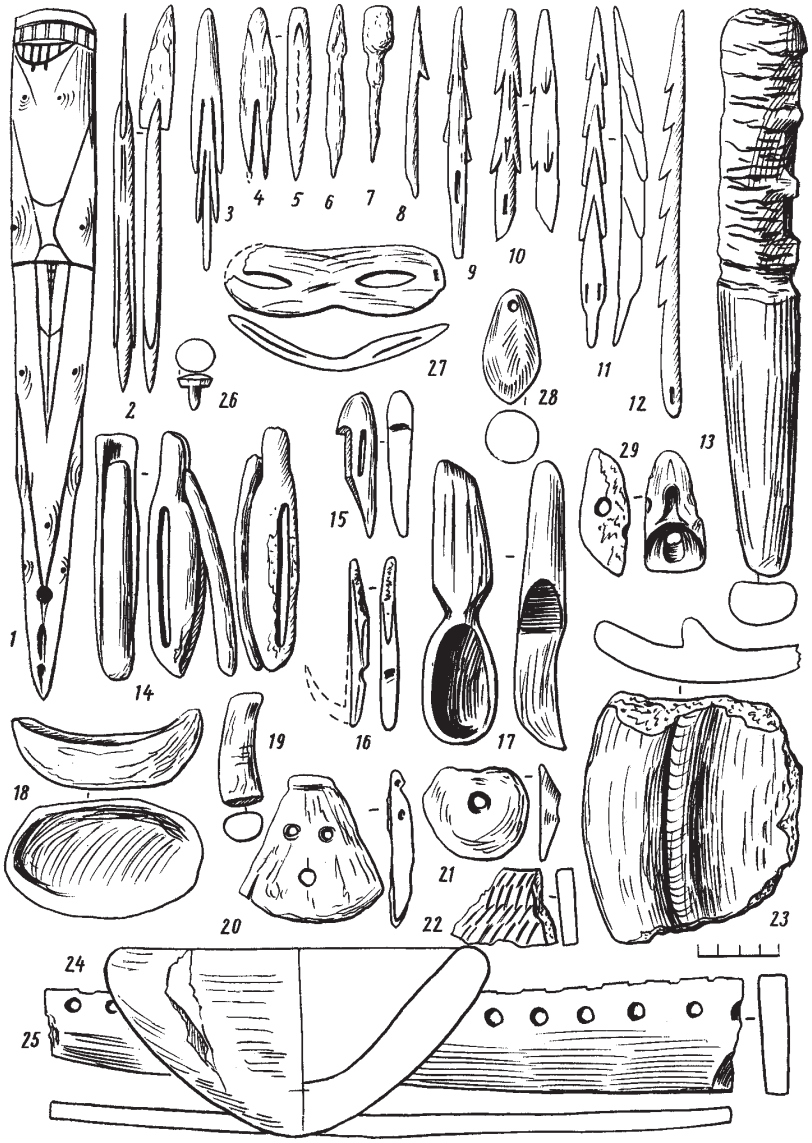
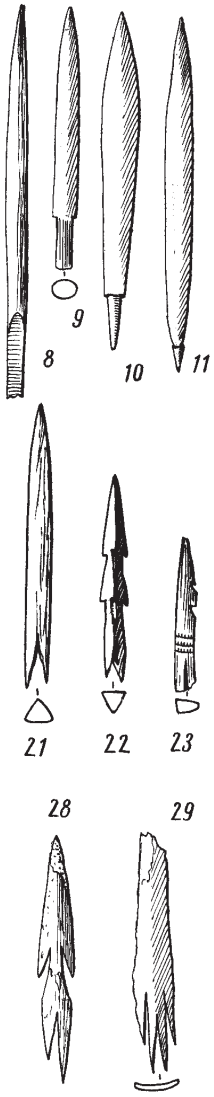
EARLY CULTURES OF NORTHEASTERN ASIA





By
Nikolai N. Dikov

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EARLY CULTURES OF NORTHEASTERN ASIA

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SHARED BERINGIAN HERITAGE PROGRAM

Asia and North America were once joined by a massive "land bridge" in a region now popularly called "Beringia." In order to promote the conservation of the unique natural history and cultural heritage of this region, the governments of the United States and Russia have proposed the establishment of an international park agreement between the two countries. The Shared Beringian Heritage Program of the National Park Service recognizes and celebrates the contemporary and historic exchange of biological resources and cultural heritage in this region. The program seeks local resident and international participation in the preservation and understanding of natural resources and protected lands and works to sustain the cultural vitality of Native peoples in the region. To these ends, the Beringia Program promotes the free communication and active cooperation between the people and governments of the United States and Russia concerning the Bering Straits region.

