

Komakino Stone Circle and Its Significance for the Study of Jomon Social Structure

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Komakino Stone Circle and Its Significance for the Study of Jomon Social Structure

Daisei KODAMA
Board of Education of Aomori City

The Komakino site in Aomori Prefecture is associated with a large ceremonial stone circle dating to the Tokoshinai phase of the early Late Jomon period (approximately 4000 years ago). The stone circle proper consists of three parts, termed center ring, inner ring, and outer ring respectively. The stones of the inner and outer rings are arranged in a unique, but orderly, pattern referred to as "the Komakino style." Excavations of the site revealed the presence of other features, such as flask-shaped pit burials, interment-jar burials, clusters of post-molds, storage pits, a midden, a path-like feature, a probable spring water filter and two pit-dwellings. Because of the scarcity of residential features, it is suggested that the primary function of the site appears to have been ceremonial. This paper proposes that the stone circle functioned not only as a cemetery but also as a multi-functional ritual center, where various ritual activities took place. In the latter half of this paper, the social dynamics behind construction of Late Jomon stone circles in the Tohoku region are examined through an analysis of regional settlement patterns.

INTRODUCTION

The study of Jomon stone circles, which date primarily from the Middle through the Final Jomon periods, has a long history in Japanese archaeology. Jomon stone circles are not of the same scale as megalithic monuments in many other parts of the world, such as Stonehenge in Britain. Instead, they are constructed of much smaller stones and are built on a smaller scale. Nevertheless, considerable time and energy went into their construction.

The objective of this paper is to discuss the function and significance of Jomon stone circles by providing a detailed description and analysis of one such structure, the Komakino stone circle. Particular emphasis is placed on the social significance of stone circle construction.

NATURE AND DISTRIBUTION OF JOMON STONE CIRCLES

The term *kanjo resseiki*, which means stone circle(s) in Japanese, includes a wide variety of stone features. Some of them are only a few meters in diameter. These include a type of feature that is referred to as a "sundial," in which recumbent stones are arranged in a radial pattern from a single standing center stone, and various other types of stone clusters, which are arranged in roughly a circular or square pattern. Others are large circular stone arrangements of up to 30 meters in diameter. Opinions differ concerning the possible functions of Jomon

stone circles. The two most popular theories suggest that they functioned either as grave markers or as ritual centers.

Stone circles occur in central and northeastern Japan, concentrated primarily in the prefectures of northern Honshu (Figure 13.1.1). Table 13.1 lists representative Jomon stone circles (the table was compiled primarily from ARCHAEOLOGICAL ASSOCIATION OF YAMANASHI PREFECTURE 1990; BOARD OF EDUCATION OF AKITA PREFECTURE 1999; BOARD OF EDUCATION OF ASAHIKAWA CITY 1990; BOARD OF EDUCATION OF KAZUNO CITY 1985-2000; BOARD OF EDUCATION OF MISAWA CITY 1992; BOARD OF EDUCATION OF SHARI TOWN 1980; BOARD OF EDUCATION OF TAKIZAWA VILLAGE 1991; COMMITTEE FOR THE PROTECTION OF CULTURAL PROPERTIES 1953; DAIKUHARA and SENDA 2000; EXCAVATION TEAM OF THE KOSAKA STONE CIRCLE 1969; KOBAYASHI 1995; KOMAI 1959; KONO 1955; MURAKOSHI 1971; and TAMURA 1998). Figure 13.1.1 shows their locations, and Figures 13.2 to 13.5 show plans of some of these circles. As summarized in Table 13.1, many of the stone circle sites in the southern half of the distribution area (Nos. 16-20 in Figure 13.1.1) date to the Middle Jomon period. On the other hand, the majority of the northern sites (those in Hokkaido, Aomori, Akita and Iwate Prefectures; Nos. 1-15 in Figure 13.1.1) date to the Late (or sometimes Final) Jomon periods.

There are two basic types of stone circles. The first type is the “paved” (*kumiishi*) type. This type consists of small stone clusters, including “sundials” and other circular stone pavements (e.g., Nishizaki-yama shown in Figure 13.2.1, and Oto’e), or aggregates of these small clusters (e.g., the Manza and Nonakado stone circles at the Oyu site shown in Figure 13.4). This first type is restricted primarily to the northern half of northeastern Japan. At almost all of these sites, pit burials occur directly beneath the stones. Accordingly, these sites are interpreted as burial sites, with the stones functioning as grave markers.

The second type is the stone perimeter (*resseki*) type. In this type, stones define the perimeter of a large enclosed, generally circular, area. Most stone circles of this type are quite large, and are distributed throughout northeastern Japan (i.e., the distribution is wider than that of the first type). Examples of the second type include stone circles at Komakino in Aomori Prefecture (see below) and Ushiishi (Figure 13.5.1) in Yamanashi Prefecture. Since burials do not always occur at these sites, some of these stone circles may have functioned as centers for communal ritual activities, but in many respects their nature and function remain unclear.

THE KOMAKINO STONE CIRCLE

Location and History of Research

The Komakino site is located on a hillside, 145 meters above sea level. It is within the district of Aomori City, which is part of Aomori Prefecture, the northernmost prefecture on Honshu Island (for the location of the site, see Figure 13.1.2). Within Aomori City, downtown Aomori faces Aomori Bay on the north and is otherwise surrounded by mountains. Approximately 10 kilometers south of downtown Aomori is a small village called Nozawa, and the hillside behind this village is called Komakino. The name, which means “small pasture” in Japanese, derives from the fact that the hillside was traditionally used as a pasture for horses. A large river-worn stone approximately 1 meter in length is located there. Local inhabitants

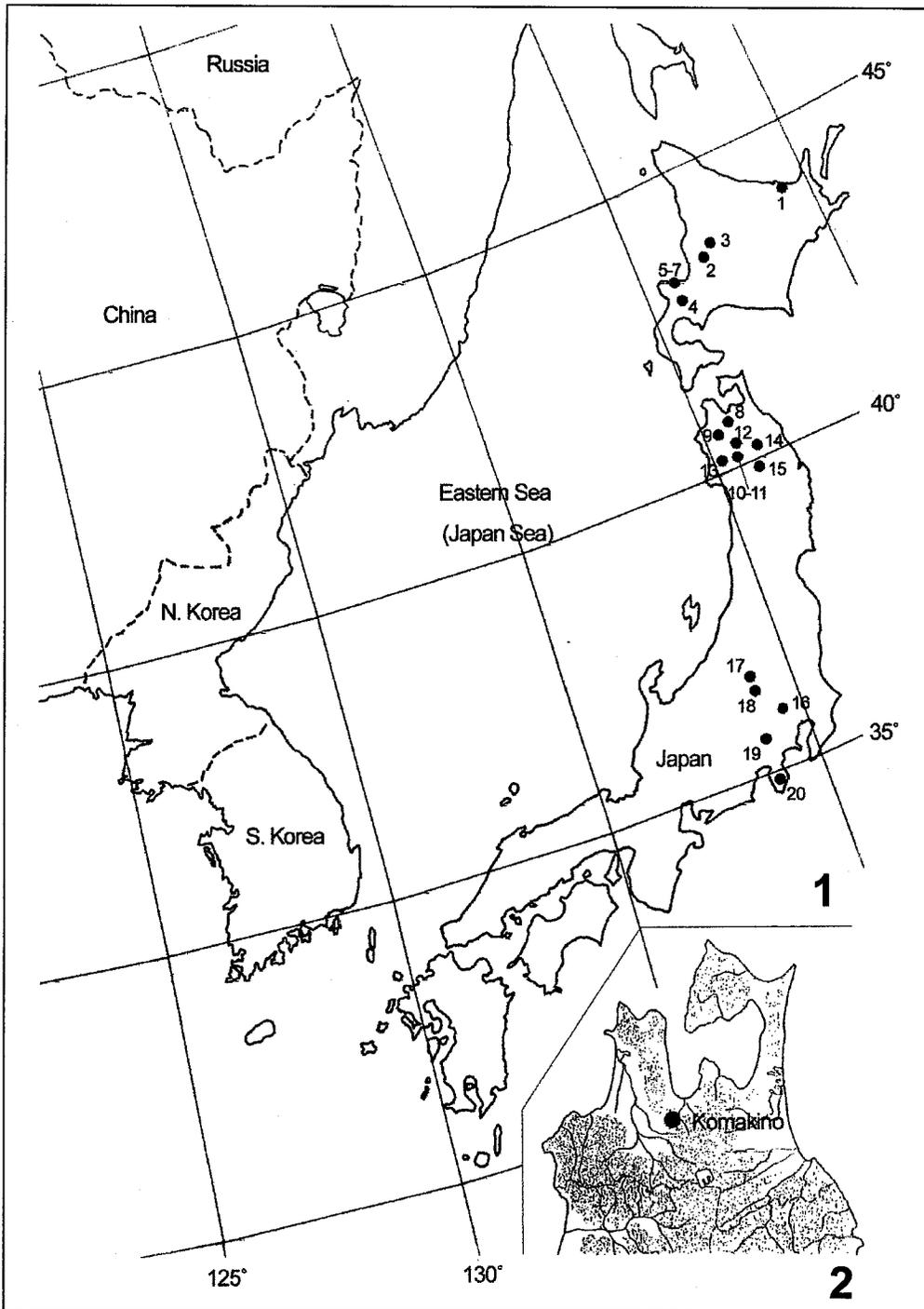


Figure 13.1 Distribution of major stone circles in the Japanese archipelago (1), and the location of the Komakino site (2).

Table 13.1 Major stone circle sites in Japan.

