Northeast Asia in the Late Pleistocene and Early Holocene

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Abstract

This paper considers the Late Pleistocene and Early Holocene record of the comparatively unexplored area of Northeast Siberia. This area is of key importance for our understanding of the first peopling of the Americas. Late Pleistocene cultural traditions include microblade (with wedge-shaped cores and bifaces), non-microblade, and pebble-based. No properly dated Pleistocene pebble complexes are however known in the area. In the Early Holocene new cultural traditions are referred to as Mesolithic or Holocene (relict) Palaeolithic. The major criterion for separating these epochs is the disappearance of wedge-shaped cores and the appearance of conical and prismatic ones. So far there is no clear evidence that Paleoindian cultures originated in Northeast Asia, but a fluted point from Uptar (King and Slobodin 1996) shows that the technique of fluting was known in Northeast Asia at the Pleistocene/Holocene boundary.

Keywords

Northeast Asia; Bering Strait; Mesolithic; Palaeolithic; culture history; America; colonization.

Introduction

Northeast Asia covers a vast area east of the Verkhoyansk Range (Fig. 1). It includes the drainages of the Yana, Indigirka, Kolyma and Anadyr rivers, as well as Chukotka and the Kamchatka peninsula. Compared with the rest of eastern Siberia, it remains weakly explored archaeologically, though its importance has often been stressed:

> this region is of extreme interest to American archaeologists due to its proximity to Alaska and thence to the rest of the New World. It is now accepted as certain that whoever the first people to populate the Americas were, and from wherever they came, they did pass along the margins of, or through, this region.
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> (Powers 1973: 74)

Regular research began only in the 1950s (Dikov 1963, 1965). Only a few Late Pleistocene sites were known at that time, not all adequately documented or dated. They have

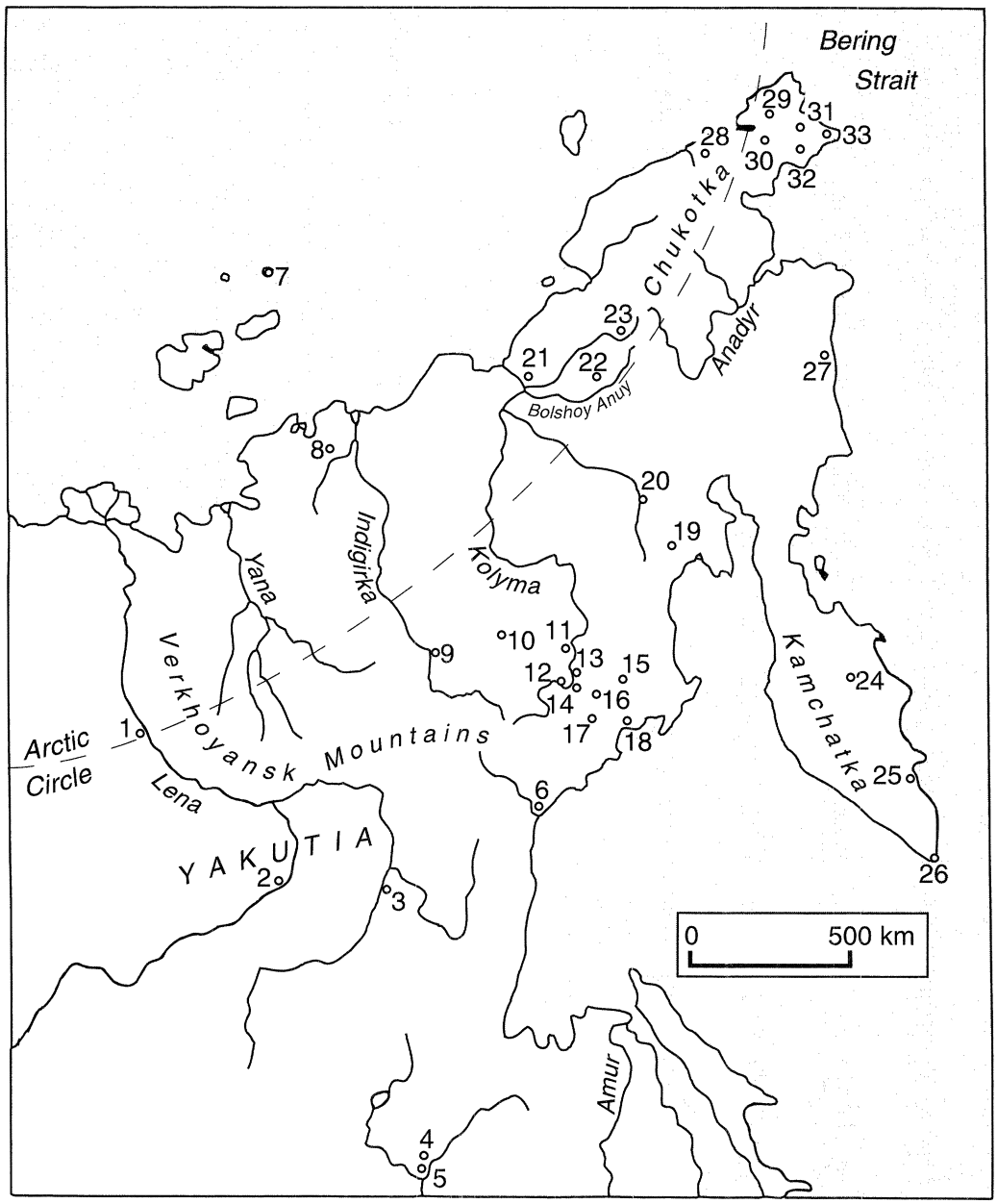

Figure 1 Map of Northeast Asia, showing the rivers, regions and sites mentioned in the text. 1 Uolba; 2 Diring-Yuryakh; 3 Dyuktai Cave; 4 Selyomja; 5 Filimoshki; 6 Kukhtuy; 7 Zhokhov; 8 Berelekh; 9 Yubileyny; 10 Ui; 11 Mayorych; 12 Agrobaza; 13 Kongo, Kongo-78, ING-78; 14 Siberdik; 15 Buyunda; 16 Kheta; 17 Maltan; 18 Uptar; 19 Druchak-Vetrenny; 20 Bolshoy Elgakhchan; 21 Panteleyikha; 22 Orlovka; 23 Tytyl'; 24 Ushki' 25 Tarya; 26 Lopatka; 27 Inas'kvaam; 28 Kymyneikei; 29 Ioniveem, Igel'khveyem; 30 Kymynanonvyvaam; 31 Chelkun; 32 Kurupka-I, Chaatam'e-I; 33 Puturak Pass, Ul'khum-1.

been actively discussed, and irreconcilable opinions of their origins and cultural affiliations expressed. Early Holocene cultures are better known. Many important sites were discovered and studied in the 1970s, and more recent excavations have resolved some cultural questions, provided radiocarbon dates, and helped define the role of some sites known earlier.

