Knap & keep: Late Palaeolithic-Neolithic caches, Far East

Andrey V. Tabarev[1], Darya A. Ivanova[2], and Yoshitaka Kanomata[3]
1 Division of Foreign Archaeology, Institute of Archaeology and Ethnography, Novosibirsk, RU
olmec@yandex.ru
2 School of Arts and Humanities, Far Eastern Federal University, Vladivostok, RU; nightliro@bk.ru
3 Graduate School of Arts and Letters, Tohoku University, JP; yoshitaka.kanomata.d8@tohoku.ac.jp

ABSTRACT – *The tradition of lithic caches illustrates a special strategy of storing lithics which were extracted from* chaîne opératoire *for some time to be kept/hidden in a special place with/without subsequent return and use. For the Palaeolithic – Neolithic/Jōmon of the Far East (Russian part and the Japanese Archipelago) within the frame of 35 000–2400 cal BP, this tradition demonstrates an impressive multiplicity (more than 400 cases), high diversity, duration, dynamics, and local variability. Such an abundant source of data opens rich perspectives for detailed technological analysis, functional interpretations, and interregional correlations, with analogies in the Stone Age cultures of the Near East, Europe, and North America.*

KEY WORDS – *Far East; Late Palaeolithic; Neolithic; Jōmon; lithic caches; technology*

Odbij in shrani: pozno paleolitski-neolitski depoji na Daljnem vzhodu

IZVLEČEK – *Tradicija depojev kamnitih orodij ponazarja posebno strategijo shranjevanja teh predmetov, ki so bili za nekaj časa izvzeti iz operacijske sekvence z namenom, da se jih shrani/skrije na posebnem mestu z/brez naknadne uporabe. Ta tradicija iz paleolitika-neolitika/obdobja Jōmon na Daljnem vzhodu (del Rusije in otočje Japonske), ki je trajalo od 35 000 do 2400 pr. sed., kaže na impresivno število teh depojev (več kot 400), njihovo veliko raznolikost, trajanje, dinamiko in lokalne posebnosti. Tako bogat vir podatkov nam odpira širok vidik za podrobne tehnološke analize, razlage o funkciji in medregionalne povezave z analogijami v kamenodobnih kulturah na Bližnjem vzhodu, v Evropi in v Severni Ameriki.*

KLJUČNE BESEDE – *Daljni vzhod; pozni paleolitik; neolitik; Jōmon; depoji kamnitih orodij; tehnologija*

Introduction

Caches of various types of artefacts are one of the most interesting and intriguing archaeological finds. In many cases they are unpredictable, unexpected and, very often, accidental, especially, when we are dealing with the Stone Age period. While extremely spectacular, examples of lithic caches consisting of highly elaborated bifacial points are known for the Solutrean culture (Volgu) in Europe (*Thévenot* et al. *2019*), and for the Clovis (Anzick, Fenn, Richey-Roberts *etc*.) in North America (*Frison, Bradley 1999; Huckell, Kilby 2014*). There are also many manifestations of caching strategy in other parts of the World (Eastern Europe, Near East, Mesoamerica, Siberia, Central Asia and Far East). Chronologically lithic caches are mostly connected with the Middle-Late Palaeolithic and the Neolithic periods; they illustrate special technological decisions both for mobile and sedentary users, and, in terms of econo-

DOI: 10.4312/dp.48.7

mical context, lithic caches are typical both for the hunter-gatherer and agricultural societies.

So far, the data about lithic caches dated by the Palaeolithic – Neolithic/Jōmon times on the territories of the Russian Far East and the Japanese Archipelago is presented only in a preliminary form in a series of articles. Most of these, with a very few exceptions (*e.g., Dyakov 1997; Kanomata, Tabarev 2020*), are in the Russian and Japanese languages and not known by a wide archaeological audience.

It is noteworthy, however, that the first information about the accidental find of a lithic cache (Narukasanka) comes from as early as the second half of 19th century. According to the publication of Nobutaro Ono (*Ono 1897*)[1], somewhere between 1865–1867 and while digging an irrigation channel near the villages Naruka and Sanka (Fukui prefecture), local farmer Kanji Nozawa discovered a huge stone axe (54cm) arranged upon two chipped pebbles and about 30 arrow-points (Fig. 1.1–2)[2].

The evidence of possible lithic caches in the Russian Far East appeared in the archaeological literature only in the 1950s and 60s due to the later start of wide-scale field investigations in the region as a whole. One of the first hints of caches is connected with the finding of a large leaf-shaped biface artistically made from the local grey chert on Sakhalin Island[3] – its length (32.5cm), thickness (0.7cm), and sophisticated technology of pressure flaking puts this find on a par with the best Solutrean and Clovis (Paleoindian) bifacial points. Note also the general morphological similarity of the point from Sakhalin with the points from Narukasanka cache (Fig. 1.3).

Since these early discoveries the information on lithic caches in the Russian Far East (Amur Region, Maritime Region, Sakhalin Island, Kamchatka Peninsula) and, especially, on Japanese Islands (from Hokkaido to Kyushu) significantly increased, and a concentrated focus on the archaeological collections and reports of excavations allowed us to identify data on numerous (more than 400) finds and features of the Late Palaeolithic-Neolithic/Jōmon sites which match the characteristics of a 'lithic cache'[4]. This list includes only finds that are not related to the burial context, and are not the part of burial offerings.

On the one hand, such rich material requires detailed technological use-wear analysis, classification and contextual subdivision, regional and inter-regional correlation. On the other, and the authors put a special emphasis on this, it creates unique prerequisites for the interpretation of behavioural attitudes (the 'knap & keep' strategy) within the economic and ritual activities of hunter-gatherers-fishers. The following overview of the caches in the Russian Far East will be done in more detail, while for the caches on Japanese Islands we will try to demonstrate the statistical data, contextual tendencies and local technological variabilities.