	Site Name	Location	Period	Type and Characteristics
1	Okushibetsu-kawa	Shari Town, Hokkaido	Late Jomon	Stone perimeter type. A stone circle (approx. 10m in diameter) composed of a series of stone clusters featuring standing stones.
2	Kamui Kotan	Asahikawa City, Hokkaido	Late Jomon	Paved type. 10 paved stone clusters (circular or oval-shaped; 2-5m in diameter) have been identified. Pit burials under the stones.
3	Oto'e	Fukagawa City, Hokkaido	Late Jomon	Paved type. About 10 paved stone clusters (approx. 2m each in diameter) have been identified. Pit burials under the stones.
4	Niseko Hokuetsu	Niseko Town, Hokkaido	Late Jomon	Paved type. 4 paved stone clusters (approx. 1.5m each in diameter) have been identified. In each, standing stones are arranged in a circular configuration, and the interior of the circle was paved with stones. Pit burials under the stones.
5	Nishizaki-yama	Yoichi City, Hokkaido	Late Jomon	Paved type. 7 paved stone clusters (approx. 1.5m each in diameter) and several standing stones form an oval-shaped stone circle (approx. 17 x 11m). Pit burials under the stones.
6	Jichin-yama	Otaru City, Hokkaido	Late Jomon	Paved type. 12 standing stones are arranged around a paved stone feature (approx. 6 x 4m) and form an oval-shaped stone circle (approx. 10 x 8m). Pit burials under the stones.
7	Oshoro	Otaru City, Hokkaido	Late Jomon	Stone perimeter type. An oval-shaped stone circle (approx. 30 x 22m) mainly composed of standing stones of about 1m high.
8	Komakino	Aomori City, Aomori Pref.	Late Jomon	Stone perimeter type. A stone circle (approx. 35m in diameter) made of three concentric rings. The unique wall-like arrangement of stones is called the "Komakino style."
9	Omori Katsuyama	Hirosaki City, Aomori Pref.	Late/ Final Jomon	Stone perimeter type. An oval-shaped stone circle (approx. 49 x 39m) composed of about 70 stone clusters.
10	Oyu	Kazuno City, Akita Pref.	Late Jomon	Paved type. A series of paved stone clusters (including "sundials") form two large stone circles (called Manza and Nonakado respectively). Both stone circles measure over 40m in diameter. Pit burials under the stones.
11	Tamanai	Kazuno City, Akita Pref.	Final Jomon	Paved type. Multiple paved stone clusters (approx. 1.5m in diameter) have been identified, including so-called "sundials." Pit burials under the stones.
12	Kosaka	Kosaka Town, Akita Pref.	Late Jomon	Multiple paved stone clusters (approx. 1.5m in diameter), including those of the "sundial" type, have been identified.
13	Isedotai	Takanosu Town, Akita Pref.	Late Jomon	Stone perimeter type. Three stone circles (45m, 30m, 15m respectively in diameter) have been identified. Parts of these circles show the "Komakino style" stone arrangement.
14	Goshono	Ichinohe Town, Iwate Pref.	Middle Jomon	Paved type. Multiple paved stone clusters and circular arrangements of stones (approx. 1.5-4m in diameter) are clustered in the area of approx. 25m in diameter.
15	Yubune-zawa	Takizawa Village, Iwate Pref.	Late Jomon	Stone perimeter type. A stone feature (approx. 25 x 15m) composed of arc-shaped stone alignments and a series of paved stone clusters.
16	Tsukagoshi Mukoyama	Yoshida Town, Saitama Pref.	Un-Known	Stone perimeter type (oval-shaped; approx. 34 x 24m). Large stones were found to the west of the stone circle, and small stones to the east.
17	Kumori	Nakanajo Town, Gunma Pref.	Middle Jomon	Stone perimeter type. Two concentric stone rings (approx. 40m across) composed of multiple stone clusters.
18	Nomura	Annaka, City, Gunma Pref.	Middle Jomon	Stone perimeter type. A stone circle that measures approx. 36 x 30m. Stones are placed horizontally in 1-3 layers.
19	Ushiishi	Tsuru City, Yamanashi Pref.	Middle Jomon	Stone perimeter type. A stone circle (approx. 50m) composed of alignments and paved stone clusters.
20	Kami-shiraiwa	Nakaizu Town, Shizuoka Pref.	Middle/ Late Jomon	stone perimeter type. A stone circle (approx. 12m) composed of multiple stone clusters.

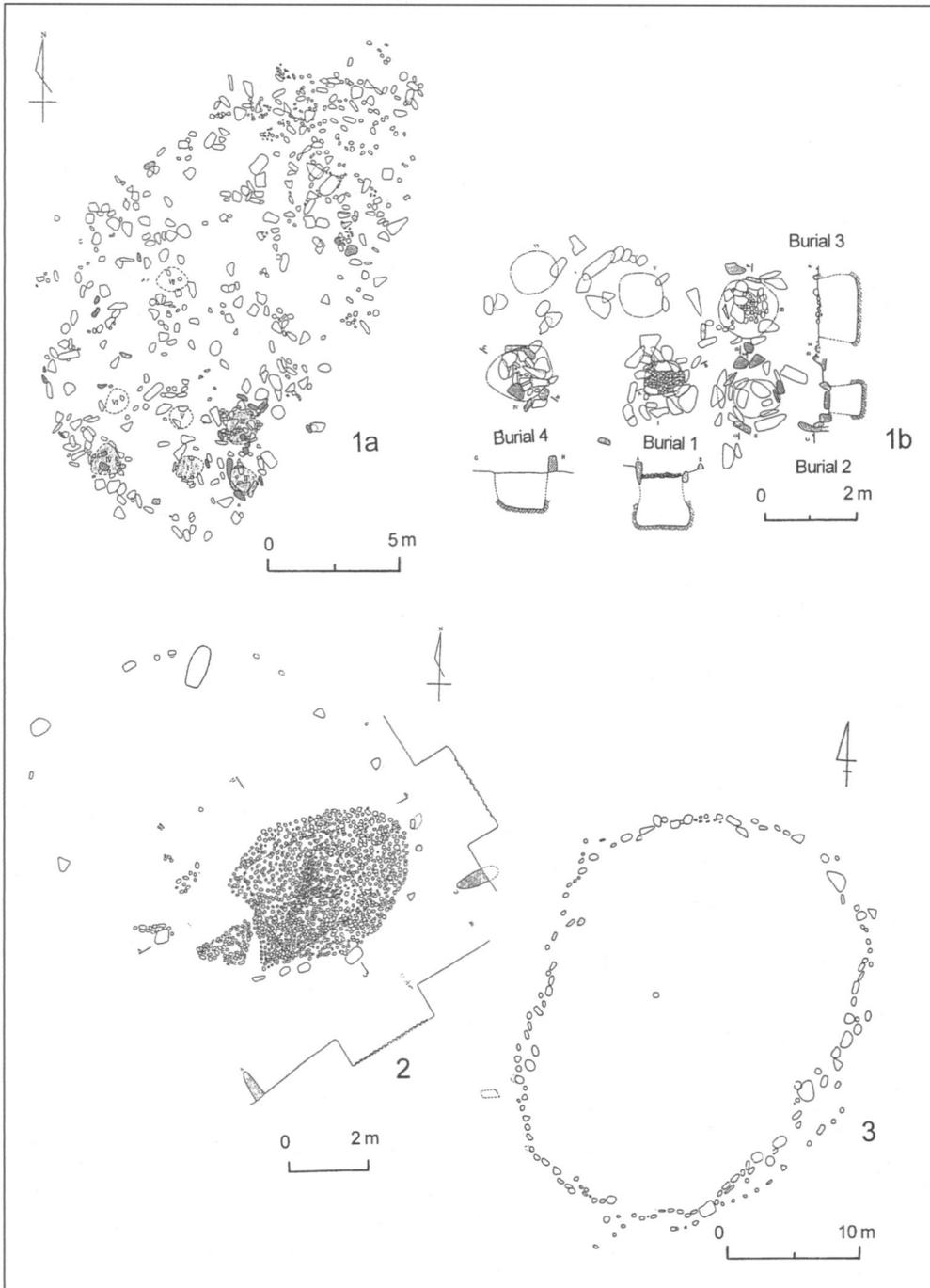


Figure 13.2 Examples of Jomon stone circles, Part I.

1a. Nishizaki-yama; 1b. Detailed view of the paved stone features Nos. 1-4 at Nishizaki-yama; 2. Jichin-yama; 3. Oshoro.