Several late Palaeolithic cultures are distinguished, such as microblade (with wedge-shaped cores and bifaces), non-microblade, and pebble-based. In the Early Holocene some of these elements continued alongside new cultures referred to as Mesolithic or Holocene (relict) Palaeolithic. The major criterion for separating these epochs is the disappearance of the wedge-shaped core cultures and the emergence of those with conical and prismatic cores (Mochanov 1977; Dikov 1979a and b). The Mesolithic falls between 10,000 and 6,000 BP. The Neolithic is defined by the appearance of pottery and polished stone tools – elements which had appeared much earlier in the rest of eastern Siberia. The usage of such terms as culture, complex, tradition, etc. has received much attention in western archaeological literature (see Dolitsky 1985; Dumond and Bland 1995).

The Late Pleistocene

The non-microblade tradition

The earliest radiocarbon-dated industry in the area remains that from level VII of the Lake Ushki sites (Ushki I, V) in central Kamchatka (Dikov 1996). First discovered in 1964, an area of 2,100sq.m has been excavated. Traces of charcoal and burnt bone indicate that the surface dwellings were circular in plan and 7–9m in diameter. Eleven were discovered; two were described by Dikov as having two rooms, although these might simply have been one regular dwelling superimposed on another. Hearths were placed centrally and were without stone surrounds.

A burial pit was found containing ochre and many pyrophilite beads and pendants, but no bones were preserved. It was C14 dated to 14,300 ± 200 (MAG-550) and 13,600 ± 250 (GIN-167). The paleomagnetic analysis of level VI indicated that level VII might have dated to 15,000 BP, which is up to 2,000 years older than the C14 dates because of water saturation (Dikov 1993a and b).

The tools were made on flakes. Over fifty bifacial stemmed points 5–6cm in length have been found (Fig. 2: 1,2), as well as lanceolate bifaces, oval and end scrapers on flakes, chalcedony gravers, stone beads and pendants. There is no technology of producing microblades from wedge-shaped cores, which was the reason for including it in the non-microblade tradition of Beringia along with the Nenana Complex (Powers 1990; Goebel et al. 1991).

The unique level VII complex has aroused much scepticism because it is difficult to place within the Siberian Late Palaeolithic. Some believe that the layers are mixed (Mochanov 1977; Kuznetsov 1994); either it is not included in regional schemes (Derev'anko 1990; Vasil'ev 1993) or it is referred to the final stage of the Dyuktai Culture (Larichev et al. 1992). I personally participated in the excavations for several successive seasons and consider the mixed layers idea erroneous. Stemmed points are unknown in

Siberia until the Neolithic, so analogues were sought in America and Japan (Abramova 1984: 327–8) where they have been found (Carlson 1983) dated to the Pleistocene/Holocene boundary or even earlier, but their origins are no more understood than at Ushki. Therefore Ushki level VII must be taken for what it is, admitting the current impossibility of explaining its origin.

With the discovery in 1980 of Bolshoi Elgakhchan on the Omolon River, stemmed points were no longer unique in the Northeast (Fig. 2: 4). These materials are referred to the Ushki Culture (Kiryak 1996, Dikov 1993a and b). The tool kit has a lot in common with the early Ushki culture, namely stemmed points, oval bifaces, and flake scrapers. No microblades or wedge-shaped cores were found at either. Bolshoi Elgakhchan has not been C14 dated. Dikov (1983) accepts the stemmed points found on the surface at Chelkun and Ul'khum in Chukotka (Fig. 2: 7), but this requires more discussion. Stemmed points are found in the surface collections from Serdyak (Slobodin 1998) and Avlondya (Vorobei 1993) (Fig. 2: 3, 6) in Priokhotye.

Dikov (1979a and b) linked Ushki level VII with the Palaeoindian peopling of the New World, pointing out the similarity between the Kamchatka stemmed points and those from the Marmes Rockshelter sites in North America. He believed that level VII resulted from a reverse migration from America to Asia. His later publications show that criticisms of this hypothesis (Mochanov 1982) made him discard it. However, if fluted points could come from transglacial America to Alaska (Clark 1991), the latter being part of a greater Beringia including the present Kamchatka, then Dikov's explanation does not seem incredible.

The assemblage from Uptar may also be pre-microblade (Slobodin and King 1996). The artefacts were found under a layer of tephra which is dated to 8,350 ± 85 (WHG-936/AA6883) (Lozhkin et al. 1993). A C14 date from the site of 8260 ± 330 (MAG-1262) may thus provide a minimum date for Uptar, though patination and aeolian erosion suggest that the artefacts lay unburied for a long time before being covered by the tephra. The assemblage comprises oval bifacial knives, narrow lanceolate arrow points and spear points with narrowed bases, scrapers, and pebble tools. One of the arrow points has a flute on one face running from the base to the tip, characteristic of the Paleoindian points from North America (King and Slobodin 1996) (Fig. 2: 5, 8).

The Uptar Complex has no clear analogues in the known cultures of Northeast Asia. It bears some resemblance (namely the large leaf-shaped bifaces) to the Osipovskaya Culture on the Amur River dated to the Pleistocene/Holocene transition (Derev'anko 1990).

The pebble tool tradition

This late glacial technological tradition includes Orlovka II in western Chukotka and Lopatka IV in Kamchatka, as well as finds in eastern Chukotka. The Diring-Yuryakh site discovered and excavated in Yakutia (Mochanov 1993) has been considered especially important and interesting.