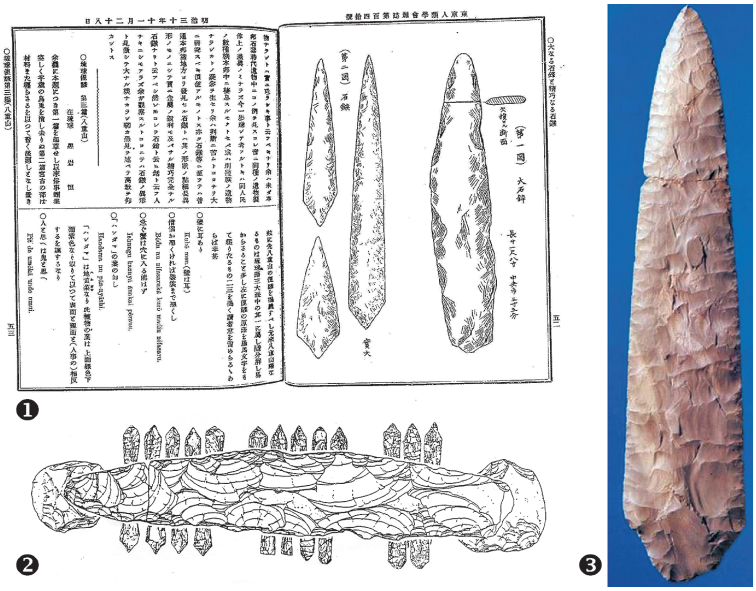

Fig. 1. **1,2** ***First publication and reconstruction of the Narukasanka cache, Japan; 3 bifacial point, Sakhalin Island.***

1 The detailed story about the Narukasanka cache, along with photos and drawings, was published in a special paper in late 20th century (*Matsui 1980*).

2 If the dates (1865–67) are correct the cache in Japan was found even earlier than the famous Volgu cache in France (1874).

3 The artefact has no documentation, but with high probability was located within a destroyed archaeological site near Nogliki village (Sakhalin Island) in the mid-1950s and could be dated to the Early Neolithic (11 000–9000 BP). Currently the biface is on show in the Archaeological Museum, Institute of Archaeology and Ethnography, Novosibirsk, Russia (*Tabarev 2012*).

4 The language aspect of the problem is also important: the Russian word 'klad' means "*something very precious for the owner and hidden, buried in the ground*". The term 'cache' in the translations of Russian archaeological articles into English is in recent use, and before this the authors preferred another word – 'hoard' – for special finds of bronze or gold items. In the Japanese language the English word 'cache' is equivalent to 'Intoku Ikou' and 'Heitan ikou' (caching feature).

Evidence of a caching strategy on the territory of the Russian Far East

It would be logical to preface an overview of lithic caches on the territories of the Russian Far East with some information about similar complexes known in Siberia and Mongolia. They confirm the very early and wide geographical spread of this tradition.

Several finds were mentioned in the archaeological literature devoted to the Palaeolithic of Kemerovo District (Western Siberia) in 1960 – *e.g.*, a complex of 19 preforms and tools near Ail village, and a possible cache of eight tools near Shestakovo village (*Okladnikov 1968*).

Another remarkable discovery was made during the excavations of Tumulur site (Aldan River, Yakutia)[5] in Strata IV within the Upper Palaeolithic context belonging to Dyuktai culture. Eight lenticular bifaces (from 7 to 13cm long) were located in a compact cluster (20x25cm), and due to the absence of any dwelling or hearth features the researchers interpreted them as a possible cache (*West 1996.197–198*).

The first Palaeolithic cache within a clear stratigraphic context was found in Northern Mongolia (the Tolbor river valley) in 2010 – it consists of 57 standard flakes carefully piled in a shallow pit (30x30cm), and could be connected to the local hunting activities within the frame of 27 000–17 000 cal BP (*Gladyshev* et al. *2011; Tabarev* et al. *2013*). Recently, one more cache (11 core preforms from local jasper) was found in Southern Mongolia (Gobi) by a joint Polish-Mongolian expedition and preliminary dated by the Middle Palaeolithic (*Masojc 2019*).

Directly on the territory of the Russian Far East, several sites with lithic caches of various type, content, and location have been recorded there (Fig. 2). The most obviously interesting of these is Novopetrovka-II, one in a series of sites excavated in the Middle Amur stream near Blagoveshchensk during the 1960s. These sites belong to the Novopetrovka Neolithic culture (Novopetrovka 'blade culture') which is dated by charcoal and charred remains on pottery to between 12 600 and 10 800 cal BP (*Derevianko* et al. *2020*). The first cache was found on the floor of dwelling #2 in a small pit (40cm in diameter), and consists of seven blade cores with the negatives of recent removals and one blank for the core (Fig. 3.1; *Derevianko 1970.42–44*). Two more similar pits with lithic caches (about 10cm deep and 35cm in diameter) were described in dwelling #4 – both included three blade cores each in the initial stage of the exploration (*Derevianko 1970.66–67*).

The next evidence of caching is connected to the Lower Amur region (near Khabarovsk), where since the 1920s archaeologists have studied the sites of the Osipovka culture. It was successively identified as Palaeolithic, then Mesolithic, and – after the discovery of early pottery – as the Initial Neolithic, and dated between 14 200–9900 cal BP. Despite the long history of exploration and representative archaeological collections a data connected to the lithic cache only appeared in 2015 in the course of the excava-

Fig. 2. Russian Far East. Sites with the caches listed in the text. **1** ***Novopetrovka-II;*** **2** ***Osinovaya Rechka 10;*** **3** ***Ustinovka IV;*** **4** ***Ustinovka III;*** **5** ***Ushki I.***

5 Tumulur site was discovered in 1964 and studied during 1964–1982. It is dated between 16 600–13 600 cal BP.

tions at Osinovaya Rechka 10 site[6]. Three bifacial artefacts (axes) were found stacked in a pile in the very southeast part of the unit in layer 4 (*Hashidume* et al. *2019.27, 36–37, Pl. 2*). The context does not point to any special pit or dwelling floor (Fig. 4.1–3).