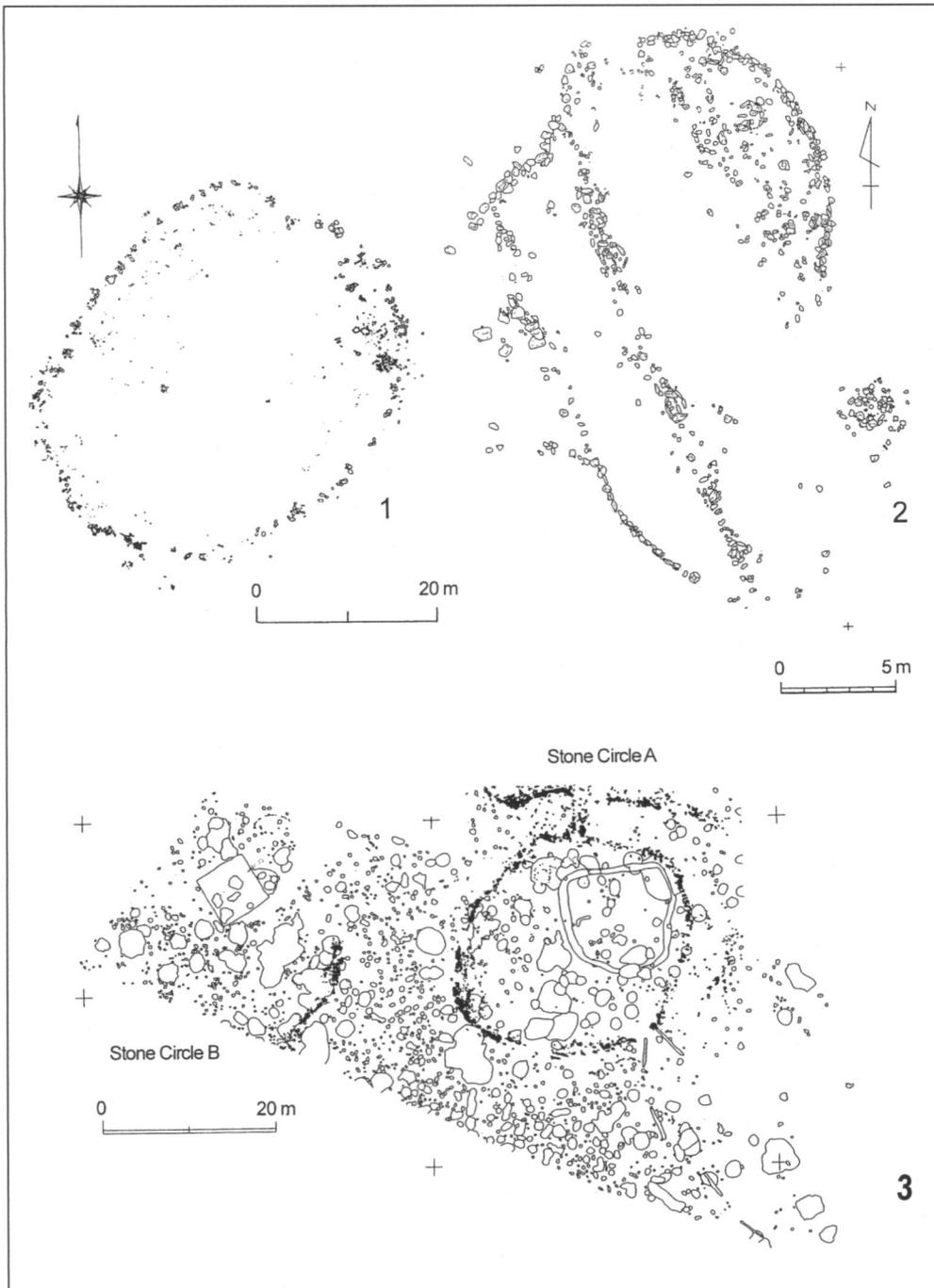


Figure 13.3 Examples of stone circles, Part II.

1. Omori Katsuyama; 2. Yubune-zawa; 3. Stone circles A and B at Isedotai.

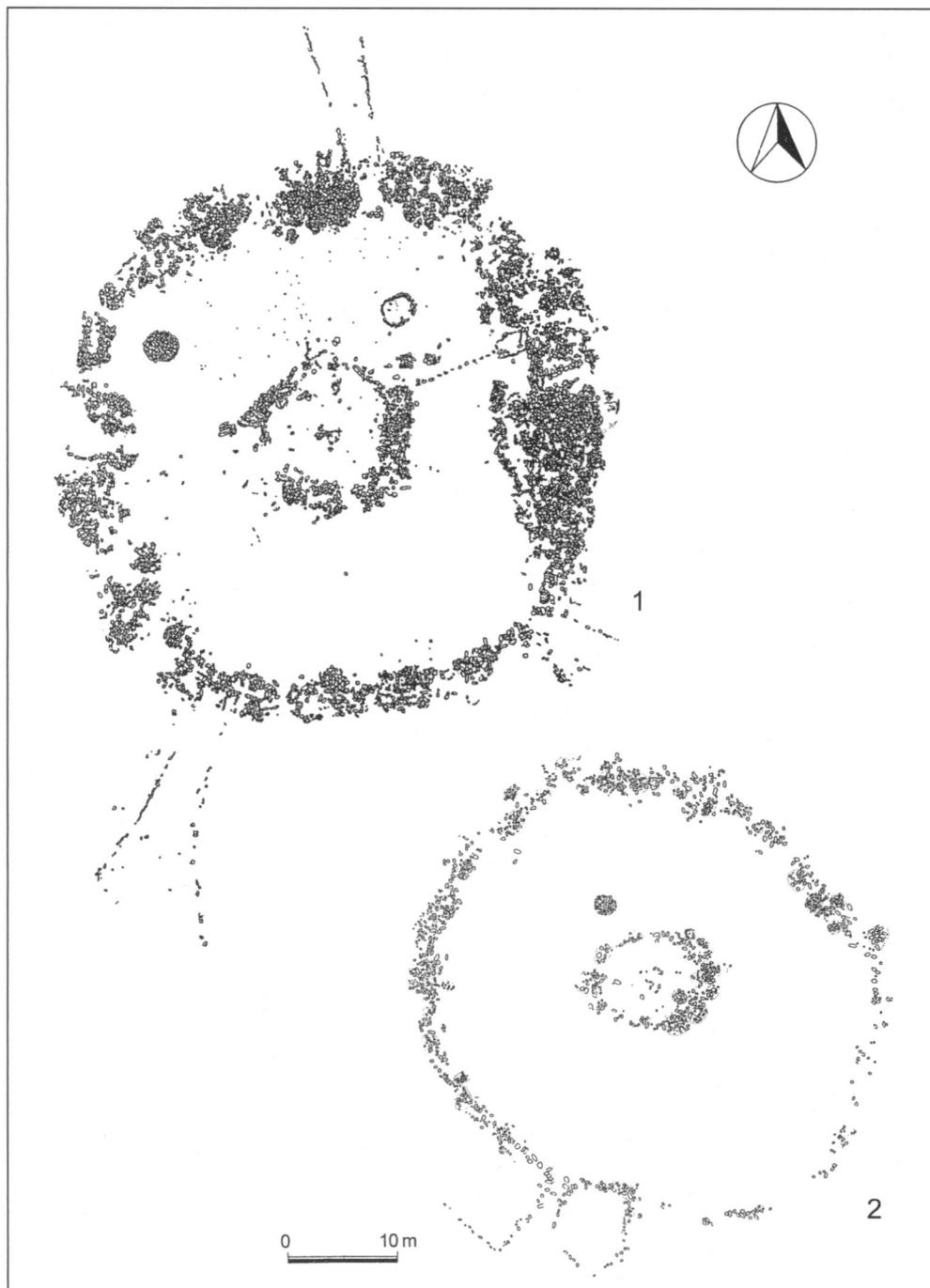


Figure 13.4 Examples of stone circles, Part III.

1. The Manza stone circle at Oyu; 2. The Nonakado stone circle at Oyu.

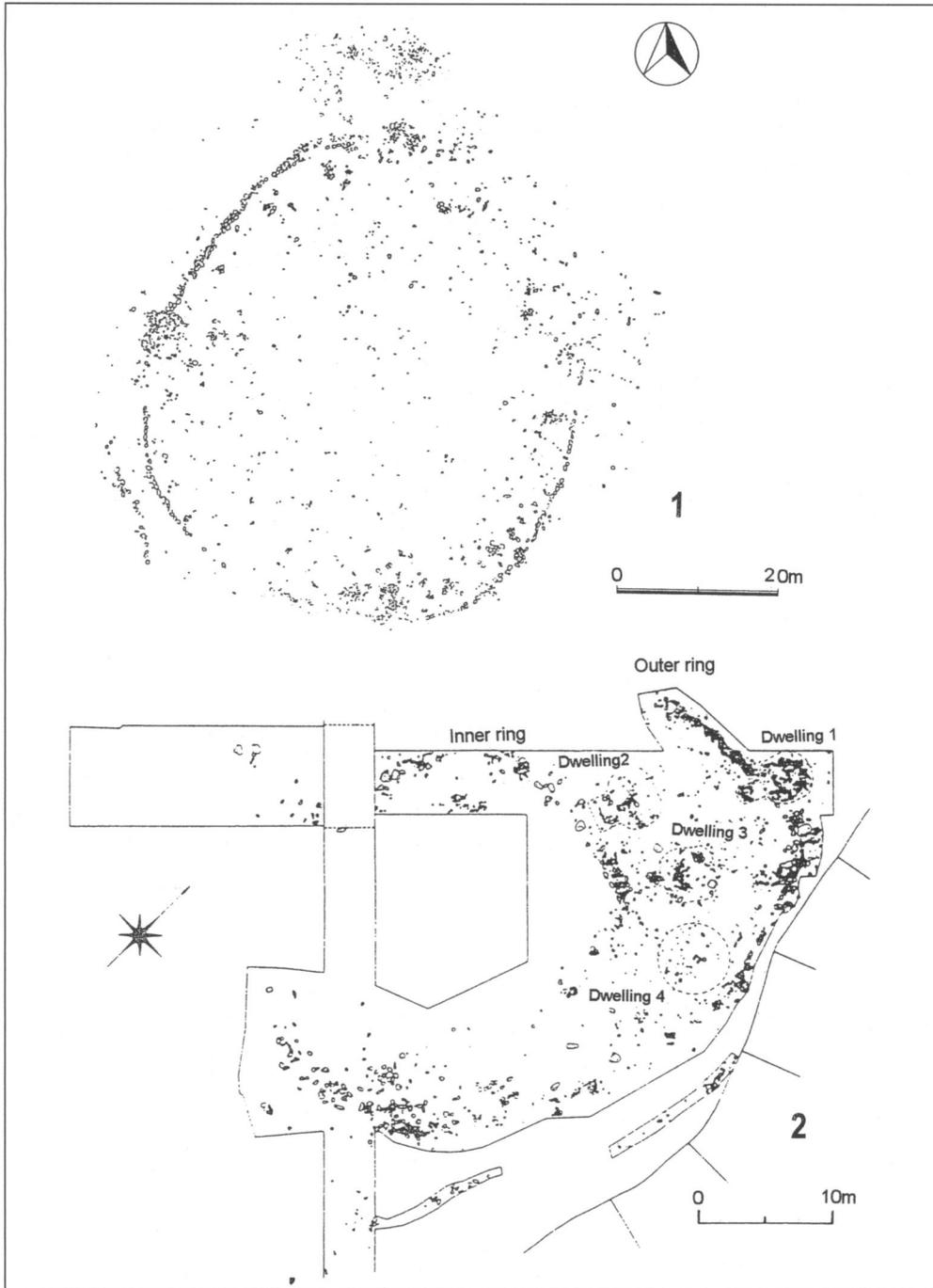


Figure 13.5 Examples of stone circles, Part IV.
1. Ushiishi; 2. Kumori.

used to worship this stone as a symbol of *Bato Kannon* (the Goddess of Mercy with a horse's head). Our excavations revealed that this stone is in fact part of the Jomon stone circle (see below).

