Circles of stone
EXPLORING THE MONUMENTS OF JOMON JAPAN

Numerous ancient stone circles are known in Japan, but how and why were these monuments built? Simon Kaner examines what these enigmatic structures can tell us about a key period of Japanese prehistory.

The Jomon peoples of northern Japan were unusual among foraging societies for being great monument-builders. They constructed a range of such sites, including stone circles, settings of wooden pillars, shell middens, and bank-enclosed cemeteries or embankments containing large quantities of material remains, all of which represented an ability to undertake significant investments in labour and probably also a high degree of forward-planning. Both of these abilities are more often associated with agricultural societies than hunter-gatherers. The Jomon monuments suggest an emphasis on ritual and ceremonialism, too, as well as a strong sense of engagement with particular locations in their landscapes. Examining such monuments and the range of activities that could be carried out in their shadow, as well as Jomon settlements, helps shed light on activity in the longest time-period in Japanese archaeology (spanning c.14,500-300 BC, with the stone circles mostly dating to the later phases of c.2500-300 BC). Its importance is reflected in 17 Jomon sites from northern Japan achieving World Heritage status in the summer of 2021.

In Japan, the term ‘stone circle’ is used to describe circular arrangements of stone setting, comprising rings of rocks that vary in weight from just a few kilogrammes to more than 100kg. These are not the megalithic monuments familiar to European readers and seen, for example, at Stonehenge and Avebury in Britain. Even so, the Japanese and European sites do share many attributes, including astronomical alignments, acting as the focus for seasonal ceremonies, and rituals connected with burial and the ancestors. Indeed, this autumn a new exhibition will open at the Stonehenge Visitor Centre. Circles of Stone: Stonehenge and prehistoric Japan will introduce some of the stone circles that were constructed towards the end of the Jomon period, and explore little-known links between research at Stonehenge and the history of Japanese archaeology.

Set in stone
When considering Jomon stone circles, the most famous are the twin arrangements of stone rings at Oya in Akita prefecture. These are known as the Manza and Nonakado circles, and they were created and used between 4,200 and 2,700 years ago. These sites were first discovered in 1931, before being investigated in detail in the 1940s and ’50s, and again from 1984 to 2008. Attention initially focused on the stone circles themselves. Both comprise concentric rings of stone settings (the greatest diameter is 48m at Manza and 44m at...
Oyu

Among the most intriguing objects excavated at Oyu is this small clay plaque, just a couple of centimetres tall. Jomon specialists Tatsuo Kobayashi suggests that it indicates Jomon people had a clear concept of numbers—the upper central hole representing one; the two "eyes" representing two; the two sets of dots on each side of a central vertical row of five, representing three, four and five; with further dots on the back. In addition, this month a CAT scan of the object commissioned by the Oyu Stone Circle Museum and created by the Akita Industrial Technology Centre and Toru Miyao of the Nigata Prefectural Museum of History—the lead Japanese curator for the Circle of Stone exhibition—shows that the object has a hollow centre, from the base to the "mouth". Hollow and similarly "pierced" ceramic figures are well known from many other sites, and may indicate awareness of the significance of internal organs. This is the first time these images have been published. The object was recognised during post-excavation work at Oyu, and like so many of the other artefacts comes from a general spread of pottery and other items rather than from any specific feature.

Double concentric circles

Two waste areas, one spring, 10 remnants, over 30 patches of burnt earth, and three pits for extracting clay. The inner and outer rings are contemporaneous with the site's jar burials.

The stones at Komakino were arranged in various ways, including as standing stones, stones stacked on top of each other, and stones placed to create horizontal and vertical patterns. As a first step, sections of ground earmarked for the inner and outer rings were prepared by cutting platforms into them, aiding the creation of the three-dimensional Komakino-style stone arrangements. It is estimated that approximately 500m³ of soil was shifted during the preparation and creation of the inner and outer stone rings, providing a sense of the labour involved. The end result was akin to a 360° amphitheatre, with the slope rising out from the central square to the inner ring and then down to the outer ring. Steps led down to the nearby pit houses.

Experimental ethnarchaeological work has been carried out at Komakino to estimate how much work went into constructing the stone circle. Although the wooden implements needed to transport stones to the site have not been recovered, archaeologists working there have examined local ethnographic records to determine possible methods. The three strongest contenders are wooden sleds capable of carrying approximately 90kg, a "carrying pole" supported by two people and able to transport approximately 30kg, and individual backpacks suitable for loads of 15kg. Two separate routes were considered, one of 995m down a gentle slope for the sled and the carrying pole, and a steeper, more direct path of 387m suitable for individuals using backpacks. Estimates varied around 8,000 person minutes (using a wooden sled with no time for breaks) and just over 31,000 minutes (using backpacks and factoring in breaks).

