



The Sannai Maruyama Site

An Extraordinarily Large Settlement in Prehistoric Japan

The Sannai Maruyama Settlement After Reconstruction

① Stone Circles with Burials

② Roads



Introduction

Located in Aomori Prefecture in northern Japan, the Sannai Maruyama site is one of the largest Jomon Period sites.

A series of excavations conducted to date has revealed a large prehistoric settlement dated to the Early and Middle Jomon Periods (approximately 5,900 to 4,300 years ago), as well as pit-dwellings from the Heian Period (approximately 1,000 years ago) and a portion of a late Medieval (approximately 400 years ago) castle.

Excavation of this large Jomon settlement has exposed many pit-dwellings, postholes of six-pillared buildings, wetlands filled with waterlogged trash, large mounds, burials of adults and children, and clay mining pits for pottery production.

Mammal and fish bones, plant seeds and pollens retrieved from wetlands provide us with crucial keys to understanding the prehistoric natural environment and foodways.

Artifacts made of jade, amber, and obsidian indicate the presence of long-distance trade within Japan. Evidence for lacquerware production implies the existence of craft specialists.

As these findings indicate, the Sannai Maruyama site is an invaluable source of information for understanding the lifeways of the Jomon people. In 2000, the site was designated as a Special National Historical Site of Japan. Furthermore, in 2003, a set of 1,958 artifacts excavated at the site was designated as an Important Cultural Asset, a distinction only the Japanese government may grant.

The prefectural government of Aomori has been engaged in the conservation and development of the site area as a historical park, where visitors can experience the Jomon 'village.'

⑪ Pit-dwellings (reconstruction)

Pit-dwellings in this photo are reconstructed as thatched houses.

Some other pit-dwellings at the site have been reconstructed with wood frames and bark or sod roofing.



③ South Mound

An exhibit facility constructed over this mound contains a cross-section, enabling the visitors to view the 1,000 year-long history of the site.

④ Longhouses (reconstruction)

The reconstructed longhouse, which measures 32 m long, is the largest among the eleven longhouses excavated from the site.



⑤ Large, Six-pillared Building (reconstruction)

The height of the reconstructed structure is 14.7 m. The original archaeological feature, which is associated with six large postholes containing chestnuts posts, is on exhibit in a roofed facility.



Exhibit hall

⑥ Burials of Children (Burial Jars)

Excavated burial jars for children are exhibited in a roofed exhibit facility.

⑦ North Mound

Numerous pots and potsherds buried in the mound can be viewed.

⑧ 'Northern Valley' Midden (Waterlogged Trash Layers)

⑩ Burials of Adults (Burial Pits)

Each adult burial is an oval pit about 2 m in length. So far, approximately 500 burial pits have been excavated.



⑨ Six-pillared Buildings (reconstruction)

Three features, each of which is associated with six postholes, have been reconstructed as rectangular, raised-floor buildings.



The Sannai Maruyama Site



Location of the Site



The Sannai Maruyama Site During Excavation

① Stone Circles with Burials

[Approximately 4,400 years old]

Stone circles with burial pits. These stone circles are located along the road on the southern side of the site.



② Roads

[Approximately 5,400-4,300 years old]

Three long roads were constructed on the eastern, southern and western sides of the site. Each road is about 5-14 m wide. Rows of adult burials are placed along each road.