The stone circle was first excavated in 1989 by the archaeology club of a local high school. I was one of the students who participated in the excavation, which, incidentally, marked the beginning of my archaeological career. The excavation was led by Tsutomu Kasai, then a high school teacher.

Prior to the excavation of the site, Kasai inferred the existence of a large stone feature on the basis of the presence of many river-worn boulders 60 meters above and 500 meters distant from the nearest river, the Arakawa River. The surface finds of Jomon potsherds and stone tools also indicated the presence of a Jomon site. Following Kasai's suggestion, a preliminary investigation was carried out in 1988. Augers were used to locate the stones, which were found to form a large circle over 30 meters in diameter. Excavations undertaken the following year indicated that the site dates to the first half of the Late Jomon period, and that significant landscape modification took place during construction of the circle [KASAI and TAKAHASHI 1990].

The discovery of the site was widely publicized. Subsequently, many scholars and citizens visited the site and called for continuation of the excavation. As a result, the Board of Education of Aomori City assumed authority over the site in 1990. Excavations conducted by the Board allowed the preservation and promotion of public utilization of the site. Because of its importance to the study of Jomon ritual and burial practices, Komakino was established in 1995 as the first National Historical Site in Aomori Prefecture.

The Komakino Stone Circle and Related Archaeological Features

Following the initial investigation of the Komakino site by the Board of Education of Aomori City in 1990, excavations by the Board continued for ten years, totaling approximately 8268 square meters in area. In addition to the stone circle, many other features have been identified at the site (Figure 13.6). These include flask-shaped pit burials, interment-jar burials, clusters of post-molds, storage pits, a midden, a path-like feature, a probable spring water filter associated with a natural spring, and two pit-dwellings, all of which are described below.

The Stone Circle

The stone circle proper consists of three parts (Figure 13.7). At the center is a small circular stone arrangement approximately 2.5 meters in diameter (referred to as the "center ring" in Figure 13.7). Two larger external rings, one 29 meters in diameter and the other 35 meters in diameter, surround the "center ring." In Figure 13.7, these are referred to as the "inner" and "outer" rings respectively. The shape of the inner and outer rings is actually more square than circular, but with rounded corners.

The center arrangement or "ring" consists of a large stone, the estimated weight of which is approximately 500 kilograms, and a series of smaller stones arranged in a roughly circular pattern around the large stone. The large stone is the one that was worshipped as *Bato Kannon* as noted above. The stones of the inner and outer rings are arranged in a unique, but orderly,



Figure 13.6 Distribution of features at the Komakino site.

pattern. Specifically, each consists of a series of perpendicular ovoid stones between which three to six flat stones are stacked (Figure 13.8.2). This arrangement is referred to as “the Komakino style.”

A number of other stone arrangements or features are associated with the three “rings.” These include an arc-shaped arrangement of stones that may have been part of a fourth, outermost, ring (referred to as “Circular stone alignment” in Figure 13.7), a line of stones that branches out from the southern part of the outer ring (“Linear stone alignment” in Figure 13.7), eleven stone clusters, some of which are placed at the “corners” of the inner and outer rings (“Stone features 1-11” in Figure 13.7), and finally, eight smaller circular stone features, presumably burial markers, that surround the outer ring (“Circular stone burials 1-8” in Figure 13.7).

The stone circle was constructed on a large flat area or “plaza,” which measures

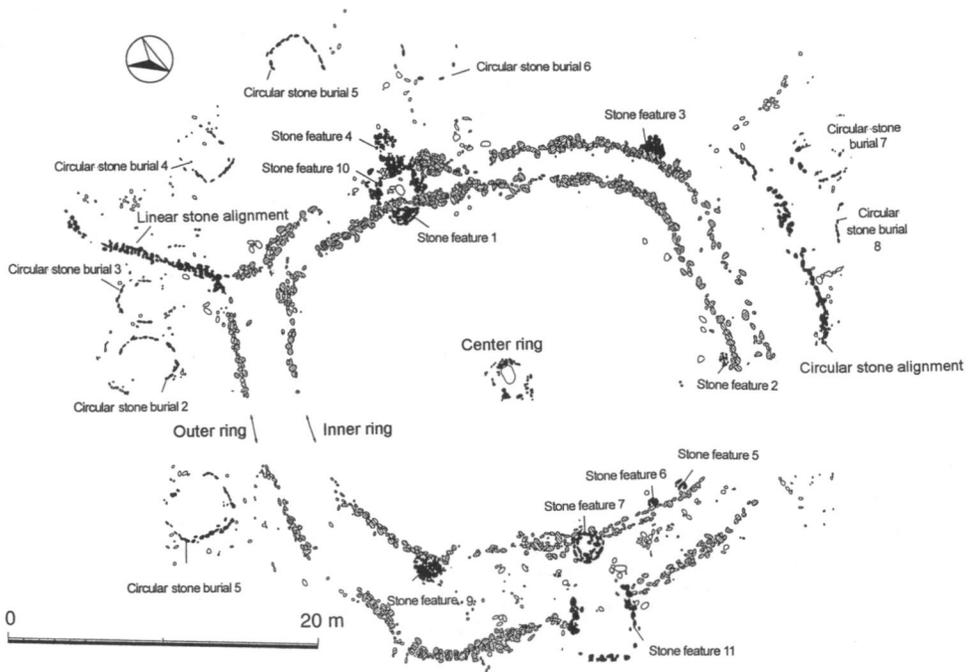


Figure 13.7 The Komakino stone circle.

approximately 500 square meters. The plaza itself was constructed by removing soil from the higher part of the inside of the inner ring to the lower part. Figure 13.8.1 shows this leveling-off procedure schematically. The volume of soil moved is estimated to have been approximately 315 cubic meters. Given the relatively simple technology available at the time of construction, this leveling process alone represents a tremendous amount of work. Furthermore, the type of stones comprising the circle does not occur naturally at the site. The approximately 2400 boulders used must have been transported from the dry riverbed of the Arakawa River, approximately 0.5 kilometers away (for the estimate of labor employed in the construction of the Komakino stone circle, see KODAMA and TAKAZAWA 1998; TAKAZAWA 1999).

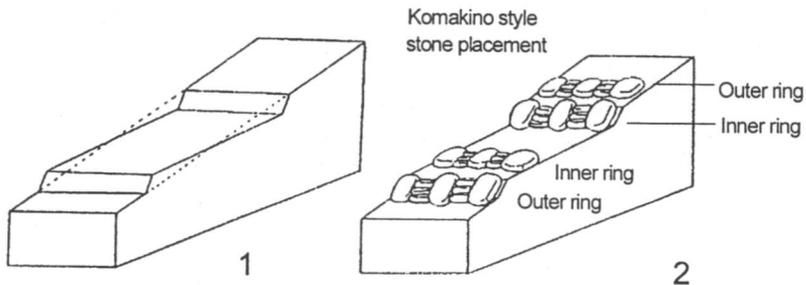


Figure 13.8 Surface preparation at Komakino (1), and Komakino style stone arrangement (2).

Flask-Shaped Pit Burials

Approximately 50 flask-shaped pit burials are located on the east side of the site (for their location, see Figure 13.6). An example of this type of burial is shown in Figure 13.9.1a. Although human skeletal remains have not been recovered from these features, the fill soil stratigraphy, presence of grave goods, and phosphate and lipid analyses support this interpretation. In addition, jars with narrow mouths (see e.g., Figure 13.9.1b) and stone mortars (see e.g., Figure 13.9.1c) were associated with some of these pits.

Interment-jar Burials

Three interment jar burials, each of which was placed in a small pit, are probably secondary burials, and are located between the outer and inner rings. In each of the three cases, the body was apparently first interred within the soil, and the bones were removed after a period of time and subsequently reburied in the jars. An example of this type of burial is shown in Figure 13.9.2.

Clusters of Post-Molds

A number of post-molds were recorded in the east part of the site (see Figure 13.6). Since the excavation area is limited, however, little can be said about these features. Future excavations will hopefully provide additional information, such as the number, sizes and functions of the structures represented by these post-molds.

Storage Pits

A number of flask-shaped pits, which probably were used for storage, were recorded in the southeastern part of the site (see Figure 13.6). Since, at present, there is no evidence of a large settlement associated with the Komakino site, these pits may have been used to store food consumed during the construction of the stone circle, and/or during ceremonial use of the site.

Midden

A midden containing pottery and other artifacts was excavated in the swampy, northeastern part of the site (see Figure 13.6). Artifacts recovered from this midden include pottery, stone tools, and objects that are believed to have been used for ritual purposes, such as triangular and circular stone plates.

Path-like Feature

A feature, which may have functioned as a path or road, was recorded in the north part of the site (see Figure 13.6). Because only two pit-dwellings have been recorded at the site (see below), it is possible that this feature served as a path connecting the site to a large settlement some distance away. Alternatively, it may be related to the transportation of the boulders to construct the stone circle [see also KODAMA 1999a].

