

Research



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Changing relationship between the dead and the living in Japanese prehistory

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The aim of this paper is to propose a new insight on the changing burial practice by regarding it as a part of the cognitive system for maintaining complex social relationships. Development of concentrated burials and their transformation in Japanese prehistory are examined to present a specific case of the changing relationship between the dead and the living to highlight the significance of the dead in sociocultural evolution. The essential feature of the burial practices observed at Jomon sites is the centrality of the dead and their continuous presence in the kinship system. The mortuary practices discussed in this paper represent a close relationship between the dead and the living in the non-hierarchical complex society, in which the dead were not detached from the society, but kept at its core, as a materialized reference of kin networks.

This article is part of the theme issue 'Evolutionary thanatology: impacts of the dead on the living in humans and other animals'.

1. Introduction

The strong, long-lasting connection with the dead is a part of human uniqueness, but its manifestation varies according to the sociocultural situation. Archaeological evidence provides us with fascinating insights on how our treatment of the dead changes through time. Although the earliest evidence of intentional burial dates back to the Palaeolithic period [1], the number and the variety of burials significantly increase with the transition to more sedentary lifestyles after the last Ice Age. The development of the cemetery has been explained from a functional point of view as a means to legitimize the rights of a corporate group over crucial but restricted resources [2–4]. Pettitt straightforwardly describes that, at the end of the Pleistocene, what we recognize as 'normal' ways of thinking of the dead arise from 'agricultural' thinking, and resulted in formal cemeteries as territorial markers [1]. While the functional model seems to explain the formation of formal cemeteries, the variability in mortuary practices and forms of burial, and how it changes through time, should give us more clues to understand the nature of the critical transition of our species from mobile foragers to sedentary farmers, and how our relationship with the dead played a part in the process.

The aim of this paper is to propose a new insight on the changing burial practice by regarding it as a part of the cognitive system for maintaining complex social relationships. It has been argued that the large volume of the neocortex of the human brain is related to social group size [5–7]. Kinship is at the core of collaboration and social networking in human societies, but the recognition of the kin network is cognitively a hard task, especially when it needs to extend back to the past. When the idea of descent is introduced to add a diachronic dimension to social network, the dead members of the society need to be remembered. While the use of linguistic categorization and heuristic mental frameworks is a human universal that makes it possible to recognize kin relations [8,9], it is not easy to keep track of the deceased ancestors more than three generations ago. Construction of cemeteries in particular manners could be a creation of external symbolic storage

or material anchor of cognition to support the long-term memory of social networks [10–13].

Archaeologically, formal cemeteries can be recognized as exclusive areas for burying the dead apart from the areas for domestic activities. Before the establishment of such exclusive cemeteries, however, early evidence of concentrated burials showed they tended to be closely related to settlements. In the Late Natufian to the Pre-Pottery Neolithic period in the Near East, bodies were buried under the house floors and their heads were often removed for additional ceremonies and placed in a cache within the settlement. Such practices have been interpreted as an emergence of the ancestor cult, whether it incorporated an emergence of social hierarchy or rather worked as a ritualistic system to limit the development and centralization of power and authority in early agricultural communities [14]. The concept of ancestor may be too broad to be used as an effective analytical tool for investigating the emergence of religion or social structure, but it still is an important viewpoint as a uniquely human cognition of kinship including dead members of the society. The purpose of this article is to examine the emergent stage of concentrated burials and their transformation in Japanese prehistory, to present a specific case of the changing relationship between the dead and the living to highlight the significance of the dead in sociocultural evolution.

Jomon refers to the cultures characterized by hunter–gatherer subsistence and pottery production which developed on the Japanese archipelago following the Palaeolithic period and preceding the agricultural Yayoi period [15–17]. Jomon culture can be characterized by hunter–gatherer subsistence and pottery production, although marked temporal and spatial variability is seen over more than 10 000 years [18] (table 1). While pottery appears as early as 15 000 calibrated before present (Cal BP), sedentary lifestyle develops only after the end of the Ice Age. During the Incipient and Initial Jomon periods, substantial settlements are rare, suggesting that mobile foraging lifestyles were dominant. It is when large settlements appear in the Early Jomon period that interesting relationships between the dead and the living can be visible in the layout of burials.