Stone circles are also known in Hokkaido, although these are not included in the new World Heritage Site. The largest is Washinoki, not far from the shell middens along the coast of Volcanic Bay. It was investigated in advance of highway construction and then preserved in situ, with the road relocated to a tunnel.
The complex of four stone circles at Isedoi (LEFT) was discovered by chance during road construction. Fragments of polished stone figurines were excavated at the site, but only one (RIGHT) could be put back together again.

The stone circle at Onomori-Katsuyama was created about 3,000 years ago and occupies a conspicuous point in the landscape at the foot of Mt. Mihara (LEFT). Hundreds of emeritite stone discs have been found at the site (ABOVE).

The stone circle at Isedoi-Konakino, Onomori-Katsuyama, and Oyu are among the Jomon sites in the new World Heritage Site. They were inscribed alongside several settlements (including the largest Jomon settlement yet discovered, at Sanmai Maruyama in Aomori Prefecture), bank-enclosed burial enclosures at Kiutsu, shell middens, and some exceptionally well-preserved waterlogged sites including Komomamako-Nakai and Kamagokoa, which are roughly contemporary with the stone circles. All told, they offer an excellent sample of sites showcasing Jomon archaeology.

Jomon settlements

Examining some of these sites helps to flesh out the world in which these settlements existed. The major Jomon settlement at Sanmai Maruyama occupies a series of terraces overlooking the modern-day city of Aomori and Matsus Bay. The settlement extends across an area of some 420 ha and underwent varying periods of occupation, from 5,500 to 4,200 years ago, during the Early and Middle Jomon periods. Today it is home to a major museum and historical park, as well as several reconstructed features. Remains of more than 1,000 buildings, including sizable longhouses with multiple fireplaces along their long axis, storehouses raised on pillars, and many underground pit houses—presumed to be family dwellings—were excavated in the 1980s and '90s, alongside inhumation cemeteries, immense pottery middens—up to 5m in depth—and an exceptional setting of six massive posts, the bases of which were preserved in the waterlogged ground.

Tones of pottery and stone tools were recovered, along with more than 1,800 ceramic figurine figures, representing one of the greatest assemblages found anywhere in Japan. Preserved plant remains were also present. A heap of barley seeds with fruit flakes was interpreted as evidence for the fermentation of alcoholic drinks. There are hints, too, of a step towards agricultural methods, with sweet chestnut trees perhaps being cultivated nearby.

Across the Tsuruga Straits, numerous Jomon settlements flourished at the same time as Sanmai Maruyama. At Ofune, the remains of some 300 pit dwellings, many dug to a considerable depth, were found along with midden-mound earthworks, and associated with a grave-pit cemetery a short distance to the south. Bones of sea mammals, notably whale and seal, were recovered, along with plentiful plant remains, in particular chestnuts.

One of the longest-occupied settlements is at Kakinozuma, which overlooks the Pacific coast in the southern part of the Oshima Peninsula. A series of important discoveries made there can be dated from 9,000-3,000 years ago, meaning the site spans the Initial to Late Jomon. Early in the occupational sequence, some 9,000 years ago, some special burial was buried in a blanket made of plant fibres coated in lacquer, an act that provides us with the earliest well-dated use of lacquer anywhere in the world. Around 7,000 years ago, some of the most-evocative artefacts known from the Jomon period were buried as grave goods: small clay plaques bearing the imprints of infants' footprints, and perforated with two holes suggesting that they were originally strung and worn as pendants. About 4,000 years ago—at the transition between the Middle and Late Jomon periods—a large part of the site was enclosed by a large earthwork over 190m in length and made of midden material. These finds are all displayed in an adjacent museum, along with the only object designated as a National Treasure from the whole of Hokkaido: a large hollow ceramic figurine dating from the Late Jomon, discovered by a local lady digging her vegetable patch at Chobaiyin.