Orlovka II is located on a 120 metre high terrace on the left bank of the Orlovka River, a tributary of the Bolshoy Anuy. The terrace surface has no vegetation and is probably redeposited by solifluction. Some artefacts (big pebbles) were found on the surface, the

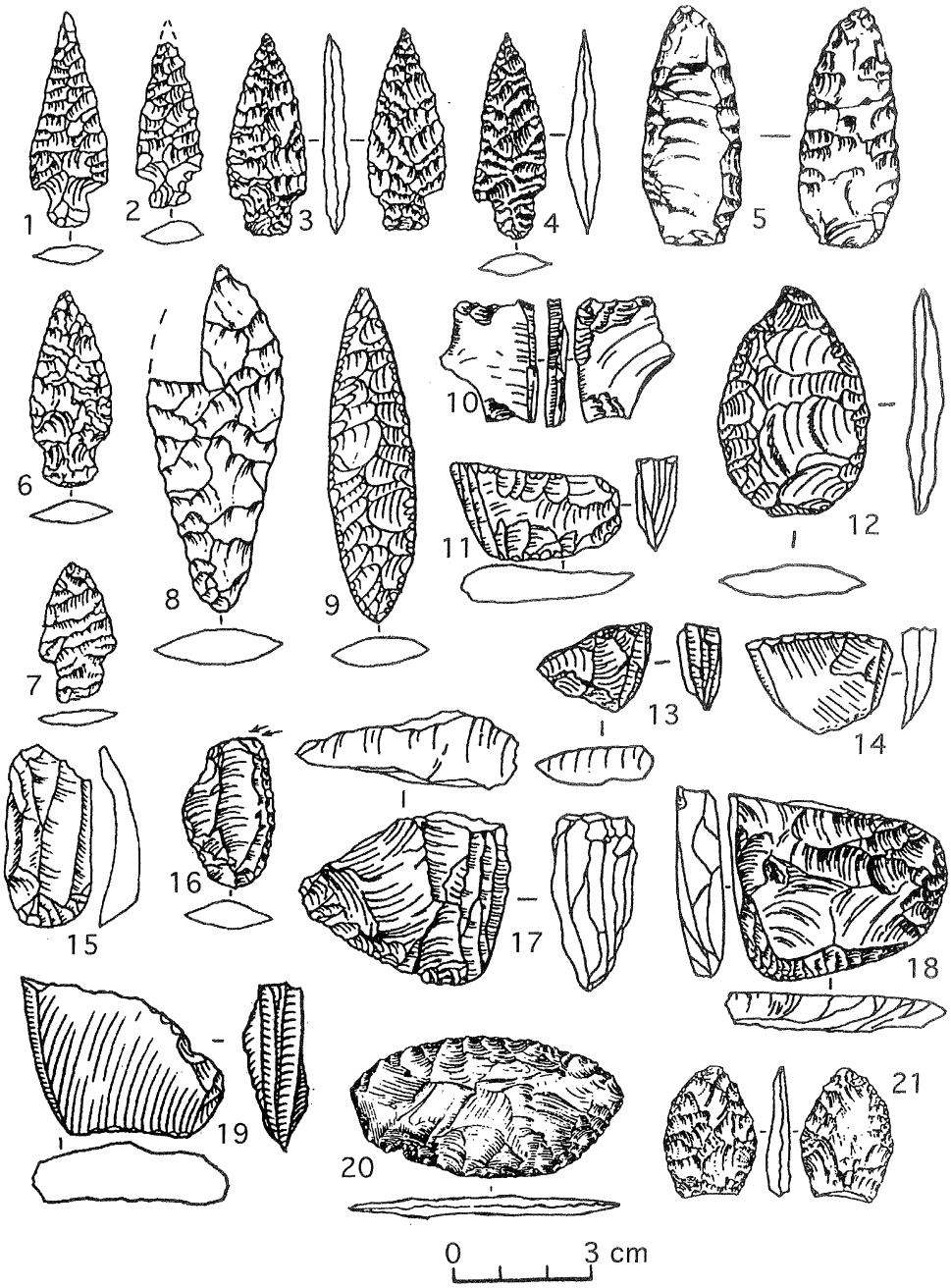

Figure 2 Artefacts from sites discussed in the text. 1, 2 Ushki Level VII; 3 Serdyak; 4 Bolshoy Elgakhchan; 5, 8 Uptar; 6 B. Avlondya; 7, 14, 15 Ul'khum; 9, 11 Ushki Level VI; 10, 21 Berelekh; 12, 13 Kheta; 16, 17 Druchak-Vetrenny; 18 Mayorych; 19 Kurupka I; 20 Kukhtuy III.