Spring Filter

A feature associated with a natural spring was found on the eastern slope of the site (see Figure 13.6). This feature consists of a natural spring located within a basin-shaped depression,

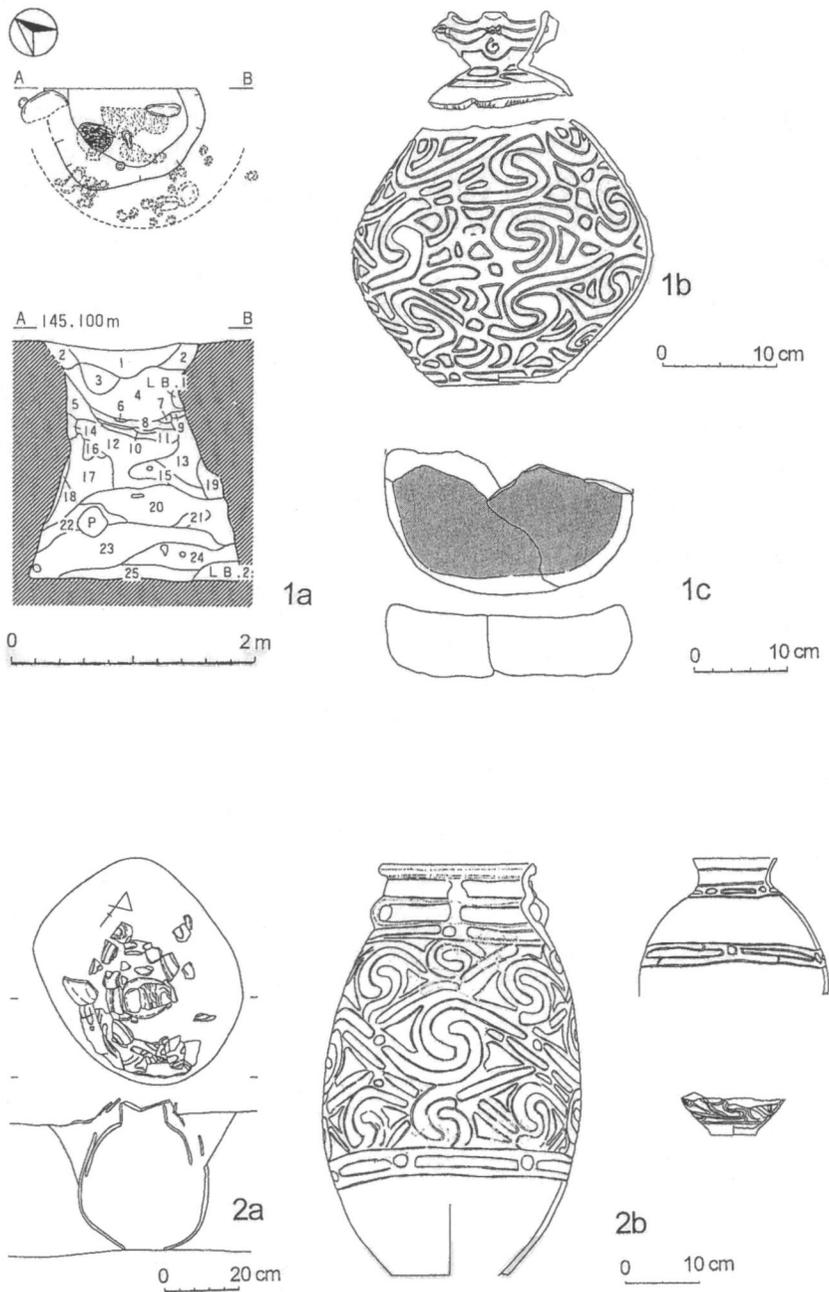


Figure 13.9 Examples of a flask-shaped pit burial and an interment-jar burial at Komakino.

1. Pit burial No.128 (1a) and associated burial goods (1b: jar with narrow mouth; 1c: stone mortar); 2. Interment-jar Burial No.1 (2a) and associated pottery (2b).

a mound, and a narrow channel (Figure 13.10). The basin-shaped depression is extremely well-preserved. The mound is located on a steep slope, and it consists of both artificial and natural accumulations of soil, the volume of which is estimated to be approximately 250 cubic meters. The channel is connected directly to the basin-shaped depression. Since the level of the bottom of the channel is about a meter higher than the bottom of the basin-shaped depression, the basin may have functioned as a dirt filter for water running into the channel. Because this feature is located near the stone circle, it is possible that it not only filtered water for drinking and food processing, but also had a ceremonial function.

Pit-Dwellings

During the initial excavation, no pit-dwellings were identified at the site. However, recent excavations have revealed two pit-dwellings associated with the site. Neither of them is large or deep, suggesting the possibility that they were used for only a short period of time. Since most of the site has already been excavated, it is unlikely that future excavations will reveal a large number of similar features, if any.

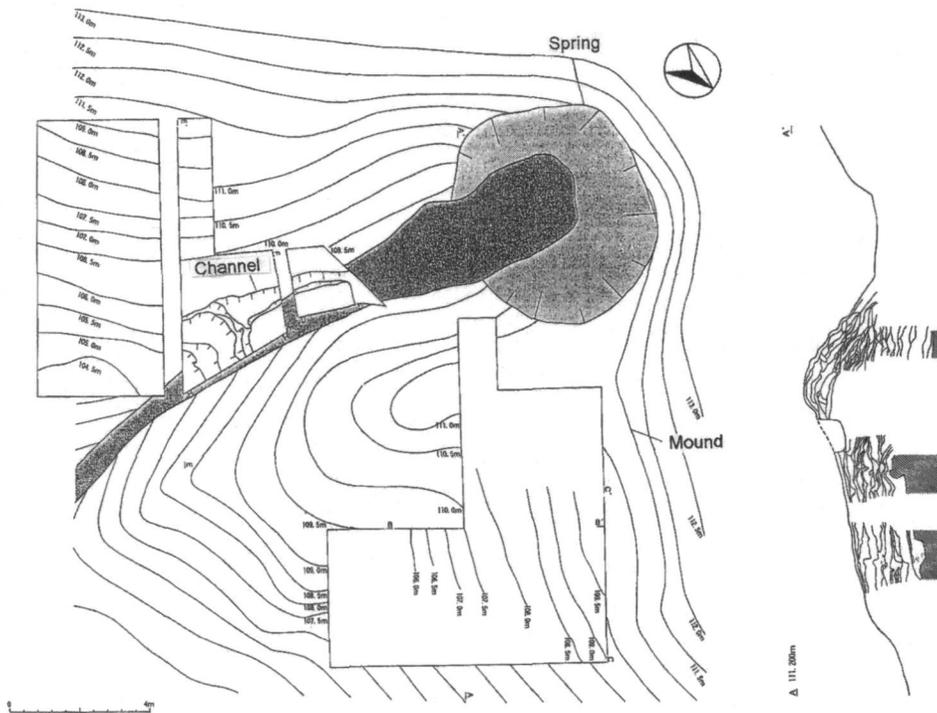


Figure 13.10 Spring filter at the Komakino site.

THE RITUAL FUNCTIONS OF STONE CIRCLES

In addition to the Komakino site, there are approximately 1500 Late Jomon sites within Aomori Prefecture. These include many settlements and cemetery sites with associated burial jars. In order to determine whether the main function of the Komakino stone circle was a cemetery or a multi-functional ritual center, characteristics of Komakino are examined in contrast to five other archaeological sites from the same period. Specifically, “ritual” (non-utilitarian) artifacts found at Komakino are compared with those from five other Late Jomon sites in Aomori Prefecture. These five sites are the Ichinowatari site [BOARD OF EDUCATION OF AOMORI PREFECTURE 1984], Areas VIII and XI of the Oishitai site [BOARD OF EDUCATION OF AOMORI PREFECTURE 1987], Areas B and C of the Kami-obuchi No.2 site [BOARD OF EDUCATION OF AOMORI PREFECTURE 1988], the Odanainuma No.1 site [BOARD OF EDUCATION OF MISAWA CITY 1992], and the Tango-yachi site [BOARD OF EDUCATION OF HACHINOHE CITY 1986]. The Ichinowatari site is associated with a large stone feature, while the other four are primarily residential sites.

Table 13.2 lists numbers of different types of ritual artifacts recovered from the six sites. Numbers in parentheses indicate standardized abundances per 100 square meters of excavated area. While there is large variability between sites in terms of standardized abundances of these artifact types, the Komakino site nevertheless stands out as having a considerably greater frequency for all types combined (19.87/100m²) than the other five sites (which range from 1.85 to 8.96/100m²). Furthermore, this pattern is maintained when considering the two major subtypes; those manufactured from clay (11.39/100m² for Komakino vs. 1.85 to 8.62/100m²) and those manufactured from stone (8.48/100m² for Komakino vs. 0 to 1.38/100m²). Thus, overall, the higher frequencies of both clay and stone ritual artifacts at the Komakino site strongly suggest an emphasis on ritual activities. It is also interesting to note that, although some of the ritual artifact types are found at all six sites, others show a much more restricted distribution. Among these is a type that is commonly referred to as a triangular stone plate (Figure 13.11.12-22). A total of 145 of these have been recovered from the Komakino site, which far exceeds the numbers recovered from any other Late Jomon sites. Other representative ritual artifacts recovered from the Komakino site are also illustrated in Figure 13.11.