The World History and the Sannai Maruyama Site

World History (years ago)	Events of the World	Period	Events at Sannai Maruyama
Prior to 12,000 years ago	Cave paintings at Lascaux and Chauvet-Pont-d' Arc	Paleolithic	
12,000 - 10,000 yrs ago	Early agriculture at the fortified settlement of Jericho (Palestinian Autonomous Area)	Incipient Jomon	
		Initial Jomon	
		Early Jomon	Beginning of the settlement occupation 'Jomon pochette' made
5,500 yrs ago	Beginning of Mesopotamian civilization		
5,300 yrs ago	Establishment of cuneiform	Middle Jomon Begins	
5,100 yrs ago	Unification of Egypt by Narmer		
5,000 yrs ago	Death of 'Ötzi the Iceman' in the Alps		Largest clay figurine produced
		Middle of the Middle Jomon	Zenith of Sannai Maruyama Length of the Eastern Road reached 420 m 32 m longhouse
4,600 yrs ago	Construction of Saqqara step-pyramid (2667 to 2648 BC) Construction of Khufu's pyramid (Egyptian Third Dynasty, Old Kingdom) Construction of Sphinx? Zenith of Mohenjo-daro (Indus civilization)		Construction of the large, six-pillared building
		Middle Jomon Ends	Stone circles with burials End of the settlement occupation
3,800 yrs ago	Construction of the ziggurat in Ur (Third Dynasty of Ur: 2113 to 2095 BC) Construction of the palace at Knossos (Minoan Civilization)		
3,760 yrs ago	The Code of Hammurabi (1760 BC)	Late Jomon	
3,338 yrs ago	Enthronement of Tutankhamun (1334 BC)		
		Final Jomon	
		Yayoi Period begins	
2,454 yrs ago	First Olympic games (776 BC) Construction of the Parthenon begins (450 BC)		
2,225 yrs ago	Qin unifies China (221 BC) Rosetta Stone carved (198 BC) Venus de Milo sculpted (120 BC?)		
		Middle Yayoi	
1,528 yrs ago	Eruption of Vesuvius and destruction of Pompeii (AD 79) Construction of the Coliseum in Rome (AD 78 to 82) End of the Western Roman Empire (AD 476)	Kofun	
	Compilation of the Koran (AD 653) First Crusade (AD 1096)	Asuka/Nara Heian	
	Enthronement of Genghis Khan (AD 1206)	Kamakura	
	Columbus reaches the Americas (AD 1492)	Muromachi	
	Defeat of the Spanish Armada	Azuchi/Momoyama Edo	

⑪ Pit-dwellings

[The dwelling shown in the photo is about 5,000 years old]



Compared to pit-dwellings excavated at other Jomon sites, the majority of the pit-dwellings at Sannai Maruyama are smaller.

⑨ Remains of Six-pillared Buildings

[Approximately 4,700 years old]

In this area, many post holes are overlapping, indicating that the structures were repeatedly constructed at the same location and facing in the same direction. Individual buildings are believed to be



represented by sets of six postholes arranged in a rectangular plan.

③ South Mound
[Approximately 5,400-4,300 years old]



In addition to domestic refuse, ceremonial artifacts such as clay figurines and jade were repeatedly thrown away, resulting in a small mound after about 1,000 years.

④ Longhouses
[Approximately 5,400 years old]

The longhouse shown in the photo measures 15 m in length and 10 m in width. The floor area of this house was expanded after its initial construction.



⑤ Large, Six-pillared Building
[Approximately 4,500 years old]

This feature is the largest six-pillared building excavated from the Sannai Maruyama site. Chestnut posts, each of which measures about 1 m in diameter, were found at the bottom of these post-holes.



⑥ Burials of Children (Burial Jars)
[The jars shown in the photo are about 5,000 years old]



These pots were used as funerary urns, with many of them being placed near the clusters of pit-dwellings.

⑦ North Mound
[Approximately 5,400-4,300 years old]



Numerous potsherds and stone tools were piled up with dirt, forming a small mound that measures over 2 m high.

⑧ 'Northern Valley' Midden
(Waterlogged Trash Layers)



A naturally formed watercourse was used as a refuse disposal area from about 5,900 to 5,400 years ago. Disposed refuse formed organic layers that provide invaluable information about the natural environment and foodways at that time.

History of Excavation at Sannai Maruyama

The oldest record noting the Sannai Maruyama site is dated to the early 17th century. By the 18th century, a famous travel writer visited the area and left several drawings of pottery and clay figurines.