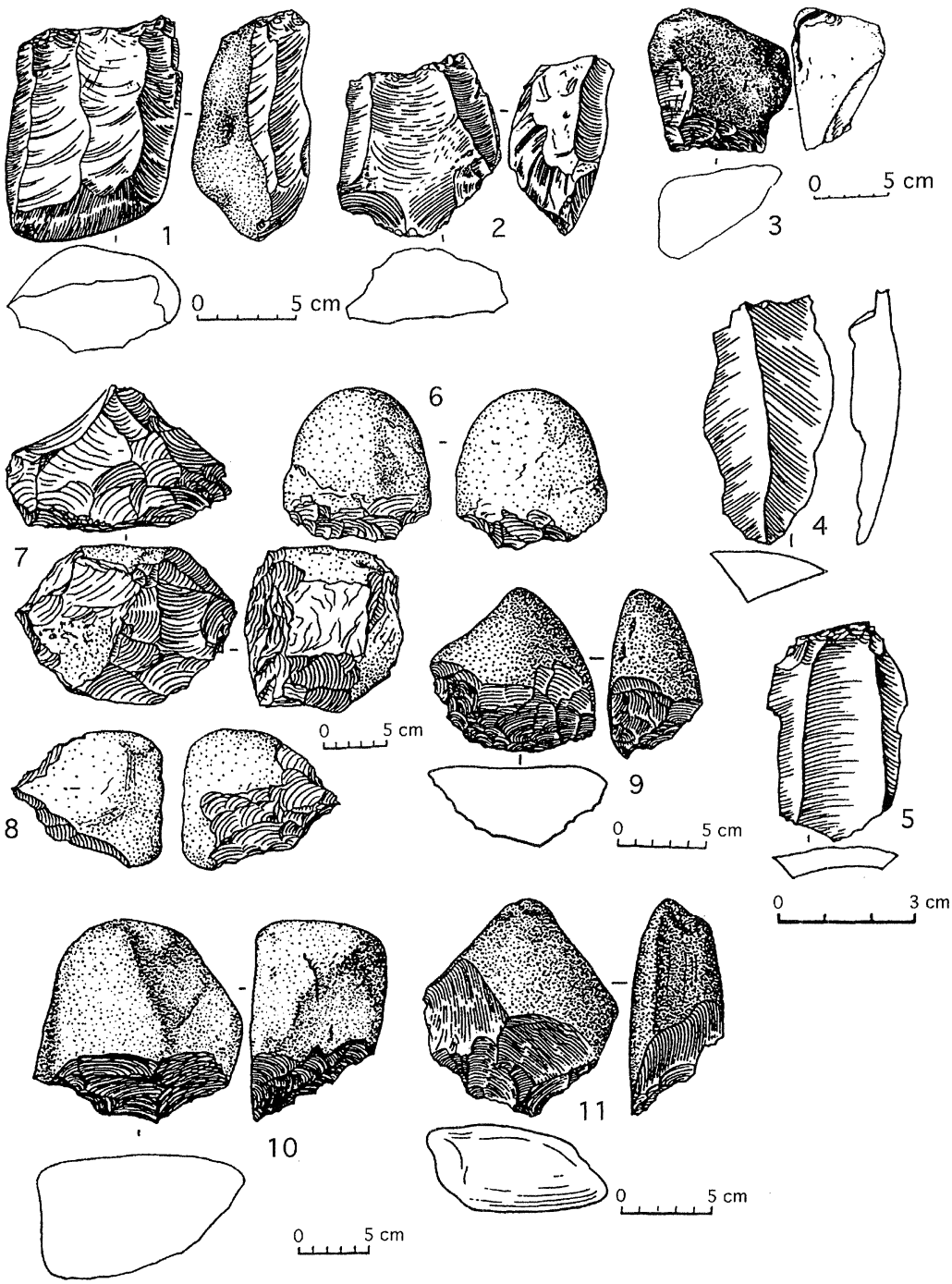

Figure 3 Artefacts from sites discussed in the text. 1–5 Orlovka II–V; 6–8 Lopatka IV; 9, 11 Siberdik; 10 Kongo.

rest no deeper than 10cm. The tool kit consists of pebble tools including two blade cores, blade-like flakes, a chopper, end scrapers and burins, all of argillite and diabase (Fig. 3: 1–5). The site is not C14 dated; the stratigraphy is insecure. Kiryak (1995) notes similarities with the South Siberian Paleolithic complexes.

Lopatka IV is on the southern tip of Kamchatka. The site yielded big clusters of surface materials of different dates (Dikova 1983); cluster 3 is referred to the Palaeolithic. The site is being eroded and some items came from the redeposited surface sand layer. The tools (Fig. 3: 6–8) probably from this level include pebble cores for producing flakes, chopping tools, choppers, massive unifacial scrapers and knives on primary flakes, retouched flakes, and subtriangular points with edge processing (Dikova 1983). Dikova states that some scrapers, choppers and chopping tools resemble others from Vietnam (Khaobin), Japan (Fujiyama, Sojudai, Gongenyama, Iwajuku), and northeastern Russia (Siberdik), and testify to 'Paleolithic migration from Asia to America via the Pacific islands in the Late Pleistocene'. However, these conclusions need more precise stratigraphic information and dates.

Northeast Asian pebble tools have been discussed since 1961 when the first were found at Ulalinka in the Altai Mountains, Filimoshki, Kumary and other sites on the Amur (Larichev et al. 1992). Some very early dates have been suggested (Powers 1973; Derev'anko 1990). Mochanov (1986) however remarked that he 'could not find a single article that was undoubtedly made by man . . . and not by natural processes', and held to this opinion in his book on Diring-Yuryakh (Mochanov 1992). Dikov (1983) draws an analogy between the Far East pebble tools and the choppers from Siberdik, Kongo (Fig. 3: 9–11) and Lopatka IV. He then traces this tradition in the materials of the Pacific complex on the Fraser River in British Columbia (Carlson 1983). However, the Early Holocene dates from Siberdik mean that this is considered a relict pebble Paleolithic (Dikov 1979a). No properly dated Pleistocene pebble complexes are known in Northeast Asia.

Surface finds from Kym'ynanonvyvaam IX, XII, and XIII in Chukotka – never C14 dated – have been referred to the pre-point stage (28,000–20,000 BP); Dikov (1993a and b) has identified scrapers and axes among them. The date is based on comparisons with Diring-Yuryakh, Filimoshki and Kumary. However, it should be noted that the sites are located at low quality flint sources, so the items may just be waste products of a much later date than originally supposed.

The microblade tradition

Microblade industries in Siberia may go back to the early part of the last glacial (Derev'anko 1990). Some Dyuktai microblade sites in Yakutia are C14 dated to 32,000 BP (Mochanov and Fedoseyeva 1996c), but most researchers prefer a lower limit of *c.* 23,000 BP (Dikov 1979b; Abramova 1979; Kuznetsov 1994; Derev'anko 1990) or even less (Yi and Clark 1985). The Dyuktai culture was of decisive importance for the appearance of microblade industries (Powers 1990), though microblade cultures in the Far East and Japan were also important (Vasilyevsky 1986). The Dyuktai culture in Yakutia disappeared *c.* 10,500 years ago (Mochanov 1986), the same time that the microblade tradition spread around the Northeast. Microblade sites are quite well represented in the Northeast. Mochanov

defined them as Dyuktai; Dikov (1993a) however defined the Ushki culture based on Ushki level VI, and believed that only small Dyuktai populations reached Chukotka and then Alaska via the site of Kurupka I.

Microblade industries with wedge-shaped cores have been distinguished at Mayorych on the Upper Kolyma (Fig. 2: 18), Kheta in the same area, Druchak-Vetrenny, Berelekh, Ushki I level VI, and some sites in Chukotka.

Surface artefacts from the supposedly Paleolithic site of Mayorych have been dated somewhere in the range 23–12,000 BP (Mochanov 1977; Mochanov and Fedoseyeva 1996a). The finds comprise a retouched flake and blade as well as a biface fragment – a wedge-shaped core, according to Mochanov which seems unlikely (Fig. 2: 18). The ill-defined tools and absence of stratigraphy and dating mean that the site cannot be regarded as evidence of the Dyuktai Culture in the Northeast, and there is no reason to place it in the early last glacial period.

A much more definite tool kit comes from Kheta. An Ubetsu wedge-shaped core similar to those from Ushki and Dyuktai was found, as well as microblades, leaf-shaped and oval bifaces, end scrapers, a burin, and pendants (Fig. 1: 12, 13. The artefacts lay in Late Pleistocene (Sartan) deposits covered with Early Holocene tephra (Slobodin and King 1996).

Druchak-Vetrenny is extremely important for the culture history of the Far Northeast (Vorobei 1992, 1994). It produced wedge-shaped cores, bifacial points, end scrapers and transverse burins (Fig. 2: 16, 17), the latter being so far unique in Northeast Asia. The deposits have been disturbed by cryoturbation and solifluction, which must be why palinology and radiocarbon indicate an Early Holocene age: 7790 ± 250 (LE-4711) and 5120 ± 189 (LE-4712) (Vorobei 1992, 1994). In fact its technological and typological characteristics refer it to the Late Pleistocene; it may predate Ushki level VI and Kheta.