2. Living with the dead: burials at the centre of social construction

The essential feature of the burial practices observed at Jomon sites is the centrality of the dead and their continuous presence in the kinship system (figure 1). The feature is clearly recognizable at a number of ‘circular settlements’ that first appeared in eastern Japan during the latter half of the Early Jomon period and proliferated in the Middle Jomon period in the eastern part of the main island of Japan (figure 2). Circular settlements are large settlements with a circular layout of structures such as burials, storage pits, buildings and pit houses. The centre of a circular settlement is often found with no structures other than burials, encircled by residential space with pit houses and buildings. The size of the settlement varies from the largest ones about 150 m in diameter to the smallest about 70 m in diameter. More than 20 large circular settlement sites have been discovered in the Kanto and Chubu regions [19].

Table 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	5400–4400
Early Jomon	7000–5400
Initial Jomon	11 000–7000
Incipient Jomon	15 000–11 000

Large circular settlements with hundreds of structures are formed over a few hundred years as a result of repeated construction of burials and houses according to specific spatial rules. According to Taniguchi’s analysis using a Thiessen polygon method, large circular settlements in the Middle Jomon period are distributed evenly with a territory of about 54 km² each on average in the southwestern part of the Kanto region. The estimated size of the territories indicates that each Jomon group which left a circular settlement maintained a stable territory in the densely populated condition [20]. Close examination of the formation process of circular settlements revealed that the ‘circle’ is actually formed by two segments, each of which often consists of several subdivisions. It is highly probable that the layout of structures is defined by the kinship system with dual organization [19,21].

The strict rule governing people’s decisions on where to build a house and where to bury the dead is obvious in a number of circular settlement sites that have been fully excavated. The Nishida site in Iwate Prefecture is one of the most typical examples (figure 2). Dual structure is not clear in the overall layout of the structures, but two rows of 14 burial pits at the centre indicate a dual organization. The importance of the centre is evident in the radial alignment of all the burial pits and buildings around them. In the neatly aligned concentric spatial planning, the dead members of the society occupy the centre, surrounded by dug-standing pillar buildings, pit houses and storage pits. The burial pits seem to consist of eight groups, each of which may be divided into two. The sub-groups of burials seem to correspond with the groupings of buildings on the outer side of the settlement [22].

Although bones are not preserved owing to the acidic nature of the soil, it has been assumed that the dead were placed in the grave with their head towards the outside of the settlement based on the slight inclination of the base of each burial pit, except for those in the central two rows whose heads were pointed towards the centre [22]. Conscious placement of the dead is similarly recognized at the Sannai Maruyama site in Aomori Prefecture. Although it is not a circular settlement, the Sannai Maruyama is one of the largest settlements in the Jomon period, occupied from the Early to the Middle Jomon period. At the site, infants were buried inside the settlement, but adults were buried on both sides of the road connected to the settlement. The inclination of the base of burial pits indicates that the heads of the interred individuals were pointed away from the road, so that the dead could look at the people coming into or going out of the settlement [23].

While the radial alignment is a unique feature of the Nishida site, (i) concentric distribution of different kinds of



Figure 1. The location of sites mentioned in the text.

structures with an open space or burials at the centre, and (ii) dual organization with subdivisions, are shared by many other circular settlements such as the Saikaibuchi site in Yamagata Prefecture, the Idaira site in Nagano Prefecture and the Kazahari 1 site in Aomori Prefecture. Based upon pottery chronology and associated radiocarbon dating, we know that these large circular settlements had been occupied for 200 to 300 years. Although houses and burials accumulated over a long period of time, it is evident that the basic spatial plan was set from the beginning of each settlement, and maintained through more than ten generations in some cases.

According to Koyama's population estimates based on the number of discovered sites, the population on the Japanese archipelago peaked during the Middle Jomon period [24,25]. It should be noted that circular settlements were formed in the most densely populated areas and period of Jomon.

3. Burials as a focus of ritualistic activities apart from settlements

At the end of the Middle Jomon, almost all large settlements were abandoned in eastern Japan, clearly suggesting a catastrophic social situation [18]. The relationship with dead

ancestors changes its nature over the social fluctuation. Burials of ancestors were detached from settlements and established as large stone circles in northern Tohoku and Hokkaido regions in the Late Jomon period. While there are considerable variations in the form of such monumental sites, it has been recognized that features of settlements or houses in the previous period are inherited in their form.