From 1953 to 1967, research institutions such as Keio University and the Board of Education of Aomori City conducted excavations of the site. In 1976 and 1987, the Boards of Education of Aomori Prefecture and Aomori City conducted excavations of the southern part of the site.

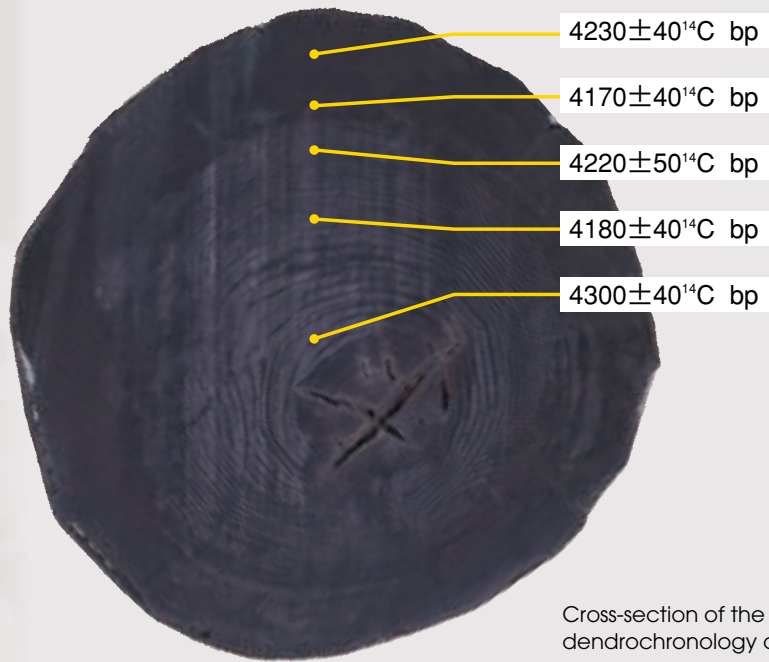
Rescue excavations that began in 1992, which preceded the construction plan of a prefectural baseball stadium, revealed an extraordinarily large settlement associated with an unprecedented amount of artifacts, including pottery, stone tools, and clay figurines.

In June 1994, a large, six-pillared structure with remains of 1 m chestnut posts was excavated. As public support for the preservation of the site increased, Aomori Prefecture acknowledged the importance of the site. In August

1994, the prefecture announced the decision to preserve the site permanently and utilize it as a historical park. After this decision, most of the excavated areas were backfilled for protection. Conservation of the site and the development of the historical park have been continuing to this day.

In addition to the 1992-1994 rescue excavation, 26 test excavations were conducted from 1995 to 2003. As a result, approximately 40 percent of the entire site has been excavated.

Environment



Cross-section of the chestnut post used for dendrochronology and carbon dating



Charred chestnuts



Elderberry bush at the site today

The Sannai Maruyama site is located at the edge of a plateau leading to the Hakkoda Mountains, at the elevation of 20 m above sea level. On the north side of the site runs Okidate River.

What were the characteristics of the natural environment that surrounded the Sannai Maruyama settlement? Pollen analysis indicates that oak and beech forests that dominated the site area prior to the establishment of the settlement were rapidly replaced first by Fagaceae trees such as walnut, then almost exclusively by chestnuts. Some scholars suggest that such rapid changes must have involved active environmental management, such as planting or tending of chestnut trees. In addition to pollens, a large amount of chestnut shells have been recovered from the refuse area. Chestnut trees were used also as tools and building material, as well as fuel. These lines of evidence suggest that the chestnut was an important resource for the residents of Sannai Maruyama.

In addition to pollen analysis, excavations of two wetland areas of the sites have provided excellent data for analyses of fungi, algae, phytoliths, seeds, woods, plant DNA, fish bones, mammal bones, insects, and parasites. Results of these analyses have revealed active interaction between the natural environment and the site residents.

Food



Various kinds of bones



Snapper (estimated body length: 1 m)



Japanese walnuts



Various plant seeds



Elderberry seeds

A large amount of animal bones and plant seeds have been excavated from wetland areas.