The earliest microblade assemblage in the Northeast is probably that from Berelekh; several radiocarbon dates span the period 10,600–13,400 BP (Mochanov and Fedoseyeva 1996b). However, cryogenic processes and slumping may have distorted the stratigraphy, something indirectly confirmed by the wide date range; some items were found on the surface. The tool kit is ambiguous as well. It contains several flakes (some retouched), four blades, fragments of bifacial knives and points (Fig. 2: 21), and a wedge or *pièce esquillè*. A leaf-shaped point and knives made of ivory have also been described. Microblades are rare; only two atypical items were interpreted as wedge-shaped cores (Mochanov 1977). One of these was later reclassified as a burin (Fig. 2: 10) and the other is no longer considered a core (Mochanov and Fedoseyeva 1996b). This uncertainty made some regard Berelekh as a non-microblade site (Goebel et al. 1991). More artefacts including wedge-shaped cores and a drop-shaped biface were later found on the river bank (Mochanov and Fedoseeva 1996b).

Well stratified material from Ushki I level VI is C14 dated to 10,800–10,300 BP (Dikov 1996). It includes numerous wedge-shaped cores, blades, angular burins, leaf-shaped and oval bifacial knives, end scrapers, grooved pumice shaft straighteners, labrets and pendants (Fig. 2: 9, 11). Cores were produced by the Ubetsu technique. Khoroko cores are reported but have never been illustrated. Dikov derives the technology of level VI from that of level VII, but this appears doubtful because of the large chronological gap between them and the numerous technical and typological differences. The finds are

concentrated round hearths in circular structures up to 4m in diameter, with an entrance passage and dug down 0.5m into the subsoil. Tools and preforms were found in the dwellings, as well as burials of a dog and two children. Some tools were thickly covered with ochre, and there were teeth with roots ground down and fine drilled holes. Prior to 1993, Dikov considered Ushki level VI as evidence of a Protoeskimo-Aleut Culture in western Beringia, but after the discovery of the Early Holocene Puturak site he changed his opinion and supported Dumond's (1969) hypothesis that they represented ancestors of the Athapaskans (Na Dene) (Dikov 1993a and b).

Some sites in Chukotka have been defined as Paleolithic and are typologically correlated with Ushki level VI and Dyuktai by Dikov. None is stratified or radiocarbon-dated. Inas'kvaam II produced flakes, a unifacially retouched blade, a wedge-shaped core, and a fragment of a bifacial projectile point. Judging by the descriptions (Dikov 1993a), none have any sufficiently diagnostic features to suggest similarity with Ushki or Dyuktai tools. Kimeneikei produced items said to be wedge-shaped cores and flakes (Laukhin and Drozdov 1991). The general appearance of the finds however makes this doubtful (R. Powers pers. comm. 1997).

The sites of Kurupka I, Ul'khum, Chaatamye, Kym'ynanonvyvaam VII, VIII and XIV, Ioniveyem and Itelkhveyem are on river terraces on the Chukchi Peninsula near the Bering Strait. Most finds come from the surface. Numerous flakes, microblades, biface fragments, end and side scrapers, conical, wedge-shaped and prismatic cores were found on the surface at Kurupka I (Fig. 2: 19). Some flake tools with transversal removals were interpreted as archaic wedge-shaped cores by Dikov (1983), who compared them to Ushki and Ezhan. Excavations at Ulkhum produced conical and prismatic cores as well as biface fragments, end scrapers on blades and two cores characterized as wedge-shaped, but none are diagnostic (Fig. 2: 14, 15). The same is true for Chaatamye I and Kym'ynanonvyvam VII, VIII and XIV, though the latter has been described as Palaeolithic (Dikov 1983).

The multilayer site of Kukhtuy III on the Okhotsk shore is problematic. Mochanov classified some artefacts (Fig. 2: 20) as Dyuktai, but these were in the same stratigraphic level as Neolithic items. The layer is cryogenically distorted and has been C14 dated to 4,700 ± 100 BP (LE-995). Some finds referred to the Dyuktai were found on the surface. Initially the site was dated to early in the last glacial and referred to the Middle Duyktai around 17–18,000 BP (Mochanov 1978; West 1981). Mochanov's views on the Dyuktai as the origin of the non-microblade Paleoindian cultures was criticized (Haynes 1982: 394; Abramova 1979), so he concluded that a Dyuktai site without microblades and cores would be found in Northeast Asia. Kukhtuy III was believed to be such a site, because bifaces were found without microblades and wedge-shaped cores (Mochanov 1977); its age was accordingly revised to the Final Pleistocene, and its culture classified as a Late Dyuktai subtradition without microblades and wedge-shaped cores. Although this was only weakly supported by archaeological evidence, it was accepted by some (Kozlowski and Bandi 1984; Michael 1984) but criticized by others. Dikov (1979a and b) correlated Kukhtuy III with Maltan on the basis of typology and dating, and Lebedintsev (1990) demonstrated its similarity with the Neolithic Tokarev Culture of the northern coast of the Sea of Okhotsk.

The Early Holocene

The Sumnagin tradition

Dramatic changes in climate, flora and fauna took place in Northeast Asia at the Pleistocene/Holocene boundary. The mammoth fauna disappeared, and the main quarry became reindeer and moose. This was probably why the Sumnagin Culture replaced the Dyuktai Culture in Yakutia. The Sumnagin continued from 10,500 to 6000 BP, and is believed to have spread across the Northeast including the Okhotsk Sea Shore, Kamchatka, and Chukotka (Mochanov 1977). The Sumnagin tool kit included conical and prismatic cores, end scrapers on blades, angular burins on microblades, insert blades, blade knives, bone inserts and bifacially retouched axes. Over the whole of northern Asia traditions with bifaces and wedge-shaped cores gave way to those based on detaching blades from conical and prismatic cores at the start of the Holocene; no pottery or ground tools are found. Such a vast area undoubtedly contained various ethnic groups, so it would be more correct to describe the Sumnagin tradition as comprising various local complexes in different regions of the Northeast.

The mainly surface finds from Panteleyikha I–VIII and Pirs in the Lower Kolyma have been referred to as the Sumnagin tradition (Mochanov 1977; Mochanov and Fedoseyeva 1986), though the criteria are not convincing because items like single end scrapers, microblades or prismatic and conical cores are also quite typical of the Neolithic.