The Oyu site in Akita Prefecture shows a striking similarity with circular settlements, although ritualistic aspects are more emphasized (figure 3). There are two large stone circles of almost identical size and structure about 130 m apart from each other. The two circles are named Manza and Nonakado stone circles, respectively. The diameter of the Manza stone circle, which is slightly bigger than Nonakado, is 46 m. Each stone circle consists of two concentric rings of stone alignments, each of which comprises a number of small stone clusters which are considered as burial markers. The two stone circles are aligned to the direction of either summer solstice sunset or winter solstice sunrise. There is no doubt that they were conscious about this astronomical alignment, as a 'sundial'-type stone cluster is set in both Manza and Nonakado stone circles between the outer and inner rings on the line that passes through the centre of the two stone circles.



Figure 2. Feature distribution at the Middle Jomon Nishida site, Iwate Prefecture (adapted from Kobayashi [42, fig. 29]). Different shades of the burial pits represent estimated grouping.

Based on the pottery chronology and stratigraphic information, the two large stone circles of Manza and Nonakado are considered to have been constructed around the same time in the early Late Jomon [26]. Although the dual structure

is not clear in the distribution of small stone clusters at each stone circle, the construction of the two identical stone circles probably indicates that the representation of dual organization has become more intense. Several circular

stone alignments in the north of the Manza stone circle are later additions in the middle Late Jomon period.

Although bones are not preserved at the Oyu site, excavations have found pits under the stone clusters that can be identified as burial pits. We can recognize both crowded and scarce parts in the distribution of small stone clusters in the ring. Such uneven distribution is similar to that of burial pits in circular settlements, and can be understood as a result of a strict rule of where to bury a person according to descent. While the concentric structure of the Oyu site is similar to that of the Nishida site in that burial place is encircled by the buildings, only five pit houses have been found from around the stone circles, suggesting that the site was not a part of sedentary settlement. After large settlements were abandoned at the end of the Middle Jomon period, people split into small groups and adopted mobile foraging lifestyles. The astronomical alignment of the structure may suggest that the site was a meeting place for the scattered groups that were connected through kinship to conduct rituals associated with the dead ancestors annually, possibly around the summer solstice [21].

4. Collective secondary burials as a symbol of social integration

Another direction of the transformation of mortuary practice is recognized in the formation of collective secondary burials in the Kanto region. Twelve cases have been found from eight shell midden sites. The construction of the collective secondary burials belongs to the early phase of the Late Jomon period, and can be situated at the starting period of a new settlement in each place [27,28]. As in the Tohoku region, large settlements that developed in the Middle Jomon period were mostly abandoned in the Kanto region by the end of the Middle Jomon, and their residents are considered to have adopted a more mobile life in small groups. Large settlements were newly established during the early Late Jomon period by reorganization of the once scattered small groups [29]. Most of the examples of collected secondary burials contain the bones of 5 to 18 individuals. The collected secondary burials are usually placed at the central position in a cemetery. Some cases are accompanied with post holes around them, suggesting that they were marked by roofed structures [27], and that the collected burial had a symbolic significance for the group.

The most striking example of the collected secondary burials is pit A at the Nakazuma shell midden in Ibaraki Prefecture, which contained the bones of more than 100 individuals [30]. In a pit 2 m in diameter and 1.2 m in depth, long bones and skulls were carefully aligned in three or four layers (figure 4). As some of the skulls are accompanied by mandibles while others are not, we can assume that the period between death and the construction of the collected burial varied. The bones show little damage, which could be caused by the process of exhumation prior to reburial, suggesting that those who conducted the ritualistic reburial knew the exact place of the first inhumation, and probably who was buried where. Morphological analysis of the teeth and mitochondrial DNA analysis were conducted on the well-preserved bones of 29 individuals to show that 17 out of the 29 shared a common haplotype, indicating that the ancestors selected for reburial were selected by