The majority of mammal bones are those of rabbits and flying squirrels. Only a small amount of large terrestrial mammals such as deer and boar have been found. Some marine mammal remains, such as those of whales and sea lions, have also been identified.

Ducks and geese make up the majority of the fowl found.

Among the fish bones, vertebrae of yellowtails and sharks are ubiquitous. In addition, bones of a variety of fish from multiple habitats and with varying fishing seasons have been identified. Remains of blowfish, a species that requires sophisticated anti-poison measures before consumption, have also been found. These lines of evidence indicate the wealth of knowledge of fisheries among the site occupants.

From the water-screened soil, numerous amounts of fruit seeds, such as wild grapes and actinidia, were found. An abundance of elderberry seeds, many of which formed thick layers or lumps, have made several scholars suggest the possibility of fruit wine-making.

Large seeds excavated from the site include nuts, such as chestnuts, Japanese walnuts, and buckeyes. Seeds of several non-native species, including bottle gourd, have also been recovered.

Settlement Changes through Time



Early Jomon Period: Approximately 5,900-5,400 years ago



First Half of the Middle Jomon Period: Approximately 5,400 to 4,900 years ago



Second Half of the Middle Jomon Period: Approximately 4,900-4,300 years ago

-  Pit-Dwellings
-  Longhouses
-  Roads and Burial Pits (Adult Burials)
-  Mounds
-  Middens accumulated in Wetlands and on Slopes
-  Burial Jars (Burials of Children)
-  Storage Pits
-  Six-pillared Buildings

0 50m

Architecture



Remains of a Chestnut Post Associated with the Large, Six-pillared Building



Reconstructed Large, Six-pillared Building and a Longhouse

Wooden architecture of the Jomon period includes pit-dwellings and six-pillared buildings.

Pit-dwellings, the most common type of residential building during the Jomon period, were semi-subterranean structures with circular or oval floor plans.

Over 500 pit-dwellings have been found at Sannai Maruyama. These pit-dwellings show gradual changes over time in floor plans, arrangement of the posts, and the location of the hearth. An average sized pit-dwelling measures about 3-4 m in diameter, and about 12 m² in floor area. In addition to these regular sized pit-dwellings, a small number of extremely large

oval-shaped semi-subterranean dwellings (long-houses) were also constructed. The largest longhouse at Sannai Maruyama measures 32 m in length. Since the number of longhouses is quite small, possibly one for each occupational phase, scholars suggest that longhouses may have functioned as meeting halls or workshops.

In addition, many postholes, which are identified as remains of six-pillared buildings, were recovered between the North and South Mounds. Since no floors were associated with these features, they are assumed to have been raised-floor buildings, possibly for storage or funeral rites.

The large, six-pillared building is the one found at the northwestern area of the site. This feature consists of six large chestnut posts that are arranged in a rectangular shape. Given the extremely large size of these posts, this structure may have functioned as a shrine, a watchtower, or a monument. Each post measures about 1 m in diameter, and is placed at exactly 4.2 m apart (a distance measured between the center of each post). After measuring distances between postholes of other six-pillared buildings, some scholars suggest that either 35 cm or 70 cm may have been the measurement unit of the site residents.



Cluster of Pit-Dwellings

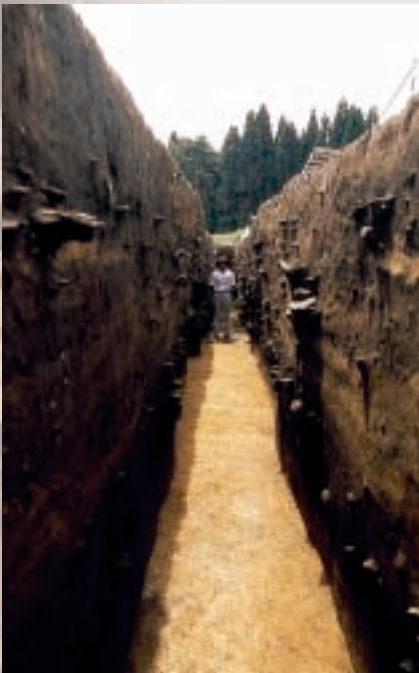


Overlapping Postholes of Six-pillared Buildings

Organization of the 'Village'



Eastern Road



Cross-section of the South Mound



Numerous Potsherds Excavated at the North Mound

In addition to the construction of wooden architecture, large-scale civil engineering projects such as road construction were also conducted.