In western Chukotka the Sumnagin is represented by the Tytyl' I–III lakeside sites; most finds come from the surface, and no C14 dates are available (Dikov 1979a: 132). The tool kit includes prismatic and conical cores, microblades, end scrapers, gravers, and angle burins on micro- blades (Fig. 4: 14, 15). The manifest peculiarity of some elements (diagonal burins and a possible handled scraper) could define a local Sumnagin variant (Kiryak 1993), but these are rare items not characteristic of all Chukotka sites; the assemblage might have been mixed. Better documented traces of this tradition come from Achchen and Chelkun IV in eastern Chukotka. The Chelkun IV cultural level was 40cm below the surface and was C14 dated to 8150 ± 450 (MAG-719) (Dikov 1993a). This is the only C14 dated Early Holocene site in Chukotka so far. No end scrapers were like those found at Tytyl' I–III, but this could be explained by the site being, for instance, a hunting camp.

Dikov classifies the Chukotka Mesolithic as the Puturak Culture. Puturak itself lies 15km from the Bering Sea. Dikov describes activity areas associated with charcoal concentrations, hollows, and circular stone hearths. Some artefacts were, however, found on the surface, which along with the site stratigraphy implies strong cryoturbation of the cultural layer. No radiocarbon dates were obtained for the site. Dikov distinguished a proto-Puturak stage with crude subprismatic cores, bifaces, and artefacts reminiscent of Central Asian Levallois points. The Puturak proper is characterized by crude blade technology on subprismatic cores, the tools by knives and end scrapers on blades (Fig. 4: 11–13). Some sharpened blades are supposed to have been used as points. The distinguishing feature of Puturak compared with the Sumnagin is, according to Dikov, 'crude knapping' and 'the almost complete absence of burins', and he remarks that Puturak was 'a workshop at the deposit of comparatively soft . . . flinty slate of poor quality'. This, in

our opinion, explains the peculiarities of Puturak. The crude cores and blades are production waste or preforms finished away from the workshop. This is indirectly confirmed by the small number of scrapers and absence of burins. The distinction of culture on workshop materials requires to my mind more basis than is presented; and there is no chronological, stratigraphic, or typological reason to refer Tytyl' I–III to the Puturak Culture, as Kiryak (1993) does.

The site of Zhokhov (Pitul'ko 1993) is on Zhokhov Island in the Novosibirsk Archipelago at 72°N, and is a local and quite distinct High Arctic complex. A series of radiocarbon dates fall around 7,800–8,000 BP. As at Sumnagin, microblades and prismatic cores were found with no bifacially retouched tools. The unique permafrost conditions preserved single- and double-edged insert tools made of reindeer antler, mammoth tusks and walrus ivory as well as many domestic and hunting tools of bone and wood. The Zhokhov tool kit differs from that of the Sumnagin in the absence of end scrapers and in the presence of polished axes, which appear in Yakutia about 6,000 BP, although an axe with a polished edge dated to 7,000 BP was found at the Sumnagin site of Ust'-Timpton in Yakutia.

The Upper Kolyma

Dikov (1979a) distinguishes the Siberdik Culture in the Upper Kolyma region, represented by Kongo and the lower level at Siberdik. He grouped these sites on the basis of pebble tools, although these are also found in the Dyuktai and Sumnagin cultures. The lower level at Kongo is C14 dated to 9,470 ± 530 BP (Kril-314) and contains a conical core, microblades and choppers (Fig. 3: 10; Fig. 5: 1–4). A later stage is represented by the lower level at Siberdik (8,480 ± 200 and 8,020 ± 80 BP; Kril-249, 250) and the upper level at Kongo (8,655 ± 220 BP; MAG-196); this phase has yielded bifacial point and knife fragments, end and side scrapers, pebble tools, and probably a wedge-shaped core (Fig. 3: 9, 11; Fig. 5: 5, 9–13). Dikov (1979a: 20, 97) believes that the Siberdik Culture is distinct from the Sumnagin and the Dyuktai, though he notes some similarity with the latter and Ushki Level VI. Kozlowsky and Bandi (1984) consider that Siberdik represents the first human groups adapted to the Asiatic far north following the extinction of the Pleistocene megafaunafauna, in particular the mammoth, although the nature of the adaptation is not defined. The Siberdik tool kit looks more like that of the Dyuktai than of the Sumnagin, more compact and adapted to long hunting trips. This adaptative pattern can also be seen at the northernmost site, Zhokhov, where the numerically small stone assemblage was accompanied by a large number and variety of faunal remains (Pitul'ko 1993). Parallels between Siberdik unifacial points and Japanese ones (Kozlowski and Bandi 1984: 369) are not clear; their statement that the Siberdik represents a Pacific coastal tradition has even less basis.

Dikov (1979b) sees the Siberdik culture developing into the Maltan Complex, represented by the lower level of Maltan dated to 7,490 ± 70 BP (MAG-183). Subsequent work at the site showed that the cultural layers were severely cryoturbated; C14 dates from the basal layer with microblades are 4,012 ± 102 BP and 2,514 ± 76 BP (DRI-3286, 3285) (King 1997). There are few common features between the Siberdik and Maltan complexes, and so there is no reason to regard Maltan as a continuation of the Siberdik; Maltan resembles the Neolithic cultures of Kolyma (Fig. 5: 6–8, 14).