Two examples of lithic caches are known in the Maritime Region. Both were recorded at the sites of the Ustinovka group (complex) in the Zerkalnaya River Valley. The sites are dated between 18 000–10 000 cal BP, and demonstrate the transition from the Final Palaeolithic to Early Neolithic periods. In 1997 Vladimir I. Dyakov (Fareastern Federal University, Vladivostok) published a short paper in English about the excavations at the Ustinovka IV site with a brief description of the compact complex (30x 30cm) of eight bifaces grouped around the biggest one which, possibly, was set vertically. According to the author, this complex was located between the depressions of dwellings #1 and 3, although no photos or drawings have been presented which confirm this observation (*Dyakov 1997.20*). In a later version, Dyakov clarified that the central biface (10.3cm) was erected on a small 'pedestal' with a height of 6cm. He again gave no photos or figures with the original position of the complex, but only the plan of the unit and schematic drawings of only seven (of eight) bifaces (*Dyakov 2000.41–42, 193*). Unfortunately, there are no carbon dates for the sites and its age (14 000–12 000 cal BP) is determined solely based on analogies with neighbouring complexes in Zerkalnaya River Valley.

Another location about 1.5km from Ustinovka IV site, namely Ustinovka III, was discovered during the early 1960s and excavated over several research cycles. The last one was conducted by a joint Russian-Japanese expedition and took place from 1992–1997. It was crowned with the discovery of the earliest Neolithic pottery for the Maritime Region[7]. Moreover, according to the related publications during the 1995 field season in the northwestern part of the unit specialists located *in situ* a concentration (44x36cm) of lithics, including 171 flat flakes (11x8–7x7cm) in a very dense context, which was interpreted as a "*cache of flakes hidden in container, possibly a kind of leather bag*" (*Derevianko, Kononenko 2003.68–69; Kononenko 2001.47*). Unfortunately, even in this case only a description, statistical data and an approximate drawing are available to readers (Fig. 3.2).

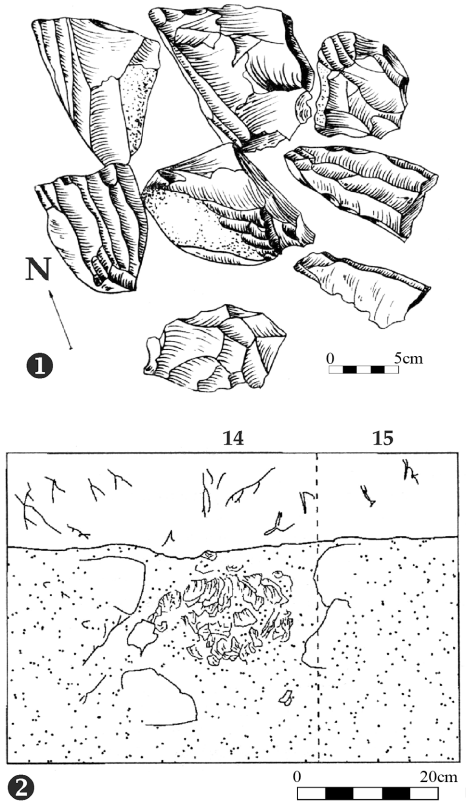

Fig. 3. Russian Far East.* 1 *Cache of cores at Novopetrovka II;* 2 *Cache of flakes at Ustinovka III.

A large cluster of multilevel settlements near Ushki Lake on Kamchatka Peninsula has been under permanent archaeological research since 1961. All levels (VII-I) vividly illustrate the development, evolution, and peculiarities of the Final Paleolithic-Neolithic cultures (various types of dwelling constructions, burials with rich offerings, adornments, working areas, storage pits, *etc.*). In 1983 during the excavation of the entrance of sub-terranean dwelling #9 (*i.e.* cultural complex of Level VI, 12 200–11 600 cal BP; *Ponkratova, Chachula, and Clausen 2021*) at the Ushki I site, archaeologists met with a compact set of 12 bifacial preforms for microblade cores. They were made from local grey chert and technologically are very similar to the microblade cores explored in frames of the Yubetsu technique which is typical for the Final Palaeolithic of the Japanese Islands. These cores were described in several articles about Ushki I Site, but the exact context of the feature became known only recently after the pub-

6 Osinovaya Rechka 10 was a part of multi-year joint Russian-Japanese archaeological project. There are two carbon dates for the site: 11 150–10 930 cal BP and 13 094–12 952 cal BP.

7 The authors published two dates for Ustinovka III site – 10 500 (OSL) and 9305±31 BP (^{14}C) (*Kononenko 2001.46–47*).

lication of the photos and drawings from the original field report (Fig. 5.1–3; *Fedorchenko, Belousova 2020.314*).

Thus, despite the small number and incomplete documentary support for all the finds (exact provenience, detailed photos, and drawings, *etc.*), the strategy of lithic caches on the territory of the Russian Far East demonstrates a long technological tradition and contextual/functional variability. There are caches of preforms (cores, flakes) and finished tools (bifaces, axes), caches in association with dwelling constructions and without it, technical (prosaic) caches kept for further use, and caches of ritual arrangements.