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Translator's Introduction

This book was originally published as *Drevnie kul'tury Severo-Vostochnoi Azii (Aziia na styke s Amerikoi v drevnosti)* [Early Cultures of Northeast Asia (Asia at the Crossroads with America in Antiquity)] (Moscow: Nauka, 1979).

This work contains many archaisms. I have assumed that it will be the specialist who reads this book and that he or she will know how to deal with, for example, the Sandia point. To adequately annotate this work would take a book in itself. Therefore, I have left it as an artifact of the past containing an enormous amount of primary data, which is, in fact, what we study. One note of caution: in this book, as in others by Professor Dikov, the citations to illustrations seem to get a bit confused. As before, I have tried to correct these where possible. Otherwise I have left them as they appear in the original.

I would like to thank Anna Gokhman for her usual excellent job of proofreading the translation, Lynne Ertle for great editing, and Sue Roberts for a fine job of layout. I owe a deep debt of gratitude to Bob Gerhard, director of the Beringian Shared Heritage Program, Peter Richter, its manager, and Katerina Wessels, whose help I couldn't have done without. We all must thank them for their continuing support of translation through the Beringian Shared Heritage Program. Finally, we owe a special debt of gratitude to Professor Margarita Alexandrovna Dikova for permitting the National Park Service to make available in English her late husband's book.

—Richard Bland

Preface

The study of archaeology in extreme Northeast Asia has at present a special urgency. It is very significant not only for reconstruction of the distinctive historical past of this distant and severe region but also for resolution of the problem of the initial settlement of neighboring America, which took place in the Paleolithic from Northeast Asia through ancient Beringia, which joined the two continents during the glacial epoch (Chard 1960a, 1960b, 1960c; Debets 1951a, 1951b; Hopkins 1959, 1967, 1972).

The scope of the archaeological problems of Northeast Asia includes not just the discovery of common regularities and features. Here at the crossroads of Asia and America, the thesis of convergent historical development in America, after its initial settlement and isolation owing to its closure by ice sheets in Canada, is being adopted by an increasing number of adherents and can be examined. If the Paleo-Indian population did in fact develop at this time under conditions of full isolation and nevertheless arrived at the same economic, socioeconomic, and technical-technological forms as in the Old World, then this, consequently, as some scholars are inclined to suggest, is a striking "experiment" of independent, convergent development set up by nature itself. The New World in this case would be a kind of "different planet," with regard to the Old World, where the historical process occurred entirely independently beginning with the initial Upper Paleolithic, that is, during the course of all history of rational mankind (*Homo sapiens*). The power of convergence would be amazing if it resulted, both in the Old and New Worlds, in the emergence of common economic, socioeconomic, cultural, and technical-typological forms. The development of these common forms would increase the possibility of broader convergence in the historical development of rational beings even beyond the bounds of the earth and would inspire the hope of a more successful outcome in the search for extraterrestrial civilizations. Convergence can be sufficiently and convincingly proven by the archaeological and paleogeographic data based on the indispensable condition that the natural "experiment" through isolation of the historical process in America is pure.

With regard to careful examination of the absolute isolation of the American continent that many researchers are postulating, as well as ultimate clarification, the question is: was the continent completely isolated during the last glaciation, or was there no such isolation at all (and, consequently, would then the similarity of historical development in the Old and New Worlds result not so much from convergence as from cultural connections)? The solution to this question is one of the most important objectives of archaeological research in the Asiatic Northeast since it is defined by a sense of a special world view. Finally, with these questions in mind, all the early cultures that lived here, beginning in the Paleolithic, must be revealed as completely as possible and their relationship with known American cultures must be analyzed.

We would like to remind the reader that for the first time the objective of broad archaeological study of Northeast Asia has two basic aspects—(1) the Paleolithic and the problem of the initial settlement of America,[1] (2) the Neolithic and the problem of the origin of peoples of the Northeast.

[1]S. N. Zamiatnin, in a special report, points out the urgent necessity of studying the Paleolithic of the northern USSR, including its Asiatic part, suggesting that in this enormous territory, which has not been investigated archaeologically at all with regard to the Paleolithic, the most unexpected discoveries may be made (Zamiatnin 1961:26).

This objective was set up by the Laboratory of Archaeology, History, and Ethnography of SVKNII DVNTs AN SSSR[2] as early as 1960 and was soon thereafter reflected in the scholarly literature (Dikov 1960a, 1964a, 1964b, 1967c). Then (approximately since 1965) Yakutian archaeologists, who prior to this time were occupied with local matters within the boundaries of the Viliui and Aldan, became interested in these issues (Mochanov 1966a). However, in relation to the problems mentioned, the huge territory of Yakutia is poorly studied.