Information from these settlements is complemented by that from shell middens. These contain important evidence both for subsistence activities—especially the development of a sophisticated fishing technology, including harpoons, rods and fishhooks, and net sinkers—as well as burial practices during the Jomon period, as the alkaline shells counteract the acidic, volcanic soil, thereby preserving human bone. A cluster of such sites occur on the coast of Volcano Bay. Five exceptionally well-preserved shell middens at Kitakogane, dating to 7,000-5,500 years ago during the Early Jomon, produced a number of human burials, as well as fish bones (including tuna and houndfish) and shellfish (such as clams, oysters, and scallops). At Irie, the remains of 15 human burials were recovered, dating to 5,500-2,800 years ago, while nearby Takasago furnished 28 burials dating to the Final Jomon, some 3,000 years ago. Grave goods from some of these burials indicate that their incumbents were involved in long-distance trade, acquiring boats and objects that were not native to Hokkaido.

There is less evidence for substantial settlements during the Final Jomon in Hokkaido. New forms of burial appeared at this time, including pits positioned within banked circular enclosures. A number of examples are known across southern Hokkaido, the most famous being at Kiutsu, within easy reach of the main airport on the island at Chitose. Across an area of about 5ha, eight large circular pits, ranging in diameter from 18m to 75m, and up to 5m in depth, were dug, with the soil piled up around their edges. Each enclosure contained several inhumation graves, many with rich burial goods, including pottery, beads, and other accessories. Some burials were marked with standing stones.

While the Kiutsu enclosures were in operation, people living across the straits in northern Honshu explored the low-lying wetlands. Kamogoka, on the Tsuruga Peninsula, is a site that has been associated with the production of...
ancient ceramics for hundreds of years. It is the type-site for an eponymous style of pottery, which included many distinctive black burnished fine wares designed for serving food and drink. Perhaps the most-famous elements of its material culture, though, are the so-called ‘goggle-eyed’ dagu figures. These hollow, composite objects were covered in intricate designs. The first example was discovered in the 1880s at Kamegako, while the name ‘goggle-eyed’ was coined by Shigoro-Tsuboi, the first professor of anthropology at the University of Tokyo, who saw snow gogglers used by Siberian peoples in the ethnographic collections of the British Museum. The coast of northern Japan is still among the snowiest places on earth, and Tsuboi recognized how such artefacts could have helped Jomon people during the winter. More recent research has questioned this interpretation, though, by identifying the large protruding eyes of these dagu as the culmination of a long stylistic development.

Korekawa-Nakai, on the Pacific coast in the vicinity of the city of Hachinohe, has also produced evidence for a residential area, cemetery, food-processing area, and plaza for rituals. The site was first investigated in the 1930s, with the waterlogged levels producing abundant organic remains, in particular lacquered wooden and ceramic vessels, along with food remains such as walnuts and horse chestnuts. Analysis of the plant remains suggests that, as at Sannai Maruyama, the people living at Korekawa-Nakai took steps to manage the environment around their settlement, perhaps encouraging particular species – notably the lacquer tree – to grow, thereby husbanding their resources. Other sites in the Korekawa cluster demonstrate that the area was occupied by the Early Jomon period. In recent years, excavations at Kazahari 1 have revealed a settlement featuring pit houses and a cemetery. Another exceptional ceramic dagu figure – sitting in a pose thought to indicate childbirth, with its hands clasped – was recovered from one of the pit houses. All parts of this object were present, and it was suggested that it fell off a shelf when the house was abandoned. By the time Kazahari was a centre of settlement in northern Honshu, rice was being grown by the first farmers in the southern part of the archipelago in Kyushu. The interaction between the rice-growing farmers and the Jomon foragers is one of the hot topics in Japanese archaeology, but among many other changes the arrival of agriculture presaged the end of building stone circles.

At Goshono, somewhat to the south and close to the Pacific coast of Iwate prefecture, there was an important settlement contemporary with the later phases of Sannai Maruyama, dating to 4,500-4,000 years ago. Remains of large numbers of pit dwellings were discovered, along with several that had burned down in situ, preserving excellent traces of their fabric, including incontrovertible evidence that soil sediments were used for roofs. These pit dwellings clustered in groups comprising a larger house surrounded by between three and five smaller buildings. The settlement area was interspersed with inhumation graves, above which stood stone settings 2.3m in diameter. Two larger, circular arrangements of stones, 30-40m in diameter, were discovered in the eastern and western parts of the site. The site is located on the east coast of Japan, and the area has been designated as a World Heritage Site by UNESCO.

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Details about the Jomon Sites of Northern Japan UNESCO World Heritage designation can be found at http://www.jras.or.jp/en/