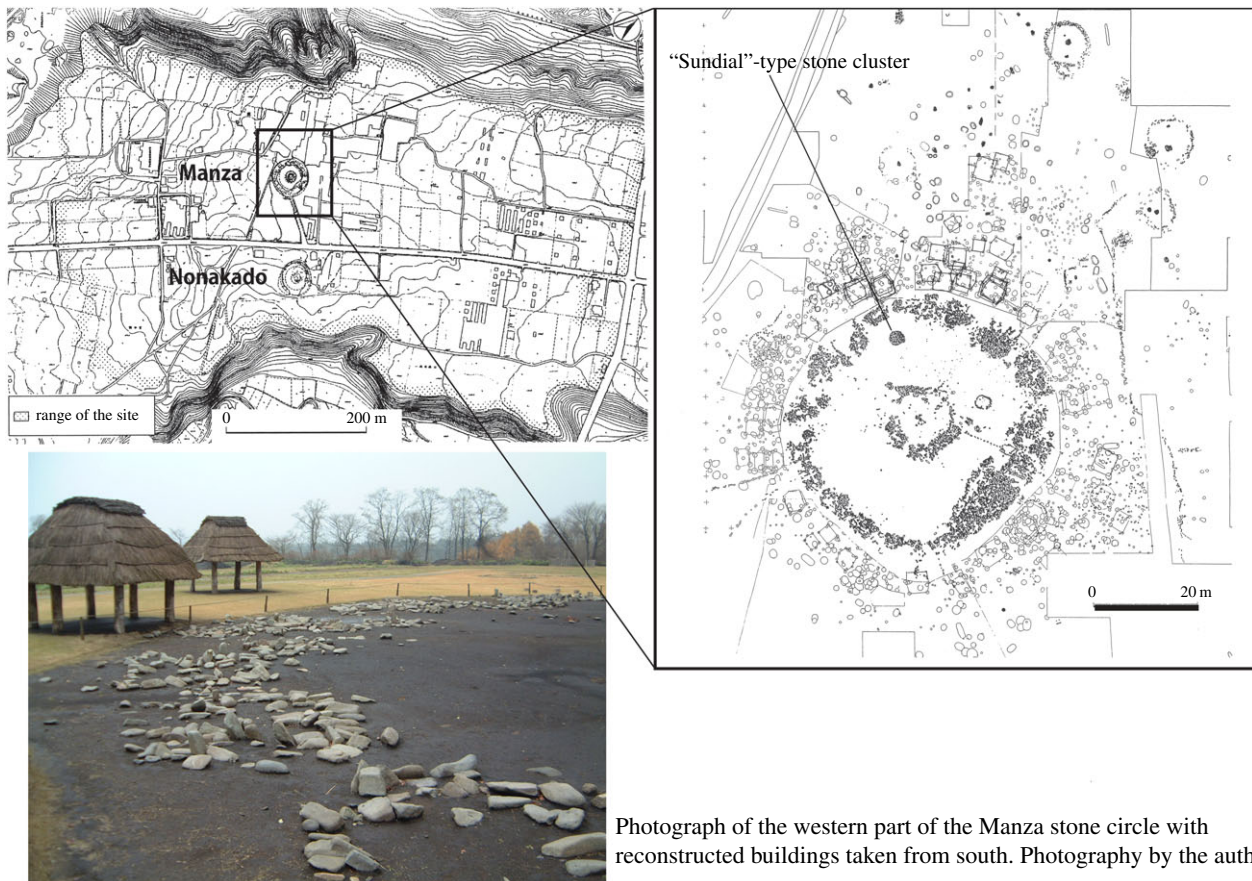
matrilineal descent [31,32]. Based on the evidence, we can infer that the Jomon people were conscious about where to bury their ancestors even after they abandoned the sedentary settlements at the end of the Middle Jomon period, and that information was transmitted across generations until they established a new settlement. Based on the pottery chronology, most settlements were abandoned in the Kasori E3 phase (4730–4540 Cal BP), followed by the Kasori E4 (4540–4490 Cal BP) and the Shomyoji phases (4490–4235 Cal BP) during which a number of short-lived settlements appeared. In the next Horinouchi phase (4235–3900 Cal BP), further relocation of settlements occurred while a small number of the existing settlements continued to develop [29]. Considering that most of the collective secondary burials appear in the Horinouchi phase, the period between the end of large settlements in the late Middle Jomon and the construction of collective burials in the early Late Jomon is estimated to be more than 200 years [33].

5. Discussion

In the examinations above, I focused on the three patterns of burial practices in the Jomon period. The first is the formation of a cemetery at the centre of the settlement when population and the level of sedentism significantly increased in the Middle Jomon period. The second and the third patterns emerged in the Late Jomon period after the catastrophic socio-demographic change at the end of the Middle Jomon period. The second is the construction of stone circles in the Tohoku region, which can be understood as a development of the central burial place of a circular settlement. The third is the construction of collective secondary burials in the Kanto region at the early stage of newly established settlements.

