon societies in the Chugoku and Shikoku regions basically maintained their mobile lifeways throughout the Jomon Period (Yamaguchi 2010).

27.5.3.2 Kyushu

In Kyushu, the number and size of settlements, as well as the complexity in the layout of features within each settlement, began to increase by the middle Late Jomon Period. While this trend is widely observed throughout Kyushu, it is most conspicuous on the plateau of the outer rim of the crater of Mount Aso in Kumamoto Prefecture during the latter half of the Late Jomon Period. Some of these sites are associated with a significant number of pit-dwellings. Examples of these large settlements include the Ishinomoto site with 83 pit-dwellings and the Nakado site with 63 pit-dwellings, both of which are in Kumamoto Prefecture, the Higashi-tomoeda Site with over 30 pit-dwellings in Fukuoka Prefecture and the Hirabata site with 67 pit-dwellings in Miyazaki Prefecture. In addition, a number of other sites with fewer or no pit-dwelling structures have been identified as cultural centers because of the large amount and variation of excavated artifacts and/or ceremonial features. The latter includes buried jars, which have often been identified as infant burials. A large circular pit-dwelling that was excavated at the Oishi site in Oita Prefecture, which measures 7.8 m in diameter and almost 3 m deep, has been identified as a possible ceremonial house (Kagawa 1967). A large number of beads and figurines that have been recovered from a depression at the Uekasada site, Kagoshima Prefecture, suggests rituals took place at this location (Kawaguchi 1972).

It is worth noting that many of these newly emerged large sites are associated with ceremonial or prestige goods of eastern Japan origin, such as beads, anthropomorphic figurines, and sword-shaped polished stone artifacts (Matsumoto 2002). In addition, unique artifacts of possibly ritualistic nature, such as cross-shaped chipped stone tools and chipped stone disks, were also invented. The number of figurines associated with each site varies, which may reflect hierarchical or heterarchical settlement structures. In particular, two sites in the northern part of Kumamoto Prefecture are associated with an inordinate number of figurines: the Kannabe site with 108 pieces and the Mimanda site with 55 pieces. The numbers of figurines from other sites vary from twenty to only one or two. Based on the analysis of spatial distribution patterns and stylistic characteristics of figurines, Tomita (1990)

suggests that figurine production was first adopted at a small number of core sites and then spread to the other sites.

Jadeite beads have also been recovered at a number of large settlements of the Late and Final Jomon Periods. They are indisputable evidence of long-distance movements of artifacts from the east to the west as well as evidence of cultural contacts, as their source has been identified as Itoigawa in Niigata Prefecture (see Fig. 27.1). It should be noted that, while many jadeite beads have been reported from all over Kyushu as well as from several sites in Kinki, they are nearly absent in the Chugoku and Shikoku regions. Spatial distribution patterns of jadeite beads from the Late and Final Jomon Periods indicate that the spread of these artifacts is not the result of simple, repeated exchanges between adjacent groups but of intentional long-distance interaction as a social strategy (Matsumoto 2011).

Many of the large settlements during the latter half of the Late Jomon and the Final Jomon Period are associated with a large quantity of flat, chipped stone axes (*henpei dasei sekifu*) not frequently seen before this period, suggesting that a new subsistence strategy was introduced, most likely from the east. Through recent analysis of impressions on the surface of pottery, Obata (2011) suggests that soybeans (*Glycine*) and azuki (*Vigna*) beans were cultivated in the Chubu Mountain region during the Middle Jomon Period, and that the cultivation of these beans was transmitted to Kyushu from the east by the Late Jomon. Although the details of Late Jomon subsistence strategies in Kyushu are still unknown, many scholars assume that Late Jomon strategies were more intensive with a heavier reliance on plant food than the Middle Jomon strategies.

27.6 Concluding Remarks

In this chapter, we have focused primarily on two different developmental trajectories of Jomon culture, with a focus on subsistence, settlement, and society. While not extensively discussed in this chapter, attempts to pursue new research topics, such as gender archaeology (e.g., Matsumoto 2008) and cognitive archaeology (e.g., Kaner 2011; Matsumoto 2011) are also in progress.

In conclusion, Jomon archaeology is moving forward from a phase of data accumulation from a large number of rescue excavations to one of data organization and interpretation. New lines of archaeological evidence, including results of chemical and scientific analyses, can help archaeologists tackle key questions that still remain unanswered.

Note: One of the authors of this chapter, Akira Matsui, passed away when we started working on the manuscript. He was a leading figure in the field of Jomon zooarchaeology and a pioneer for international exchange between Japan and the rest of the world. This book and this chapter are written in his collaborative spirit.

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