The first road runs from the center of the site to the east for about 420 m (the Eastern Road), and the second road runs from the center to the southeast for about 390 m (the Southern Road). The third road, which measures about 40 m in length (the Western Road), was excavated at the western part of the site. These roads were constructed by flattening the earth to create the road surface of 5-14 m wide. Clayish soil was applied to strengthen the areas with loose ground.

Backdirt of these construction projects, together with broken pots and stone tools, were piled up in certain designated areas of the site. Repetition of these activities resulted in the formation of the North, South and West Mounds, part of which measures as tall as 2 m.

Distribution of features within the site shows systematic patterns. Roads were arranged in a particular way, with the mounds built to avoid the roads. Six-pillared buildings are placed at the end of the roads, and adult burials are constructed along both sides of the roads. The main cluster of pit-dwellings is away from adult burials, and is located within the areas that are surrounded by six-pillared buildings and mounds. Unlike adult burials, children's burials are heavily concentrated around the pit-dwellings. The basic patterns of these arrangements were maintained for over 1,000 years.

Artifacts 1 (Pottery and Stone Tools)



Ento Style Pottery



Stone Tools



Grinding Stones and Stone Mortar

Two of the most representative types of artifacts at the Sannai Maruyama sites are pottery and stone tools. They make up the majority of the 40,000 boxes of artifacts that have been excavated so far. This overwhelming amount reflects the tremendous size of the settlement as well as its long history.

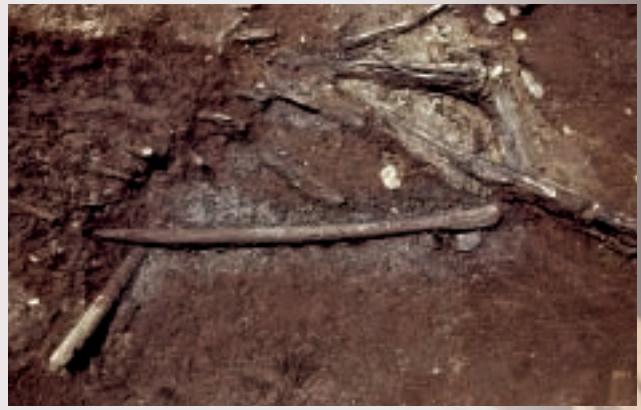
Pottery found at this site is called Ento (cylindrical) style pottery. A typical Ento style pot is characterized by an elongated bucket shape with a wide opening, and is decorated with cord marks (*jomon*). Ento style pottery from the Early Jomon period is decorated primarily with a variety of cord marks, whereas that from the Middle Jomon period is more commonly decorated with appliqué or wavy rims. Although the majority of excavated pots are deep jars, which were used primarily for cooking, shallow bowls and plates are also present. Some pots are coated with lacquer.

Stone tools found from the site include hunting tools such as arrowheads, crafting tools such as awls, cutting tools such as polished stone axes, and food-processing tools such as grinding stones. Stone implements for ritual purposes are also abundant.