Sites associated with triangular stone plates are dated primarily to the Late Jomon Tokoshinai phase. Although the distribution of Tokoshinai style pottery covers a relatively wide area including northern Tohoku and part of southern Hokkaido (solid dots in Figure 13.12.1), the distribution of triangular stone plates is limited primarily to the vicinity of Aomori Bay (Nos. 1-8 in Figure 13.12.2) and the two river valleys, the Aseishi (Nos. 9-14) and Yoneshiro River Valleys (Nos. 15-19). This suggests the possibility that the Aomori Bay area, where the Komakino site is located, was a center of triangular stone plate production and/or circulation [KODAMA 1997]. Recent excavations elsewhere indicate that triangular stone plates tend to be associated with sites with large-scale stone features or stone circles, including Komakino, Ichinowatari (Kuroishi City, Aomori Prefecture), Oyu (see Table 13.1), Takayadate-ato (Kazuno City, Akita Prefecture) and Isedotai (see Table 13.1) (for the locations of these sites, see Figure 13.12.2). In addition, a ceramic triangular plate with ornamentation similar to that typically seen on triangular stone plates has been recovered at the Ishikura shell-midden site in Hakodate,

Table 13.2 Numbers of ritual artifacts recovered from six Late Jomon sites in Aomori Prefecture (data as of 1996).

Site Name	Komakino	Ichino-watari	Oishitai (VIII & XI)	Kami-obuchi No.2(B & C)	Odanainuma No.1	Tango-yachi	Total		
Site Type	Stone circle	Associated with a stone feature	Settlement	Settlement	Settlement	Settlement			
Excavation Area	3,880m ²	9,200m ²	29,000m ²	33,612m ²	2,600m ²	18,000m ²	96,292m ²		
C l a y	Clay figurines	13 (0.34)	3 (0.03)	7 (0.02)	7 (0.02)	3 (0.12)	7 (0.04)	40	
	Clay animal figurines	1 (0.03)		2 (0.01)	3 (0.01)			6	
	Miniature pots	56 (1.44)		30 (0.10)	27 (0.08)	20 (0.77)	87 (0.48)	220	
	Bell-shaped clay artifacts	27 (0.70)	1 (0.01)	69 (0.24)	70 (0.21)	37 (1.42)	29 (0.16)	233	
	Shoe-shaped clay artifacts	3 (0.08)		3 (0.01)	10 (0.03)			16	
	Spherical clay artifacts	1 (0.03)						1	
	Ring-shaped clay artifacts	5 (0.13)				1 (0.04)		6	
	Mushroom-shaped artifacts			2 (0.01)	2 (0.01)		23 (0.13)	27	
	Spoon-shaped clay artifacts						3 (0.02)	3	
	Prism-shaped clay artifacts			4 (0.01)	11 (0.03)			15	
	Earrings	4 (0.10)	4 (0.04)	5 (0.02)	4 (0.01)	2 (0.08)	4 (0.02)	23	
	Perforated clay artifacts	8 (0.21)				2 (0.08)	15 (0.08)	25	
	Triangular clay plates	1 (0.03)		1 (0.00)				2	
	Circular clay plates	1 (0.03)		2 (0.01)		1 (0.04)		4	
	Clay plates with hand or foot imprints			4 (0.01)	2 (0.01)			6	
	Clay artifacts made from potsherds	322 (8.30)	308 (3.35)	546 (1.88)	487 (1.45)	158 (6.08)	152 (0.84)	1973	
	Subtotal	442 (11.39)	316 (3.43)	675 (2.33)	623 (1.85)	224 (8.62)	320 (1.78)	2600	
	S t o n e	Phallic stone artifacts	1 (0.03)						1
		Bowl-shaped stone artifacts	4 (0.10)	4 (0.04)					8
Spherical stone artifacts		7 (0.18)	6 (0.07)			4 (0.15)		17	
Perforated stone artifacts		13 (0.34)	2 (0.02)	3 (0.01)				18	
Triangular stone plates		145 (3.74)	56 (0.61)					201	
Circular stone plates		159 (4.10)	44 (0.48)	22 (0.08)		1 (0.04)	209 (1.16)	435	
Crown-shaped stone artifacts			3 (0.03)	1 (0.00)				4	
Stone clubs			11 (0.12)				4 (0.02)	15	
Stone "swords"			1 (0.01)	7 (0.02)		4 (0.15)	33 (0.18)	45	
Sub-total		329 (8.48)	127 (1.38)	33 (0.11)	0 (0.00)	9 (0.35)	246 (1.37)	744	
Total	771 (19.87)	443 (4.82)	708 (2.44)	623 (1.85)	233 (8.96)	566 (3.14)	3344		

Note: Numbers in parentheses indicate abundances per 100 square meters of excavated area.

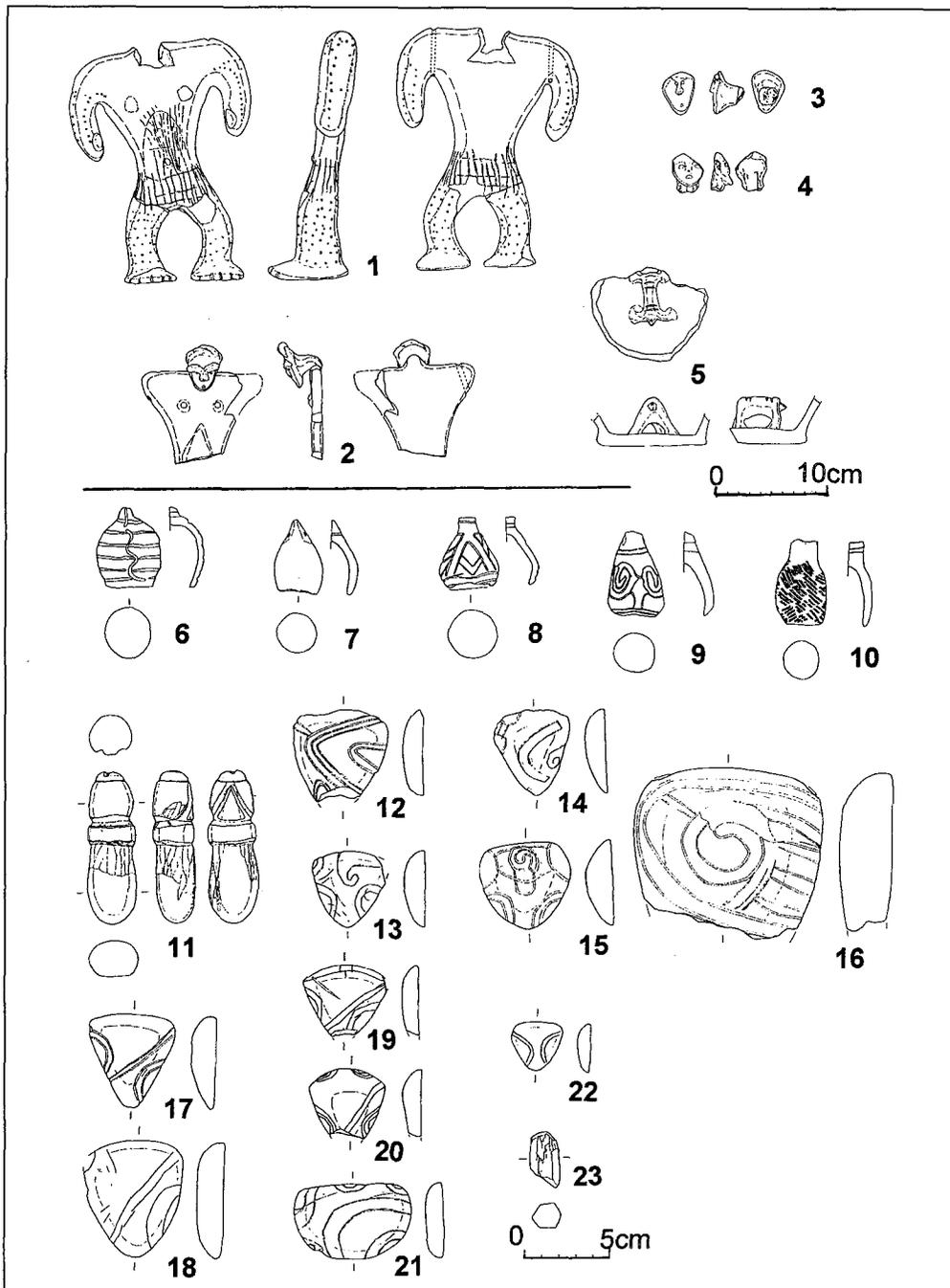


Figure 13.11 Ritual artifacts recovered from the Komakino site.

1-4. Clay figurines; 5. zoomorphic clay artifact attached on the bottom of a pot; 6-10. bell-shaped clay artifacts; 11. phallic stone artifact; 12-22. triangular stone plates; 23. quartz fragment.

Hokkaido. The Ishikura site includes a large circular stone feature with a central plaza, which in turn is surrounded by a large circular earthen mound approximately 80 meters in diameter.

I suggest that sites with triangular stone plates represent communities that shared common ideological values associated with particular types of rituals. These values must have been transmitted through intensive information exchange networks or direct interaction between community members. Because of the common association of triangular stone plates with large-scale stone features, including stone circles, it is likely that the construction of these stone features was symbolically related to the communities' ideological values.

In summary, an abundance of ritual artifacts from the Komakino site supports the interpretation that Komakino was a ritual site. It is also important to note that, at Komakino, the most characteristic type of ritual artifacts, the triangular stone plate, has been recovered primarily within and near the stone circle area, including the midden adjacent to the stone circle.