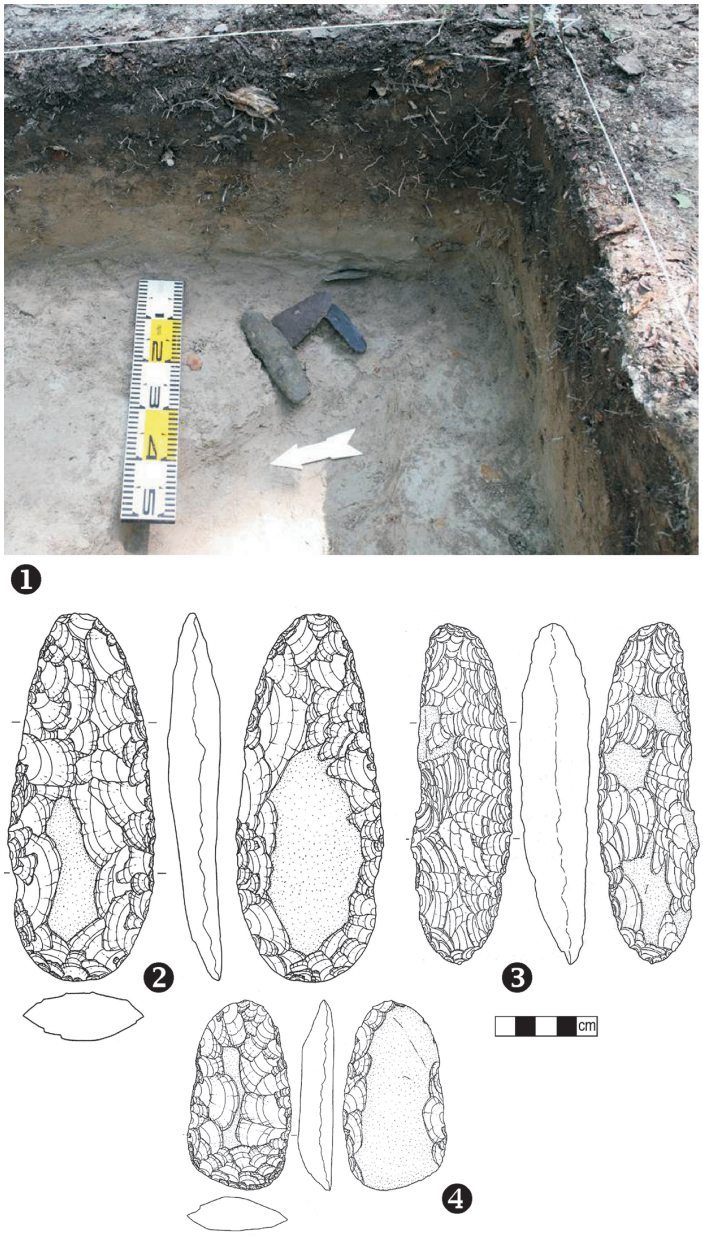

Fig. 4. Russian Far East. Osinovaya Rechka 10.* 1 *Position of the cache;* 2-4 *tools from the cache.

Lithic caches in the Palaeolithic-Jōmon, Japanese Islands

In comparison with the continental part, the archaeological data on the number of lithic caches on the Japanese Archipelago is impressive – even according to the preliminary statistics for the Late Paleolithic-Neolithic (Jōmon) period there is information about at least 420 features. A total of 316 features at the sites and in the form of separate complexes have clear provenance and field documentation. This number will be used for the statistics[8] in the current study, and some major sites illustrated in the text are marked on the map shown in Figure 6.

At least 13 caches are recorded in the archaeological literature and reports for the Late Palaeolithic (35 000–16 000 cal BP) – some of them are presented by concentrations of tools (axes with polishing edges and trapezoidal flakes) (Hinatabayashi site, Nagano; *Tsuchiya, Tani 2000*), but most of these finds consists of raw material (obsidian in particular; Shirataki-Hattoridai 2 site, Hokkaido; *Naoe, Suzuki 2007*) or preforms of cores (Onbara 1 site, Okayama; Fig. 7.1; *Inada* et al. *2009*), which correlates with the strategy of highly mobile hunter-gatherers.

The amount of data on lithic caches increases significantly in the subsequent period of the Stone Age on the Japanese Islands – Jōmon (16 000–2400 cal BP)[9]. Twenty-three cashes are known for the Incipient Jōmon (16 000–10 000 cal PB) and 24 for the Initial Jōmon (10 000–7000 cal PB). Climatic changes and the gradual transition to a sedentary way of life are logically reflected in the evolution of the lithic technology and hunting gear. This is vividly illustrated by the spectacular caches with artistically made spear points (Fig. 7.2; Mikoshiba site, Sonoda site; *Hayashi* et al. *2008; Tahira, Nohira 2004*), large bifacial cores and bifacial tool blanks (Nogawa, Kashiwabara, Sendai-Uchimae, Iwase), and big polished and chipped axes (Fig. 7.3; Hinata Cave, Nana-

8 In our article we prefer to use the data from multiple reports of the excavations.

9 Chronological frames for Jōmon and its sub-periods (Incipient, Initial, Early, Middle, Late, and Final) according to Omoto *et al.* (*2010*).

tsuguri, Karasawa B site) found in the southern, central, and, especially in the northeastern parts of Honshu Island (*Sagawa, Suzuki 2006; Kanomata 2008; Hayashi* et al. *2008; Nakamura, Tsuiki 2008; Shimamuro* et al. *2009*). Another group of caches is represented by compact features with raw material cobbles, preforms of cores and tools, flakes, and instruments (arrowheads, scrapers, knives, adzes, *etc.*) in special pits directly in the dwellings or near the living areas.

In the case of caches with polished axes some specialists suggest their symbolical meaning and connection with ritual exchange by analogy with stone and shell axes in Island Southeast Asia and Oceania (*Kaner, Taniguchi 2017.328*). In turn, large bifacial cores and points attracted the attention of experts due to the amazing similarity with the artefacts in Clovis caches, and the discussion about the origin of the latter in Solutrean technological complex in Western Europe (*Kornfeld, Tabarev 2009*).