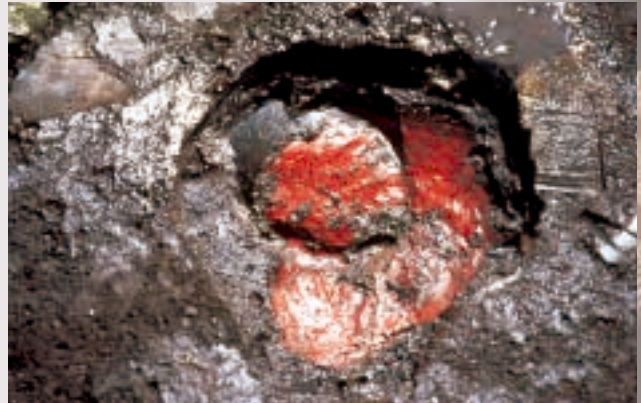
Artifacts 2 (Lacquerware, Wooden Objects, and Bone and Antler Implements)



'Jomon Pochette' (Basket with a Walnut Interior)



Digging Stick Excavated from the 'Northern Valley' Midden



Lacquerware Excavated from the 'Northern Valley' Midden



Bone Fishhooks and Harpoon Heads



Bone Needles

Organic artifacts about 5,900 years old have been found from two wetland areas of the site. Wood artifacts include digging sticks, lacquerware and combs, as well as many others the functions of which are unidentified. In addition to lacquerware, tools for lacquerware production and seeds of lacquer trees were found, suggesting that the production of lacquerware took place at the site. Other artifacts made of plant materials include a small basket named 'Jomon pochette'. These lines of evidence suggest that a variety of plant-material containers were commonly produced and used.

Bone and antler implements include harpoon heads, fishhooks, needles, awls and hairpins. Needles are the most abundant type of bone tools. Their varying length, thickness and the eye size indicate that the Jomon people developed a variety of specialized tools for different purposes. At Sannai Maruyama, most of the bone needles are made of mammal ribs.

Ornaments and Ritual Goods

In addition to artifacts for daily household use such as pottery and stone tools, a large number of ornaments and ritual-related objects have been excavated.



(Left Top) Various Earrings (Right Top) Textile Fragment
(Left Bottom) Crown-shaped Stone Artifacts
(Right Bottom) Ceremonial Bone Artifacts



Clay and Stone Figurines

Ornaments include pendants and earrings made of clay and stones, hairpins and pendants made of animal bones and tusks, and combs coated with red lacquer. A braided rope, which was made of five pairs of twisted string, is probably a bracelet fragment. Fragments of fabric made of twisted warp may have been part of clothing.

Other ritual-related artifacts include clay and stone figurines, miniature pottery, triangular clay objects, stone rods, crown-shaped stone artifacts, a board-shaped clay figurine, clay pieces decorated with walnut shells, and sword-shaped artifacts made of whale bone.

Over 1,600 clay figurines have been found at Sannai Maruyama. Compared to other Jomon sites in Japan, this number is astonishing. Most Middle Jomon clay figurines at Sannai Maruyama are flat and cross-shaped,

with the face, chest and bellybutton usually represented. Many of them were found in fragments, and only a few can be restored to their complete condition. In some instances, some of the fragments found from separate locations within the site were later refitted as one piece.

Most of these ritual-associated implements were found from the mounds, suggesting the significance of the mounds as a ground for ceremonial practices.



(Left) Miniature Pottery
(Bottom) Various Clay and Stone Artifacts



Mortuary Practice



Adult Burial (Burial Pit)



Burial of a Child (Burial Jar)

Stone Circle with Burial Pits

Rows of burial pits for adults are arranged along both sides of the three roads. They extend for about 420 m along the Eastern Road, 310 m along the Southern Road, and 40 m along the Western Road. Most burials are represented only by oval-shaped pits. Some burial pits are marked with large stones or small mounds. The burial rows along the Southern Road include burial pits surrounded by circular stone arrangements. The distribution of this type of burial extends for about 210 m. Several burials were associated with jade ornaments, stone tools such as arrowheads, and red pigments.

Burial jars, which are assumed to have been children's burials, were found on the northeast area of the settlement, in between the 'North Valley' midden and the North Mound. Pots for daily use were reused as burial urns, but they usually had holes drilled in the bottom. Some burial jars were associated with stone tools as in the case of adult burials. Others contained fist-sized cobbles.