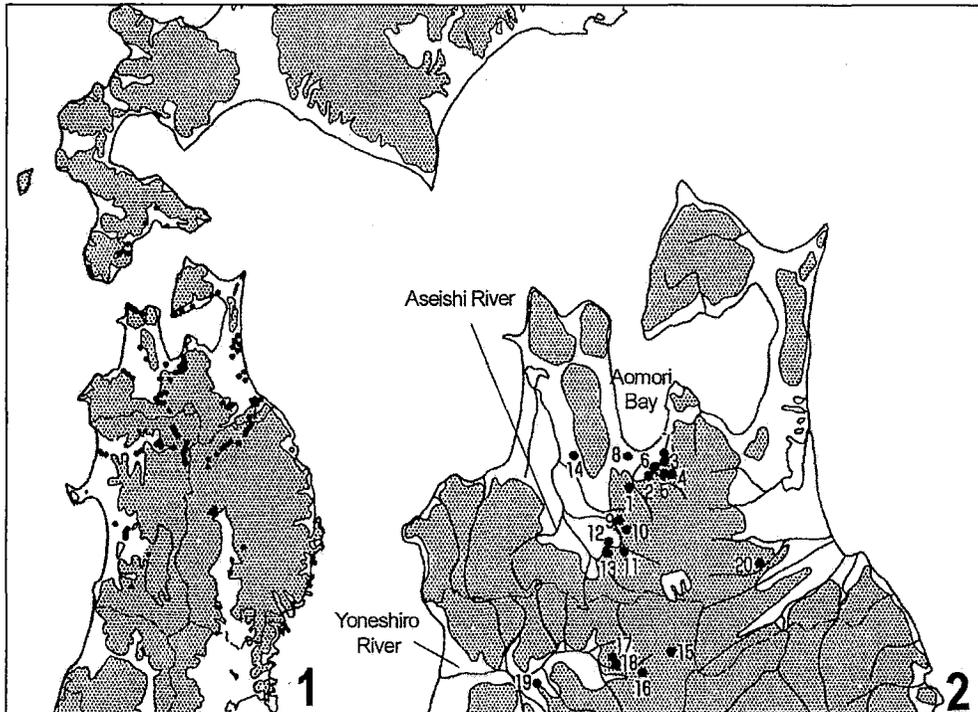


Figure 13.12 Distribution of sites associated with Tokoshinai style pottery (1), and sites with triangular stone plates (2).

1. Komakino; 2. Yotsuishi; 3. Tsukimino; 4. Sawayama; 5. Tama-shimizu; 6. Hotaru-zawa; 7. Inayama; 8. Chikano; 9. Nomagashira; 10. Itadome; 11. Ichinowatari; 12. Kidoguchi; 13. Koganemori; 14. Kannon-bayashi; 15. Oyu; 16. Takayadate; 17. Tsukanoshita; 18. Haginotoge; 19. Isedotai; 20. Happai-kubo.

Note: The shaded area indicates the hilly or mountainous area.

Based on this line of evidence, I suggest the possibility that the stone circle at Komakino represents a multi-purpose open plaza, where various ritual activities, possibly songs and dances, might have been carried out.

SOCIAL DYNAMICS BEHIND THE CONSTRUCTION OF STONE CIRCLES: LONG-TERM CHANGE IN REGIONAL SETTLEMENT PATTERNS

To date, research on Jomon stone circles by Japanese archaeologists has focused on the question of whether they primarily functioned as “graves” or “ceremonial features.” Since Jomon stone circles are few in number, the nature of these stone circles might be better understood when considered in the context of regional settlement systems. Accordingly, the following section will interpret the social dynamics behind the construction of these stone circles on the basis of site distribution and characteristics within Aomori Prefecture.

Changes in Regional Settlement Patterns

Table 13.3 lists numbers of 1) sites, 2) individual pit-dwellings, 3) settlements (i.e., sites with associated pit-dwellings), 4) individual burials and 5) burial sites (sites with associated burials) from the six Jomon sub-periods. Based on these data, several distinctive patterns can be identified.

First, as shown in Figure 13.13.1, the number of sites increases steadily from the Incipient Jomon through to the Early Jomon period. The number decreases slightly during the Middle Jomon, increases significantly during the Late Jomon, and decreases again during the Final Jomon period. Late Jomon sites are the most abundant, comprising more than 30 percent of the total number, followed, in decreasing order, by the Final, Early, Middle, Initial and Incipient Jomon. On the other hand, as shown in Figure 13.13.2, there is an overall increase in the number of both settlements and burial sites from Incipient through to Late Jomon, and then a decrease during the Final Jomon. However, the numbers of both individual dwellings and burials reach a peak during the Middle Jomon, decreasing substantially through the Late into the Final Jomon (Figure 13.13.3). This implies that the average sizes of Late Jomon settlements and burials sites, measured by the numbers of associated pit-dwellings and burials respectively, are smaller than those of Middle Jomon settlements and burial sites.

Finally, Table 13.4 and Figure 13.13.4 summarize changes over time in the ratio of the number of individual pit-dwellings to the number of sites. As shown in the figure, the ratio is higher than the average (0.35) for the Initial Jomon (0.56) and much higher for the Middle Jomon (0.97), but it is lower than the average for the Late Jomon (0.28) and very low for the Final Jomon (0.05). The ratio for the Early Jomon (0.37) is close to the average. These results reflect the fact that there are several Middle Jomon settlements that are extremely large in terms of the number of associated pit-dwellings (such as Sannai Maruyama), while almost all the Final Jomon settlements are very small.

Table 13.3 Numbers of Jomon sites, individual pit-dwellings, settlements, individual burials, and burial sites in Aomori Prefecture (compiled from BOARD OF EDUCATION OF AOMORI CITY 1998, ARCHAEOLOGICAL INSTITUTE OF AOMORI UNIVERSITY 1998, and ARCHAEOLOGY INFORMATION EXCHANGE GROUP IN SOUTHERN HOKKAIDO 1999).

	Incipient	Initial	Early	Middle	Late	Final	Un-known	Total
Number of Sites (%)	5 (0.1%)	227 (5.2%)	677 (15.5%)	620 (14.2%)	1518 (34.8%)	724 (16.6%)	596 (13.6%)	4367 (100.0%)
Number of Individual Pit-dwellings (%)	0 (0.0%)	126 (8.3%)	249 (16.4%)	604 (39.8%)	420 (27.7%)	33 (2.2%)	84 (5.5%)	1516 (100.0%)
Number of Settlements (%)	0 (0.0%)	17 (9.7%)	28 (16.0%)	46 (26.3%)	56 (32.0%)	16 (9.1%)	12 (6.9%)	175 (100.0%)
Number of Individual Burials (%)	2 (0.1%)	103 (3.1%)	175 (5.3%)	1432 (43.2%)	871 (26.2%)	692 (20.8%)	44 (1.3%)	3319 (100.0%)
Number of Burial Sites (%)	1 (1.0%)	6 (5.8%)	14 (13.5%)	18 (17.3%)	33 (31.7%)	14 (13.5%)	18 (17.3%)	104 (100.0%)

Note: A settlement indicates a site associated with one or more Jomon pit-dwelling(s). Similarly, a burial site indicates a site associated with one or more Jomon burial(s).

Table 13.4 Ratio of the number of pit-dwellings to the number of sites in Aomori Prefecture.

	Incipient	Initial	Early	Middle	Late	Final	Un-known	Average
Number of Individual Pit-Dwellings/ Number of Sites	0.00	0.56	0.37	0.97	0.28	0.05	0.14	0.35

Changes in Burial Types

Changes in burial types over time also show interesting patterns [KASAI 1983, KODAMA 1999b]. To date, seven types of Jomon burials have been identified within Aomori Prefecture. They are 1) circular or oval pit burials, 2) flask-shaped pit burials, 3) stone-marked burials, 4) interment-jar burials, 5) common-jar burials, 6) stone coffin burials, and 7) stone circle burials. Numbers of these types of burials within Aomori Prefecture, with the exception of stone circle burials, are summarized in Table 13.5.

Circular or oval pit burials comprise 57.0 percent of all Jomon burials in Aomori Prefecture, and probably represent interment of complete bodies. Circular and oval pit burials first occurred during the Initial Jomon period. In terms of their absolute abundance, they increased sharply in number during the Middle Jomon, reached a peak during the Late Jomon, and decreased during the Final Jomon.

Flask-shaped pit burials are less common. Many researchers believe that the majority of the flask-shaped burials were originally constructed as storage pits, and later reused as burial pits. These burials, which first appeared during the Early Jomon period, comprise 12.1 percent of all Jomon burials within Aomori Prefecture. Their number increased gradually through the Middle and Late Jomon, and increased sharply during the Final Jomon.