From the functional point of view, the first pattern fits into the scheme of ‘agricultural’ thinking, in that people were certainly concerned about their territories. Although the basic subsistence in the Jomon period was hunting, gathering and fishing, recent analysis of the impressions on the pottery revealed that cultivation of soybeans (*Glycine*) and azuki (*Vigna*) beans started in the Early Jomon and developed at least in the Chubu Mountain region during the Middle Jomon period [34]. The term ‘forest-based Neolithic’ has been coined to represent the Jomon societies in which intensive production of pottery and development of ground stone tools for plant food processing are observed [35]. It may be interpreted from a structural point of view that the domestic aspect became important when people were trying to build a new relationship with plants and animals, and this resulted in the incorporation of death in the realm of domus in order to evade its danger [36]. Apart from these frameworks, however, I want to focus on the importance of burial practice as a part of the cognitive system, especially as an external mnemonic system for long-term memory of social networks. In preliterate societies, keeping memory of kinship relationships for more than three generations is not easy, because direct contact with deceased ancestors is impossible. Therefore, a systematically organized cemetery should be a good reference.

An important point to note concerning the cemetery in a circular settlement is that the burials did not just accumulate near domestic space as a result of inadvertent repetition of



Photograph of the western part of the Manza stone circle with reconstructed buildings taken from south. Photography by the author.

Figure 3. The Late Jomon Oyu stone circles, Akita Prefecture (adapted from Akimoto [26] and Kazuno City Board of Education [43]).

burying the dead near residential places, but the alignments of burials, as well as that of the houses and other structures, were planned at the beginning of each settlement. The settlement and cemetery consist of a whole artificial environment that works as an efficient mnemonic system. As written information such as an inscription on a tombstone was not available, memory about who was buried where must have been activated frequently enough. Being both a living place and symbolic monument at the same time, a circular settlement could always revive and confirm the memory of ancestors in the residents.

Other differences such as gender and social statuses are not clearly represented in the mortuary practice. Burial goods are rare all through the Jomon period, and circular settlements are no exception. One jadeite pendant is the only burial good found from the Nishida site. No significant difference in the size and shape of burial pits can be recognized, either. It is probable to assume certain social differences between those who led the construction of large stone circles and the other members of the society who took part in the rituals performed there, but individual difference is not obvious in the attributes of burials. While it has been proposed that the Late and Final Jomon can be categorized as a transegalitarian society [37–39], social attributes other than descent are not clearly displayed at circular settlements in the Middle Jomon period. This is also true of the Oyu stone circles and the collective secondary burial at the Nakazuma shell midden in the Late Jomon period.

The difference between the second and the third patterns may reflect the difference in social strategy of the groups in the Tohoku and Kanto regions. People who built the stone

circles tried to maintain the rigid kinship structure for social integration. At the Oyu site, as in the circular settlements, people do not lose their position in the society after death. They virtually remain a member of the society by physically occupying the designated place in the site. The groups in the Kanto region, on the other hand, intended to dissolve, or actively reorganize, the kin relations by putting the bones of ancestors together in the same pit. Collective secondary burials in the Late Jomon period such as that at the Nakazuma shell midden show the continuing importance of the bodies of the ancestors, but the position of each ancestor in the kinship structure is not clearly maintained anymore. This change may suggest that quasi-kin networks started to be emphasized when strict kin networks became ineffective owing to the shrinking population [40]. Prolonged consciousness of the bodies of the dead also seems to become weaker compared with the situation in the Middle Jomon. We may be able to see the emergence of a more abstract or collective concept of ancestors in this case.

Another characteristic point that is common to all three patterns is the prolonged consciousness about the bodies of the dead, even after they are buried and rot away under the ground. Careful arrangement of the bodies according to the rules shared by community members and transmitted across generations indicates that those who lived in the settlement could easily remember, or visualize in their mind, the exact place and position of each ancestor.