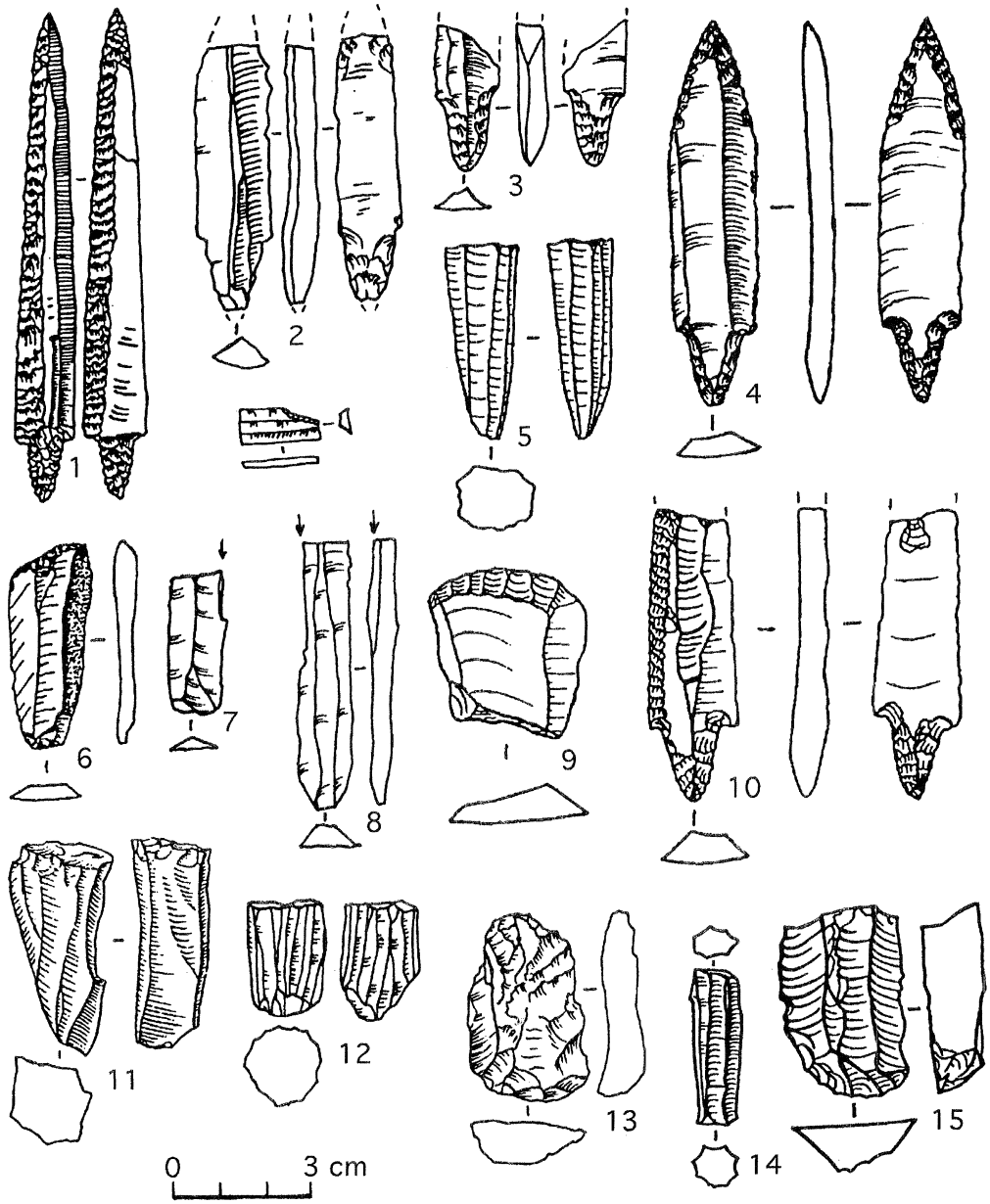

Figure 4 Artefacts from sites discussed in the text. 1 Uolba; 2 Yubileyny; 3 Ust'-Belaya; 4 ING-78; 5, 8–10 Ui; 6, 7 Buyunda; 11–13 Puturak; 14, 15 Tytyl' I–III.

The Buyunda Complex is represented by Buyunda, Urtychuk IV, and Jugajaka I (Point A) and IV. The assemblages contain conical and prismatic cores, blade and microblade tools, angular burins and end scrapers (Fig. 4: 6, 7). At Buyunda III a bifacially retouched axe was found, as well as a stone hearth 1m in diameter. Birchbark was found in the hearth which gave a series of dates mostly between 8135 ± 220 and 7510 ± 205 BP (GX-17064–17065).

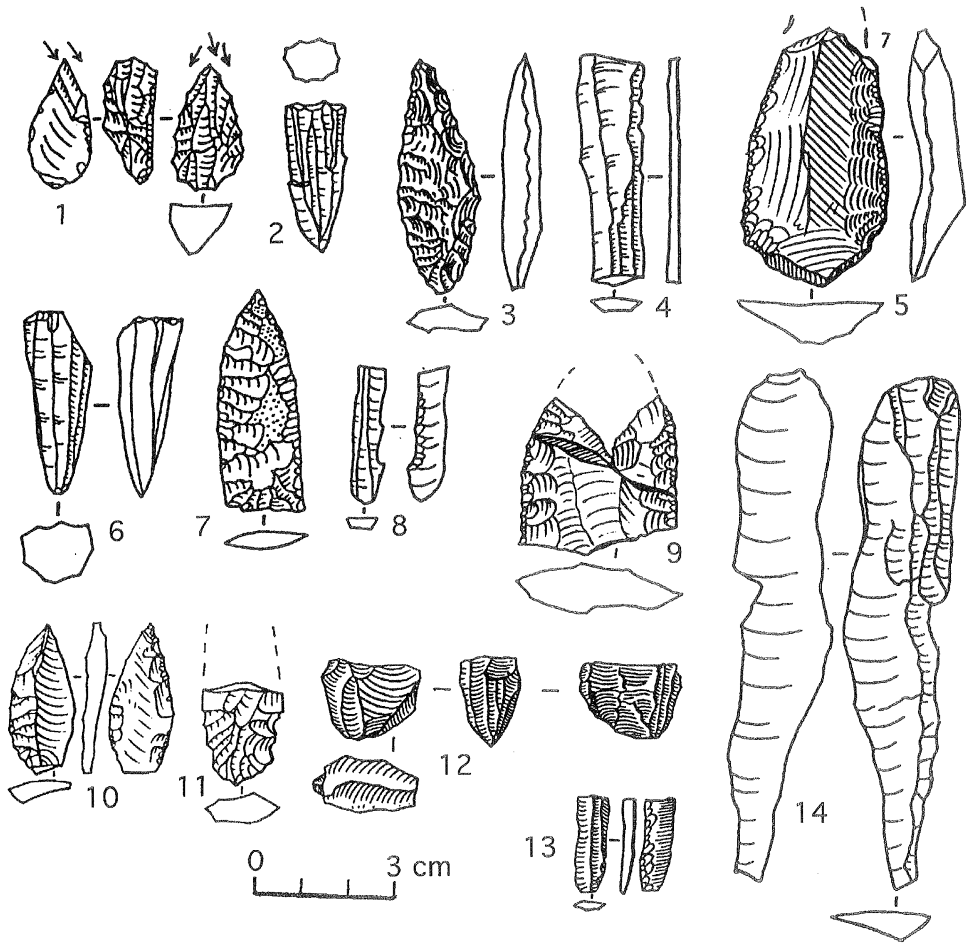

Figure 5 Artefacts from sites discussed in the text. 1–4 Kongo; 5, 9–13 Siberdik; 6–8, 14 Maltan.