Our preceding book (Dikov 1977) was dedicated to the archaeological sites investigated by our Northeast Asian interdisciplinary archaeological expedition of SVKNII DVNTs AN SSSR and is a historical source base for this second book, which has the same subtitle *Asia at the Crossroads with America in Antiquity*.

In the first book the supporting stratigraphy was substantiated and the sites of Kamchatka, Chukotka, and the upper Kolyma were generally classified. Simultaneously, the most important type sites of the Northeast—the Ushki multi-component sites—were proven to have irreproachable stratigraphy. It is now clear that the first doubts about the lowest Paleolithic level (Cultural Layer VII) of these sites, with its unique stemmed arrow points, have been surmounted and, with few exceptions, specialists now give complete recognition to this unusual and very informative culture. The same is true of its dating.

This book contains new materials: some that were previously known but were not included in the first book, and some that have been discovered recently. New sites, discovered by the Northeast Asian Archaeological Expedition of SVKNII DVNTs AN SSSR in 1977, include late Paleolithic sites on the Inas'kvaam River in Chukotka (found by Yu. A. Koliasnikov); Early Neolithic and Mesolithic sites on Lake Tytyl', on the upper reaches of the Malaia Aniui River, also in Chukotka (discovered by M. A. Kiriyak); and an early site of sea mammal hunters at Cape Nizkii, north of the mouth of the Anadyr' River (found by V. D. Kichanov and investigated by N. N. Dikov).

It should be kept in mind that some positions and conclusions in this book were reflected in the works of other researchers and in a manuscript (and abstract) of my dissertation, defended in 1971 at the Institute of History, Philology, and Philosophy SO AN SSSR in Novosibirsk. These sources contain conclusions about the ethnic differentiation in the northeastern USSR from the earliest times to the seventeenth century (Dikov 1964, 1971; Gurvich 1975); about the progressiveness of historical development in the Northeast, in particular in Kamchatka, in the Paleolithic (Dikov 1967c:30, 1971a, 1975a, 1976a; Mochanov 1977); about problems of the origin and cultural connections of early Eskimo cultures—for example, the Asiatic effect on the Old Bering Sea culture and its Northeast Asian inner-continental origins, including Ust'-Belaia ones (Dikov 1971a:33, 1971b:367, 377, 1972:112–115; Vasil'evskii 1973:212, 1974:28); about the transformation of the Okvik culture under the influence of Chukotkan cultures (Dikov 1971a:33, 1971b:115, 376, 377; Vasil'evskii 1973:212, 1974:28); about the role of the northern, narrow neck of the Kamchatka Peninsula as the shortest migration route and connection of maritime cultures from the Pacific coast with the northern Okhotsk coast and the reverse (Arutiunov and Sergeev 1975:195; Dikov 1971a:34, 1971b:396; Vasil'evskii 1973:202); about the Old Koryak living on both the eastern and western coasts of northern Kamchatka (Dikov 1971a:35, 1971b:407–410; Vasil'evskii 1971:48, 1973:147, 1974:23, 29); about Kamchatka as a distinctive "dead end" or "pocket" where relict cultures were preserved for many years (Dikov 1969b:107, 1971b:191;

[2]For abbreviations, see Table of Contents.—*Trans.*

Vasil'evskii 1973:35); about the social division of labor in the Northeast where deer herding and sea mammal hunting emerged; and about some comparability in the role of the latter to agriculture (which could not develop there because of the extreme severity of natural conditions) in this first social division of labor (Dikov 1969a:235, 1971b:452, 453; Vasil'evskii 1975a:129).

The object of this research, as is evident from the subtitle of the book, is the archaeological cultures of the Northeast (within the bounds of Kamchatka, Chukotka, and the upper Kolyma) in their presently comprehensible chronological range—from the Upper Paleolithic to the first Russian explorers of the seventeenth century.

I consider the primary goal of my research to be the summarization of all old and new materials on the archaeology of the Northeast within the named geographic boundaries, including the determination of general tendencies, regularities, and features of the ethnocultural, economic, technological, and, if possible, socioeconomic development of its early pre-Russian population during a period of time embracing almost 15,000 years.

To achieve this goal, I have identified and tried to resolve a series of problems. Foremost among the problems is the challenge of acquiring from all angles a view of the characteristics of the archaeological cultures at the source level, which was partly done in the first book. Other challenges include determining the ethnicity of the archaeological cultures, resolving the problem of their origin and interconnection with surrounding cultures, reconstructing the economy, and revealing, where possible, the social structure, religious ideas, and features of art.