It should be noted that only a few outstanding sites are examined here out of a vast variation of mortuary sites of the Jomon period [15,16,41]. The selected sites, however, are not just extraordinary but rather typical examples of a

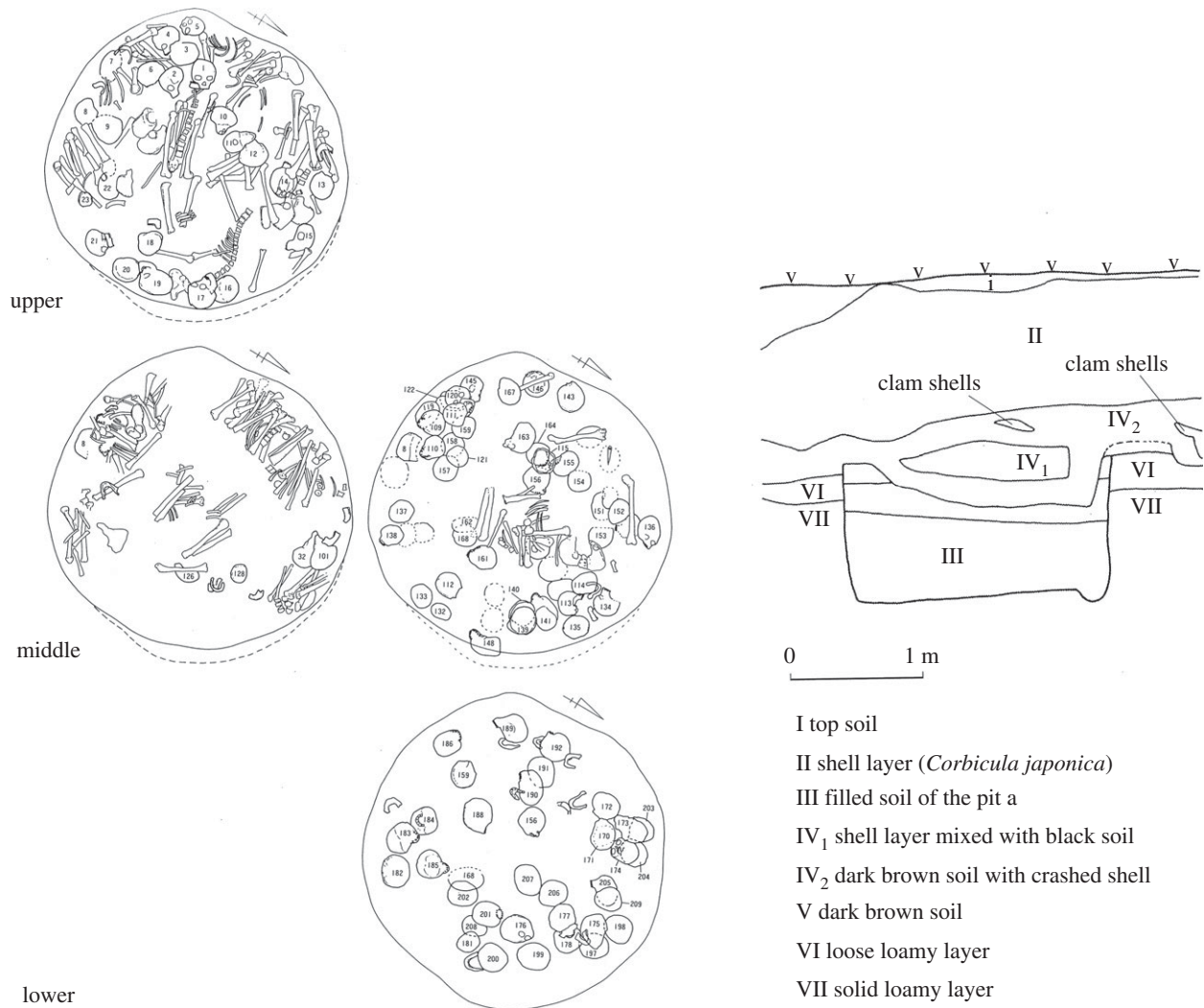


Figure 4. Collective secondary burial at the Late Jomon Nakazuma shell midden, Ibaraki Prefecture (adapted from Nakazuma kaizuka hakkutsu chosadan [30]).

widely shared cognitive tendency in the Jomon societies: a continuous existence of the dead in the social cognition of the living members of the society. The mortuary practices discussed in this paper represent a close relationship between the dead and the living in a non-hierarchical complex society, in which the dead were not detached from the society, but kept at its core, as a materialized reference of kin networks.

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