Another tradition is represented by Uolba (Okladnikov 1946, 1970), Yubileyny (Kashin 1983), Kukhtuy II (Mochanov 1977: 246–8), Ust'-Belaya (Dikov 1979a: 132), Ui, Ing-78, Kongo-78, Agrobaza II and Pridorozhnaya (Slobodin 1995). These are grouped into the Uolba Complex (Slobodin 1995) and are on the banks of big rivers and lakes. They are clearly distinguished by their blade stemmed points (Fig. 4: 1–4, 10). Mochanov (1977) pointed out their undoubtedly Early Holocene age. Okladnikov (1970: 107) believed the points were contemporary with the Kitoy Stage of the Pribaikalye Neolithic, which would be around 8,000 BP on radiocarbon evidence (Mamonova and Sulerzhitsky 1989). This agrees with the dates from Ui: 8370 ± 190 (LE-3990), 8695 ± 100 (GX-17067), 8310 ± 340 (LE-4652), 8810 ± 35 (GX-17067). The blade stemmed points vary from those with just the stem and tip sharpened to those completely covered with fine pressure retouch, triangular in the cross-section and with a thoroughly worked stem. The tool kit also includes bifacial points, end scrapers on blades, and unpolished axes. Microblades testify to the presence of insert tools (Fig. 4: 5, 8, 9, 10).

Kamchatka

Ushki level V is the only Early Holocene in Kamchatka, and it shows that the Ushki Late Upper Paleolithic Culture continued into this period, being C14 dated to 8790 ± 150 BP (MAG-213) (Dikov 1979a). It remained unchanged except for the addition of wedge-shaped cores retouched on the platform (Vasilyevsky 1973; Dikov 1979a). According to Dikov, Ushki level IV represents the Mesolithic or Early Neolithic of Kamchatka.

Between Ushki levels V and IV there is a 4,000 year gap, level IV being dated to 4,200 ±100 BP (MAG-132) (Dikov 1977a; Michael 1992). There is only this one date for the layer, but so far there are no other data at all from Kamchatka. The environs of Ushki IV were significantly more forested than levels V–VII with their tundra vegetation, which may explain the gap. Dikov (1977b) supposed that it corresponded with the Sumnagin Culture in Aldan, which 'played a certain role in the origin' of the Late Mesolithic or Early Neolithic levels IV and III at Ushki. Mochanov (1977) therefore included Kamchatka in the Sumnagin Culture area. This is however unjustifiable: the chronological gap is too big, and Ushki III and IV contain not only Sumnagin-type artefacts but also totally foreign types like bifacial knives, triangular and rhomboid stemmed points (Dikov 1979a). Dikov (1979a) believes that Maltan on the Upper Kolyma 'is quite Mesolithic and technically and typologically fits in the interval between the Final Paleolithic level V and Early Neolithic level IV'. This placing of an Upper Kolyma site into the Kamchatka gap seems unjustified as there are no direct analogies in the stone tools. Dates of under 4,200 BP are obviously too late to define the Ushki levels IV and III as Mesolithic and Early Neolithic. Chukotka decisively influenced the cultures of Kamchatka (Dikov 1979a), and bronze was in use there by the end of the second millennium BC. Dikov considers the Ushki levels to be older than this because of the absence of pottery and polished tools. But polished stone tools may have existed in Kamchatka much earlier: the lower level of Avacha has been dated to 5200 ± 100 BP (MAG-306). This site belongs to an early phase of the Neolithic Tarya Culture. Although the date is older than the normally accepted date for this culture and needs confirmation, some do accept it (Ponomarenko 1985; Dumond and Bland 1995).

Conclusion

This review bring us to the following conclusions.

The Pleistocene pebble complexes have not been dated, and thus can be considered only as a hypothetical stage. The Siberdik Culture, if it existed on the Kolyma in the Late Pleistocene (Dikov 1979a and b), was no barrier to cultural influences from the Amur, Primorye, and Yakutia. Links between the Northeast pebble complexes (Dikov 1983) and the Pebble Tool Tradition of British Columbia (Carlson 1983, 1996) remain unclear. Some parallels can be seen in the Late Pleistocene pre-microblade complexes of Northeast Asia (Ushki level VII, Bolshoi Elgakhchan) and the Nenana Complex of Alaska (Powers 1990; Goebel et al. 1991). A substantial chronological gap between the earliest stemmed points of North America and similar tools from Central Kamchatka remains unfilled.

So far there is no clear evidence that Paleoindian cultures originated in Northeast Asia, but the Uptar fluted point (King and Slobodin 1996) testifies that the technique of thinning leaf-shaped points by means of a flute was known in Northeast Asia at the Pleistocene/ Holocene boundary and maybe earlier.

Microblade technology with wedge-shaped cores is widespread in the Late Pleistocene. The data do not allow Kukhtuy III and Mayorych to be dated to the Pleistocene and referred to the Dyuktai Culture. The suggestion that Kukhtuy III represents a late Dyuktai stage with some bifaces and no microblades (Mochanov and Fedoseyeva 1996c; Kozlowski and Bandi 1984) has not been confirmed. The Berelekh finds are mostly from the surface or a complicated stratigraphic context, and should also be treated cautiously because they include stone pendants completely unknown at all other Dyuktai sites.

The Early Holocene cultural pattern is also complex. The Sumnagin influence is clear. Exploring the Arctic with a minimum of stone tools (as at Zhokov), humans reached 76°N. The Early Holocene Uolba Complex, first identified by Okladnikov (1970) was also widespread in Northeast Asia. Against this background the 'heavy' assemblage from Siberdik combining microblades, pebble tools and and bifaces looks rather alien and diverse. The dates from Maltan show that its lower levels are no older than 4–5,000 years, so it cannot be considered Mesolithic.

Ushki level V, which maintained Late Pleistocene technological traditions with little change, has produced the only Early Holocene date so far obtained from Kamchatka. The subsequent 'Mesolithic' (Dikov 1979a) or Early Neolithic Culture of Ushki level IV contained microblades and no polished tools and is dated to 4,200 BP – younger than the early stage of the Tarya Neolithic Culture which has polished tools but no microblades. This contradiction requires the dates to be doublechecked. Surface collections from the western coast of Kamchatka must be re-examined, as they have been (erroneously, in our opinion) referred to the Tarya Culture (Ponomarenko 1985; Dumond and Bland 1995).

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