Burial Pits Placed along the Road



Overlapping Burial Pits

Interaction between Settlements



Large Jade Beads



Unworked Jade and Incomplete Jade Beads



Spear point Made of Obsidian from Hokkaido

Most artifacts used for daily activities, such as pottery, were made at the site using locally available materials. However, certain items came from far away. These include artifacts that were made of non-local materials. In some cases, chemical analyses can help us identify the provenance of these materials. Jade and obsidian are two representative examples that were obtained through long-distance exchange.

Jade was favored by the Jomon people, and was especially valued in northern Honshu, where Sannai Maruyama is located, and southern Hokkaido. Jade raw material came from the Itoi River region in Niigata Prefecture, about 500 km away from the site. In addition to complete artifacts such as large beads, unworked jade and uncompleted jade beads have also been found. This indicates that the production of jade artifacts took place at the site. Obsidian found at the site came from multiple sources, including Hokkaido and Nagano Prefecture, the latter being about 580 km away from the site.

In addition, natural asphalt, which was used as glue to attach arrowheads to arrow shafts, and pieces of amber were brought to the site from areas within 200 km away.

The Jomon Period

Dates

Over 12,000 years ago, when the climate became warmer and the deciduous forest began to spread throughout the Japanese archipelago, a new culture characterized by the production of pottery began to emerge. Because many of the pots from this period are decorated with cord marks (*jomon*), the culture is named the Jomon. The people from this period are called the Jomon people. The Jomon culture lasted about 10,000 years, ending approximately 2300 years ago when rice agriculture diffused from continental Asia and marked the beginning of the Yayoi period.

Physical Characteristics

The origin of the Jomon people is a hotly debated topic. Physical anthropological studies indicate that skeletal remains of Jomon people show similar characteristics to those of "archaic" type of Asian population groups, who originally lived in Southeast and part of East Asia. It is believed that the modern Japanese population consists of the mixture of the Jomon lineage and waves of immigrants from continental Asia during and after the Yayoi period.

Food

Jomon people were living primarily on hunting, gathering and fishing. Terrestrial mammal and bird hunting was conducted using bows and arrows, and sometimes with the aid of traps. Fishing in the sea, rivers and lakes is evidenced by the presence of fish spears, harpoon heads, fishhooks and weirs. Plant food gathering and shellfish collecting seem to have been especially important. Typical cooking methods included stewing in pottery vessels, but discoveries of cookie- or bread-like lumps from several Jomon sites indicate other cooking methods were also used.

Villages and Social Organization

A typical Jomon village consisted of pit-dwellings, storage pits, graves, and a central plaza. Certain regions and sub-periods were also characterized by the presence of large long-houses, shell-middens, mounds, six-pillared buildings, and ceremonial features marked with large stones. The minimum social unit probably consisted of several households. Opinions vary regarding the degree of Jomon social stratification, since neither burial structure nor grave goods shows marked status differences.

Crafts and Rituals

Representative craft products from the Jomon period include pottery, clay figurines (usually representing female), and stone or bone tools for hunting, fishing and cooking. In addition, baskets and textiles made of plant fiber, clay, stone and ivory earrings and pendants, shell bracelets, combs and hairpins have also been found. No metal tools were used, but the production of lacquered wood containers and jade beads indicate the high level of Jomon craft skills.

Ritual artifacts include clay figurines, phallic stones, and other clay and stone objects. An abundance of ritual artifacts, as well as the construction of large-scale ceremonial features such as stone circles, indicates the complexity of Jomon ceremonial practices. Despite the richness of archaeological record regarding rituals, we know very little about the worldview of the Jomon people.

Interaction between Villages

Stylistic similarity of pottery between villages, long-distance trade of exotic items, and discoveries of dugout canoes all indicate intensive interaction within and between each region. These interaction networks often extended for over 100 km. No evidence of warfare has been reported.

**Sannai-Maruyama Site Preservation Office, 2004
Cultural Properties Protection Division,
Aomori Prefectural Board of Education**

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