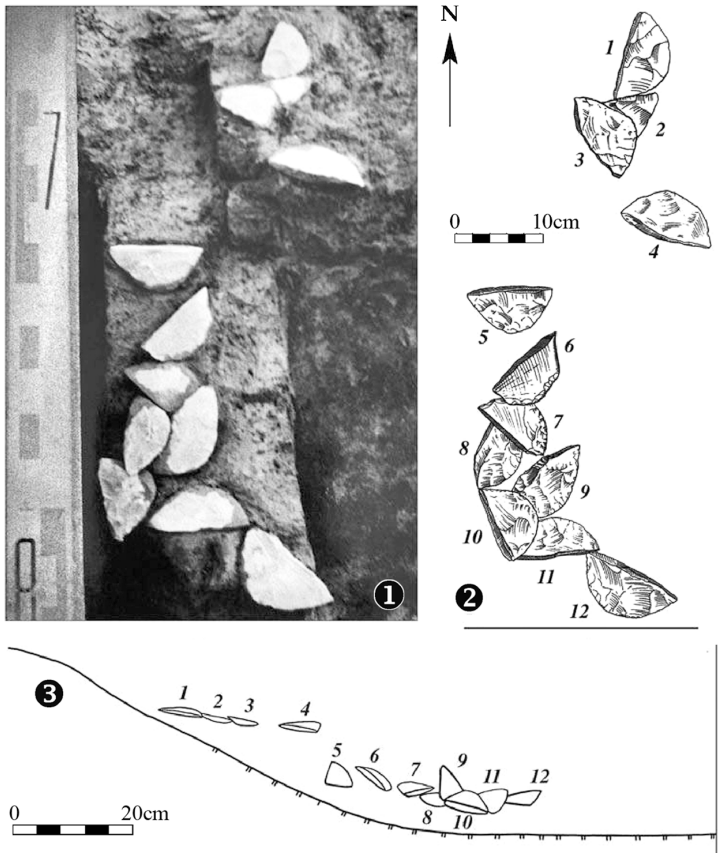

Fig. 5. Russian Far East. Ushki I. 1 Position of the cache with the microcores preforms; 2-3 drawings of the feature.

The significant shift to sedentism with the development of large multi-dwelling settlements in the inland and, first of all, coastal areas, took place in the Early Jōmon (7000–5400 cal PB). The number of known lithic caches is growing (33), and the overwhelming majority of them are connected with the special pits in dwelling structures – *e.g.*, specialized caches of six adzes at the Minamitashiro site (Kagoshima; *Miei* et al. *2005*), caches with various tools and blanks at the Karasuno-uwadai site (Akita; *Shinkai* et al. *2006*) and the Ondashi site (Fig. 7.4; Yamagata; *Sato* et al. *1990*), caches of flakes and raw material (obsidian) at the Shutoyabayashi site (Nagano) (*Kobayashi, Naoi 1982*) and the Choshichiyachi site (Aomori; *Kurimura* et al. *1982*).

Middle Jōmon (5400–4300 cal PB) was the most comfortable time in terms of climate and variety of biological resources. This is confirmed by various data on population growth, the number and size of settlements along with the evolution of social complexity. Therefore, despite the shorter than Initial or Early Jōmon duration, Middle Jōmon presents information on about 137 lithic caches (more than 40% of the total amount) recorded all over the territory of the Japanese Islands. The variety of caches is connected to the multiplicity of activities of hunters, gatherers and fishers, while it also corresponds to local differences in raw material quality and availability. The tradition of caches of bifacial blanks and tools continues in Northeastern Japan, *e.g.*, a cache of 29 items at the Tsukinoki site (Fig. 7.5; Aomori; *Ichimachida, Hatakeyama 1983*), while the other caches demonstrate the deposits of obsidian cobbles (Obora site, Nagano; *Ichizawa* et al. *1987*) or flakes (Ota site, Akita; *Yachi, Osanai 1991*)[10], adzes (Kabuttsuppara site, Yamanashi; *Yamamoto, Imahuku 1992*) or points (Ueshimizu 4 site, Hokkaido; *Koshida* et al. *1991*), or even special tool-kits, hidden in clay vessels (Musashidai site, Tokyo and Tsukakoshi-mukoyama site, Saitama; *Sakazume* et al. *1991*).

The Late (4300–3200 cal PB) and Final (3200–2400 cal PB) Jōmon sub-periods are characterized by colder temperatures, visible decrease in population and a local fragmentation of cultural characteristics, and more than 50% of all the Final Jōmon sites are in northern Honshu. The lithic caching is confirmed by

10 From several dozens to several hundred in each cache.

66 examples at the Late and at least 20 at the Final Jōmon sites from Kyushu in the south to Hokkaido in the north. In terms of content, lithic caches demonstrate the keeping of raw materials and flakes (Komakino site, Aomori; *Kodama 2006*), core preforms and tool blanks (*e.g.*, Ichinohara site, Kagoshima; *Shigemasa* et al. *2006*), along with caches of arrowpoints and axes/adzes (Fig. 7.6; Fujiishi site Shizuoka, Ahyou 6 Ku site, Iwate; *Katsumata* et al. *2012; Segawa* et al. *2000*). Of special interest are caches of neatly polished axes and chisels placed as precious and prestige items in ceramic vessels (Shudainojo site, Akita; *Sugawara, Yasuda 1992*).

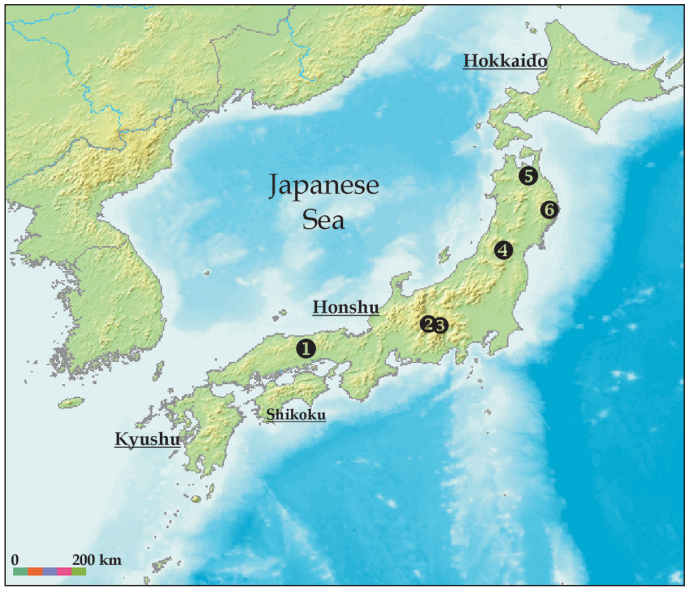

Fig. 6. Japanese Islands. Sites with caches illustrated in the article.* 1 *Onbara 1, Okayama;* 2 *Mikoshiba, Nagano;* 3 *Nanatsuguri, Nagano;* 4 *Ondashi, Yamagata;* 5 *Tsukinoki, Aomori;* 6 *Ahyu 6 Ku, Iwate.