Stone-marked burials consist of stones arranged in various patterns, beneath which are

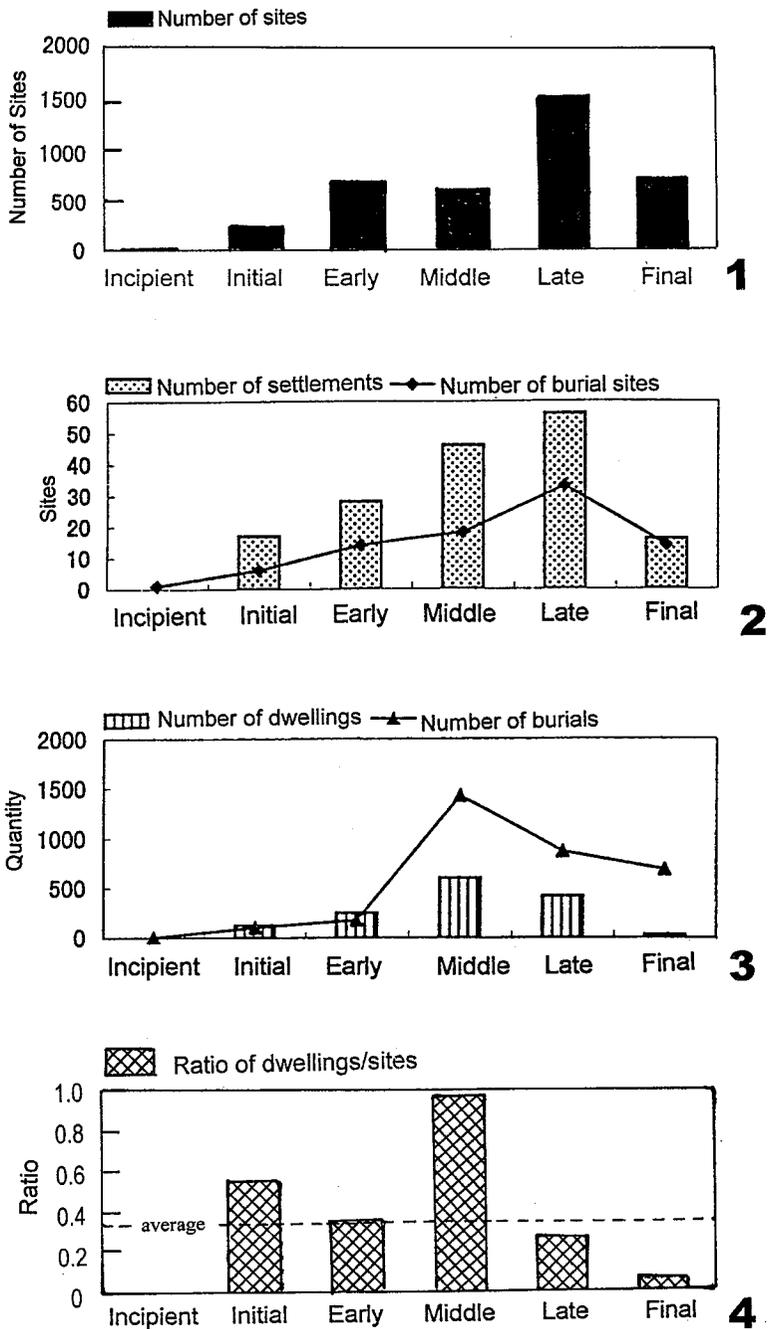


Figure 13.13 Change over the Jomon period in settlement and burial data.

1. Change in the number of sites; 2. Change in the number of settlements and burial sites; 3. Change in the number of individual pit-dwellings and burials; 4. Change in the ratio of the number of individual pit-dwellings to the number of sites.

Table 13.5 Numbers of Jomon burials by type in Aomori Prefecture (compiled from ARCHAEOLOGY INFORMATION EXCHANGE GROUP IN SOUTHERN HOKKAIDO 1999).

	Incipient	Initial	Early	Middle	Late	Final	Total
Circular or Oval Pit Burials (%)	2 (100.0%)	103 (100.0%)	72 (41.1%)	595 (41.6%)	654 (75.1%)	442 (63.9%)	1868 (57.0%)
Flask-shaped Pit Burials (%)	0 (0.0%)	0 (0.0%)	25 (14.3%)	47 (3.3%)	81 (9.3%)	243 (35.1%)	396 (12.1%)
Stone-marked Burials (%)	0 (0.0%)	0 (0.0%)	9 (5.1%)	18 (1.3%)	41 (4.7%)	3 (0.4%)	71 (2.2%)
Interment-jar Burials (%)	0 (0.0%)	0 (0.0%)	3 (1.7%)	2 (0.1%)	27 (3.1%)	2 (0.3%)	34 (1.0%)
Common-jar Burials (%)	0 (0.0%)	0 (0.0%)	66 (37.7%)	769 (53.7%)	30 (3.4%)	2 (0.3%)	867 (26.5%)
Stone Coffin Burials (%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.1%)	38 (4.4%)	0 (0.0%)	39 (1.2%)
Total (%)	2 (100.0%)	103 (100.0%)	175 (100.0%)	1432 (100.0%)	871 (100.0%)	692 (100.0%)	3275 (100.0%)

burial pits. They comprise 2.2 percent of all Jomon burials in Aomori Prefecture. These burials first appeared during the Early Jomon period. Their absolute abundance increased slightly during the Middle Jomon, reached their peak during the Late Jomon, and decreased rapidly during the Final Jomon.

Interment-jar burials were made specifically for human burials, and constitute only 1.0 percent of Jomon burials in Aomori Prefecture. They are believed to have been secondary burials, and the majority of them (27 of the 34 cases) date to the Late Jomon period.

Common-jar burials are those in which everyday cooking pots were used for the interment, and are believed to be the burials of infants and small children. These burials constitute 26.5 percent of the total in Aomori Prefecture. They first appeared during the Early Jomon period, increased sharply during the Middle Jomon, and decreased dramatically by the Late Jomon.

Stone coffin burials consist of stone slabs lining the inside of a rectangular pit, often with a flat stone serving as a lid. They constitute 1.2 percent of the Jomon burials in Aomori Prefecture, and almost all (38 of the 39 cases) date to the Late Jomon period.

Examples of the final category of Jomon burials, stone circles, are extremely rare. As such, they are not included in Table 13.5, but are discussed in more detail in the following section.

THE SOCIAL CONTEXT OF JOMON STONE CIRCLES

I suggest that the temporal changes in settlement and burial data described above are due to a number of factors. These include fluctuation in the natural environment as well as change in the degree of sedentism, settlement size, population density and associated burial customs. It is worth noting that the majority of well-known large Jomon settlements in the northern Tohoku region, including Aomori Prefecture, date to the Middle Jomon period, rather than the Late Jomon period. On the other hand, most of the stone circles in northern Tohoku date to the Late Jomon period (see Table 13.1). Thus, people who constructed Jomon stone circles were

not likely to have been living in large settlements. Accordingly, examination of the relationship between subsistence-settlement systems and the social systems in which the construction of stone circles were enabled or necessitated becomes critical.

It is also interesting to note that, in terms of the location of cemeteries vis-à-vis settlements in the Middle Jomon period in Aomori Prefecture, burial areas were typically located within each settlement, with individual burials taking various forms such as oval-shaped pit burials, stone-marked burials, and common-jar burials. An example of a settlement-associated cemetery from the Middle Jomon period is the Sannai Maruyama site in Aomori Prefecture, which is located approximately eight kilometers north of the Komakino site. Most of the burials at this site are oval-shaped pit burials. The burials are aligned in straight rows from the center of the settlement, extending along the remnants of a path-like feature that leads to the ancient contemporaneous shoreline for a length of about 420 meters. The burial pits are aligned in two rows, one on either side of the path and laid out as if facing each other. In addition, some burial pits incorporate a series of cobbles arranged in a circular pattern, and are accordingly referred to as circular stone burials. These circular stone burials may be significant in determining the origins of Jomon stone circles built later in the Tohoku region.

Excavation data from Aomori Prefecture indicate that, in the following Late Jomon period, burial areas were typically located both within and external to settlements. Burial customs also became more elaborate, with various types of burials being constructed during this period. These include flask-shaped pit burials, stone coffin burials and interment-jar burials.

The Komakino stone circle represents a typical example of a burial site external to a settlement. There are three interment-jar burials between the inner and outer rings, and almost 50 flask-shaped pit burials adjacent to the stone circle. As discussed above, the possibility of a large settlement being located adjacent to the stone circle is remote. Furthermore, the nature and function of the stone circle appears to have been multi-purpose. That is, it may have served not only as a marker of burials away from settlements, but also possibly as a symbolic monument to solidify group identity among community members, and/or as a sacred place for rituals.

The lack of an associated large settlement is not only characteristic of the stone circle at Komakino. Many other stone circle sites in the Tohoku region and Hokkaido also lack associated pit-dwellings. Accordingly, the development of stone circles was probably related to changes in burial customs, with these changes in turn being related to changes in settlement patterns from the Middle to Late Jomon periods. During the Middle Jomon period, the relatively mild climate probably enabled sedentary lifeways, with larger, more permanent settlements. During the Late Jomon period, deteriorating climatic conditions with colder temperatures may very likely have resulted in smaller, dispersed settlements due to decreases in local food resource abundance.

In summary, I suggest that the emergence of stone circles was related to environmental change. It is likely that change in the natural environment led to change in the size and structure of each settlement and fostered the development of a new ritual ideology (for settlement pattern change in northeastern Japan, see also OKADA 1998, SUZUKI 1986).

CONCLUDING REMARKS

The modern village of Nozawa is located near the Komakino site. The village consists of approximately 70 households, and there are many customs and rules concerning communal work. For example, the clearing of snow from the community hall, clearing of undergrowth in forested areas, and road repairs, all involve the maintenance of communal property. Each household must send one representative to assist with the labor involved in this maintenance of communal property. Usually, it is the head of the family, but if he cannot participate, his wife or a child must provide the labor instead. If no individual from the household can provide labor, then the household must contribute money or food.

The head of the village, termed *kucho* in Japanese, decides when and how such communal work must be done. The communal work period is closely linked to the agricultural and social calendar. Typically, communal work periods are set during the few days before rice planting, and/or during the *Bon* festival (a Japanese summer festival which takes place between August 13 and 15 to welcome the spirits of deceased persons). During these periods, members of the community share a common goal: for each day, they try to finish a set amount of work by the evening. Thus, communal work is carried out as quickly and as efficiently as possible. Although this is just one modern example, I suggest that the Jomon people also were organized into such communities, and communal projects such as stone circle construction were carried out in a similar manner. That is, the amount of labor involved in the transportation of the stones and in the actual construction of stone circles implies the presence of strong leaders and careful planning.

As discussed above, three interment-jar burials, together with a large number of pit burials, have been recorded at the Komakino site. The difference in frequencies between the two types of burials suggests that the interment-jar burials may have functioned as graves for chiefs or shamans, or other individuals of high status. The latter may have been persons of authority, or possibly craft or other specialists. Thus, I believe that the study of the Komakino site is an important step in the examination of social inequality among Jomon people.

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