This review of the Palaeolithic – Jōmon lithic caches clearly shows that these materials are an extremely informative research base. It is clear that the high acidity of far eastern soils prevents the preservation of any organic materials in the caches (bone, antler, wood, *etc.*), which could represent instruments for knapping and pressure[11], leather or bark containers for keeping items, and, in some cases, burial contexts and burial offerings. Despite this, lithic caches illustrate the wide range of technological and behavioural aspects of culture.

Conclusions and perspectives

The tradition of lithic caches in the Palaeolithic – Neolithic of the Far East demonstrates their multiplicity (more than 400 cases), high diversity, duration, dynamics, and local variability. As a historical phenomenon it fully meets the longue durée model requirements. In terms of archaeology, we are dealing with the special strategy of storing lithics which were extracted from *chaîne opératoire* for some time to be kept in a special place with/without subsequent return and use.

The further research perspective includes three important directions. First of all, it is necessary to study the 'biography and anatomy' of lithic caches which suggest the detailed technological analysis of the artefacts, dating of caching features, raw material tracking, contextual data, and use-wear study. The last method, for example, can help to figure out if some of the tools were in use right before caching (*Kanomata 2010*).

Secondly, it is extremely important to understand and interpret the functional division of lithic caches. There are several theoretical approaches to this problem in the archaeological literature devoted to the caches in the other regions of the world. For exam-

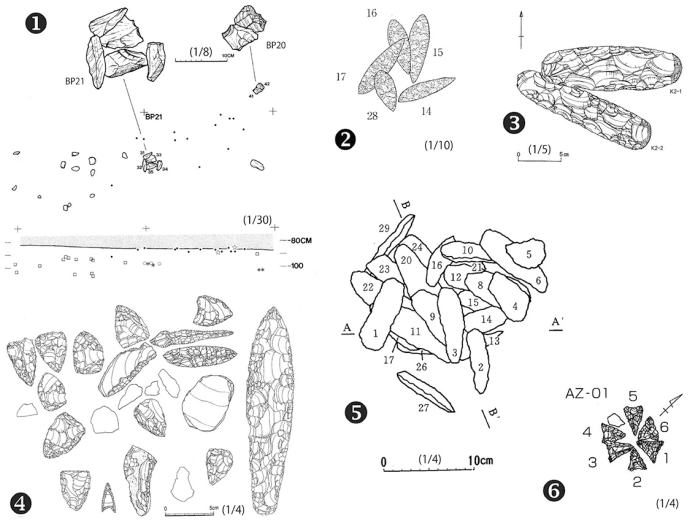

Fig. 7. Japanese Islands. Lithic caches.* 1 *Onbara 1, Palaeolithic, preforms of cores;* 2 *Mikoshiba, Incipient Jōmon, bifacial points;* 3 *Nanatsuguri, Incipient Jōmon, axes;* 4 *Ondashi, Early Jōmon, tools and blanks;* 5 *Tsukinoki, Middle Jōmon, axes;* 6 *Ahyu 6 Ku, Late Jōmon, arrowpoints.

11 Such instruments are known, for example, for some Clovis caches (Anzick, Richey-Roberts) in North America (*Clovis Caches 2014*).

ple, some researchers working with the materials of Pre-Pottery Neolithic B (PPNB) in the eastern Mediterranean distinguish 'deposits' (*dépôts*) composed of a series of homogenous items, 'reserve' (*réserve*) comprising a wider, heterogeneous set of selected preforms, and 'caches' as a whole package hidden for a specific (secret, ritual, ceremonial) reason (*Astruc, Ibáñez, and Gonzalez-Urquijo 2003.70*). According to another model with the subdivision into *functional* (stocks) and *symbolical* (caches) meanings, stock includes 'deposits', 'reserves' and 'hoards' (*Barzilai, Nigel Goring-Morris 2007.280*). The term 'cache', for many scholars, is connected to various forms of ritual or ceremonial activities. For example, caches of highly elaborated obsidian bifaces or prismatic blades in the Maya area (Mesoamerica) may be 'dedicatory caches' (prior the construction of any sacred building or temple), or 'intrusive caches' (placed into the existing structure). Both types of caches were prepared for special occasions and with final destination without return (*Kunen, Galindo, and Chase 2002*). Any of these approaches and models could be useful for the functional division of the far eastern lithic caches.

Third, it may be very interesting and productive to correlate the data on the far eastern region with the neighbouring territories, such as the Korean Peninsula, where the information of lithic caches is still waiting for the study (*Seong 2015*), and with the other regions of the world (Near East, Europe, *etc.*). Recent experience of the comparisons of the Clovis Paleoindian in North American caches, and Solutrean Volgu biface cache in France (*Kilby 2018*) fully demonstrates the promise of this approach, so the further study of the 'knap & keep' strategy awaits intriguing continuation.

ACKNOWLEDGEMENTS

The authors are deeply grateful to Dr. T. Tsutsumi (Asama Jomon Museum, Japan) and Dr. D. Kilby (Texas State University, USA) for the chances to observe some important archaeological collections, for advice and priceless comments on the topic of lithic caches. The research was supported by the Russian Scientific Foundation (Project #19-18-00003 "Neolithic Civilizations of Eurasia: Jomon, Japanese Archipelago – Origin, Early Stage, Local Peculiarities").

∴

References

Astruc L., Ibáñez J. J., and Gonzalez-Urquijo J. 2003. "Dépôts", "réserves" et "caches" de matériel lithique taillé au Néolithique précéramique au Proche-Orient: Quelle gestion de l'outillage? *Paléorient 1: 59–78*. https://doi.org/10.3406/paleo.2003.4754

Barzilai O., Nigel Goring-Morris A. 2007. Bidirectional Blade and Tool Caches and Stocks in the PPNB of the Southern Levant. *Systèmes techniques et communautés du Néolithique précéramique au Proche-Orient: 277–294*.

Derevianko A. P. 1970. *Novopetrovskaya kul'tura Srednego Amura*. Nauka. Novosibirsk. (in Russian)

Derevianko A. P., Kononenko N. A. 2003. *Foraging Population of the Sea of Japan during the Late Pleistocence – Early Holocene*. Institute of Archaeology and Ethnography. Novosibirsk.

Derevianko A. P., Nesterov S. P., Tabarev A. V., +4 authors, and Matsuzaki H. 2020. Novopetrovka III-an Early Neolithic Site in the Western Amur Basin and Its Chronology. *Archaeology, Ethnology and Anthropology of Eurasia 4: 57–66*. https://doi.org/10.17746/1563-0110.2020.48.4.057-066

Dyakov V. 1997. The Oldest Habitation Site on the West Coast of the Sea of Japan. *Current Research in the Pleistocene 14: 20–21*.

Fedorchenko A. Yu., Belousova N. E. 2020. Upper Palaeolithic of Kamchatka: the main research results of the 1980s – early 1990s and current problems at the present stage. *Stratum plus 1: 305–339*.

Frison G., Bradley B. 1999. *The Fenn Cache, Clovis Weapon and Tools*. One Horse Land & Cattle Co. Santa Fe, NM.

Gladyshev S., Popov A., Tabarev A., Olsen J. W., and Gunchinsuren B. 2011. First Known Paleolithic Cache in Mongolia. *Current Research in the Pleistocene 28: 58–60*.

Hashidume J., Shevkomud I. Y., Uchida K., Kato H., and Naganuma M. 2019. *Paleoenvironmental changes and Human behavior during the Terminal Plesitocene in the Lower Amur River Basin. Vol. 4: Excavations at the*

Oshinovaya Rechka 10 site (2015). The Niigata Prefectural Museum of History. Nigata. (in Japanese)

Hayashi S., Maruyama S., Inada T., +16 authors, and Keally C. T. 2008. *Mikoshiba*. Shinmae Shoseki Publishing Center. Nagano. (in Japanese)

Huckel B. B., Kilby D. J. B. 2014. *Clovis Caches: Recent Discoveries and New Research*. University of New Mexico Press. Albuquerque.

Ichimachida T., Hatakeyama N. 1983. *Matsubara, Jinbakawahara and Tsukinoki sites*. Aomori Prefecture Archaeology Center. Aomori. (in Japanese)

Ichizawa H., Otake N., Komatsu H., +7 authors, and Momose H. 1987. *Okubo-B, Kudaribayashi, Nishibayashi-A, Obora, Zentana-A, Zentana-B (Hakusan), Nakajima-A, Nakajima-B, Yanagaito Sites*. Nagano Prefecture Archaeology Center. Nagano. (in Japanese)

Inada T., Yamamoto M., Mitsuishi N., +7 authors, and Hayashi S. 2009. *Onbara 1 Site*. Onbara Sites Research Association. Okayama. (in Japanese)

Kaner S., Taniguchi Y. 2017. The Development of Pottery and Associated Technological Developments in Japan, Korea, and the Russian Far East. In J. Habu, P. Lape, and J. Olsen (eds.), *Handbook of East and Southeast Asian Archaeology*. Springer. New York: 321–345. https://doi.org/10.1007/978-1-4939-6521-2_22

Kanomata Y. 2008. Study of the large-sized bifacial stone core group excavated in the Northeast Honshu. *Palaeolithic Archaeology 70: 59–70*. (In Japanese)

2010. Functional analysis of stone tools put into the cache-pit at Nogawa site from the final stage of the Pleistocene. *Journal of the Japanese Archaeological Association 30: 47–64*. (in Japanese)

Kanomata Y., Tabarev A. 2020. A newly discovered cache of large biface lithics from northern Honshu, Japan. *Antiquity 94(374): 1–8*. https://doi.org/10.15184/aqy.2020.28

Katsumata N., Mibu R., and Sugiyama K. 2012. *Fujiishi Site III*. Shizuoka Prefecture Archaeology Center. Shizuoka. (in Japanese)

Kilby J. D. 2018. A North American Perspective on the Volgu Biface Cache from Upper Paleolithic France and its relationship to the "Solutrean Hypothesis" for Clovis Origins. *Quaternary International 515: 197–207*. https://doi.org/10.1016/j.quaint.2018.06.019

Kobayashi Y., Naoi M. 1982. *Shuto-yashiki*. Shiojiri City Education Board. Shiojiri. (in Japanese)

Kodama T. 2006. *Komakino Site IX*. Aomori City Education Board. Aomori. (in Japanese)

Kononenko N. A. 2001. Ecology of cultural dynamics of archaeological sites in the Zerkalnaya River valley at the Terminal Pleistocene – Early Holocene (the Ustinovka Complex, Russian Far East). *Archaeology, Ethnology and Anthropology of Eurasia 1: 40–59*.

Kornfeld M., Tabarev A. 2009. The French Connection? Or is It? *Current Research in the Pleistocene 26: 90–92*.

Koshida K., Nishida S., Tachikawa T., +4 authors, and Nawaki T. 1991. *Kamishimizu 4, Kyoei 2 and Kyoei 3 Sites*. Hokkaido Archaeology Center. Ebetsu. (in Japanese)

Kunen J. L., Galindo M. J., and Chase E. 2002. Pits and bones: Identifying Maya ritual behavior in the archaeological record. *Ancient Mesoamerica 13: 197–211*.

Kurimura T., Sakagawa S., Fujita R., Muraki J., and Ube Y. 1982. *Excavation Report of Choshichiyachi Site*. Hachinohe City Education Board. Hachinohe. (in Japanese)

Masojc M., Szykulski J., Gunchinsuren B., Odsuren D., Winiarska-Kabacinska M., and Szmit M. 2019. A Levalloisian jasper cache from the Arts Bogdyn Nuruu massif in the Gobi Altai Mountains, southern Mongolia. *Comptes Rendus Palevol 18: 479–491*. https://doi.org/10.1016/j.crpv.2019.02.003

Matsui M. 1980. A group of stone implements from the Narukasanka Site, Fukui Prefecture. Rokuseyama kofun gun. *Fukui ken maizō bunkazai chōsa hōkoku 4: 155–180*. (in Japanese)

Miei H., Hirakiba H. Fukunaga S. and Ishiharada T. 2005. *Minamitashiro Site*. Kagoshima Prefecture Archaeology Center. Kagoshima. (in Japanese)

Nakamura Y., Tsuiki H. 2008. *Nanatsuguri Site: Excavation of a Late Palaeolithic and Early Jomon Site*. Shinano town Education Board. Shinano. (in Japanese)

Naoe Y., Suzuki H. 2007. *Shirataki Sites 7*. Hokkaido Archaeology Center. Ebetsu. (in Japanese)

Okladnikov A. P. 1968. Stranica iz zhizni paleoliticheskogo mastera: klad kamennyh izdelij u pos. Ail (s. Kuzedeevo). *Iz istorii Sibiri i Altaya.* Barnaul: 58–70. (in Russian)

Omoto K., Takeishi K., Nishida S., and Fukui J. 2010. Calibrated ^{14}C ages of Jomon sites, NE Japan, and their significance. *Radiocarbon 52: 534–546*. https://doi.org/10.1017/S0033822200045574

Ono N. 1897. A large stone spearhead and elaborate stone arrowheads. *Anthropological Society of Tokyo 13: 51–53*. (in Japanese)

Ponkratova I. Y., Chachula J., and Clausen I. 2021. Chronology and environmental context of the early prehistoric peopling of Kamchatka, the Russian North Far East. *Quaternary Science Reviews 252: 106702*. https://doi.org/10.1016/j.quascirev.2020.106702

Sagawa M., Suzuki M. 2006. *Lithic Assemblage from the Western Terrace of the Hinata Caves*. Vol. I. Spear Point Workshop in the Incipient Jomon. Tohoku Gakuin University, Board of Education. Takahata-machi, Yamagata Prefecture. Ukitami Fudoki-no-oka Archaeology Museum. (in Japanese)

Sakazume H., Hayakawa I., Kawachi K., Tokieda K., and Ogawa N. 1996. *Musashi-kokubunji temple western area: Musashidai site 3*. Tokyo Metropolitan Huchu Hospital Sites Research Association. Tokyo. (in Japanese)

Sato S., Nagahashi I., Sasaki Y., Sato M., and Karube H. 1990. *Excavation Report of Ondashi Site*. Yamagata Prefecture Archaeology Center. Takahata. (in Japanese)

Segawa T., Obara S., and Takahashi S. 2000. *Excavation Report of Ahyou site Loc. 6, V*. Towa Town Education Board. Towa. (in Japanese)

Seong C. 2015. Diversity of Lithic Assemblages and Evolution of Late Palaeolithic Culture in Korea. *Asian Perspectives 1: 91–112*. https://doi.org/10.1353/asi.2015.0004

Shigemasa M., Migaki K., Terahara T., and Morita I. 2006. *Ichinohara Site Loc. 5*. Kagoshima Prefecture Archaeology Center. Kagoshima. (in Japanese)

Shimamuro O., Toya K., Tanaka K., Nakamura Y., Mochizuki A., and Tsutsumi T. 2009. *Kokajihara Site Karasawa B Site: Transitional Lithic Industries of the Terminal Upper Palaeolithic to the Incipient Jomon*. Archeological Monographs. Shimae Shoseki Publishing Center. (in Japanese with English summary)

Shinkai K., Yoshikawa T., and Chiba F. 2006. *Karasunouwadai Site*. Akita Prefecture Archaeology Center. Akita. (in Japanese)

Sugawara T., Yasuda T. 1992. *Mujinazaki B, Shudai-nojo Sites*. Akita City Education Board. (in Japanese)

Tabarev A. V. 2012. Dal'nevostochnaya al'ternativa (eshche raz o putyah i vremeni pervonachal'nogo zaseleniya amerikanskogo kontinenta). *Rossijskij arheologicheskij ezhegodnik 2: 103–147*.

Tabarev A. V., Gillam J. C., Kanomata Y., and Gunchisuren B. 2013. A Paleolithic Cache at Tolbor (Northern Mongolia). *Archaeology, Ethnology and Anthropology of Eurasia 3: 14–21*.

Tahira Y., Nohira Y. 2008. *Sonoda and Ozono Sites*. Nakatane Town Education Board. Nakatane. (in Japanese)

Thévenot J.-P., Affolter J., Almeida M., +5 authors, and Teurquety G. 2019. *Les silex solutréens de Volgu (Rigny-sur-Arroux, Saône-et-Loire, France). Un sommet dans l'art de la "pierre taillée"*. Revue archéologique de l'Est. Supplmént 48. Société archéologique de l'Est de la France. Dijon.

Tsuchiya T., Tani K. 2000. *Hinatabayasih B, Hinatabayashi A, Nanatsuguri, Ohira B Sites, 15, Paleolithic Period*. Nagano Prefecture Archaeology Center. Nagano. (in Japanese)

West F. H. 1996. *American Beginnings. The Prehistory and Palaeoecology of Beringia*. The University of Chicago Press. Chicago.

Yachi K., Osanai T. 1991. *Ota Site*. Akita Prefecture Archaeology Center. Akita. (in Japanese)

Yamamoto S., Imahuku R. 1992. *Kabuttsuppara Site*. Yamanashi Prefecture Archaeology Center. Yamanashi. (in Japanese)