The most acceptable definition of archaeological culture is a stable society represented by archaeological types and complexes of features and artifacts of material culture (houses, burials, and so on) in time and space with the condition of the presence in it of essential characteristics of difference from other known societies of this kind (Grigor'ev 1972; Kamenetskii 1970; Klein 1970; Masson 1974:15–21; Zakharuk 1964). Thus, culture is viewed as a dynamic unity of traditions and innovations (endogenic and exogenic). Culture can be of short duration (a few centuries or even decades) or long (several millennia). It may occupy a large area or a very small one (including as few as two sites). Based on the discovery and examination of new sites of a culture, its boundaries, as a rule, are subsequently made more precise and in some cases expanded. However, until the sites are completely exposed, the researcher has the right to treat such a society, even if it is represented by only two sites, as an early culture under the auspices of an archaeological fact being reconstructed (Zakharuk 1977:35–39). The definition of an archaeological culture should be precise and sufficiently flexible to be suitable for systemizing and interpreting archaeological materials at the different levels of studying them with minimal dependence on their quantitative representation. At the same time, it must always be based on complexes of types and not on their isolated traditions.

The investigation of cultures in two aspects—cultural-economic and ethnocultural, proposed by V. N. Chernetsov (1973)—seems to us the most productive, though we confined ourselves primarily to the archaeological aspect and tried in all of the cultures we investigated to reveal first of all its traditional elements and innovations, both endogenic and exogenic, in the way that ethnographers do. This does not mean, of course, that the cultural-economic and ethnocultural aspects were given no attention.

Two monographs that were published recently—by Yu. A. Mochanov (1977) and I. P. Laricheva (1976)—have the most direct relationship with our theme. They contain mutually

exclusive interpretations of new archaeological materials on the Paleolithic of northern Asia and North America, and express mutually exclusive concepts of the settlement of America. Mochanov starts from the proposition of the introduction into America from Yakutia, by bearers of the Diuktai culture, of the technology of making biface points. Laricheva considers this Diuktai culture and its possible migration into America as substantially later than Mochanov does, and not spreading farther than Alaska—and her opinion is supported by other researchers (Abramova 1973, 1975; Grigor'ev 1973; Haines 1976; Powers 1973). Giving unjustifiably too much significance to the initial settlement of America by the Diuktai culture, Mochanov at the same time without foundation underestimates the significance of the early Ushki (Cultural Layer VII) Paleolithic culture of Kamchatka and furthermore subjects to doubt the Ushki stratigraphy without substantiation. The reader will find here a full analysis of the criticism of our materials.

In Laricheva's book there is a very interesting preface by S. A. Arutiunov, entirely supportive and even somewhat sharpening and strengthening her conclusions, and in particular sharing her idea of convergent development of the biface tradition in America. However, we are nevertheless forced to disagree with the assertion of the allegedly sufficient evidence for this position.

To the problems of the Paleolithic in Northeast Asia are also dedicated a survey work by W. R. Powers (1973) and a small interesting book by R. S. Vasil'evskii (1973), which we will challenge with a series of questions on proto-Eskimo-Aleut and Old Koryak history.

The clear and original history of Asia at its crossroads with America, its most urgent archaeological problems, and its most distinctive and influential archaeological sites and early cultures (for example, the Old Bering Sea and Punuk ancestors of the Eskimos, Old Koryak, Ushki Paleolithic, and others) are still little known to specialists.

In this book are tables of artifact assemblages for each culture, which are used based on preliminary systematization and indices of similar forms of stone artifacts. The tables of these similar forms of artifacts are in the appendix.

The author considers it his pleasant duty to express thanks to the artist L. N. Korshkova, who executed all the graphic illustrations of the book; S. I. Vasil'eva, who carried out the photographic work; and A. V. Lozhkin, who, by radiocarbon dating, has determined the absolute age of the majority of archaeological sites in Northeast Asia.

By this labor the author today gives the late distinguished scholar Professor Mikhail Illarionovich Artamonov, director of the Department of Archaeology at Leningrad State University, who always manifested great and sincere interest in the broad development of these investigations in the extreme Northeast of our native land, his due.

The Paleolithic of Extreme Northeast Asia

Environmental Conditions

The aggregate of presently available archaeological, paleo-anthropological, paleo-geographic, and geological data permits sufficient basis to suppose that people were living in Northeast Asia by the second half of the Pleistocene. However, up to now the most precise time and route of the initial settlement of this territory by people remain unexplained and have not been discussed.

It is now possible to consider as generally accepted that, for the resolution of such questions, a complex approach to them is necessary; many factors must be considered, among them, the inescapable natural conditions of a given zone during the period being examined.

In this regard, substantial work both by our Russian and by foreign, predominantly American, scholars, has already been conducted for the determination of the ecological conditions of people in Northeast Asia, but it is necessary to produce a synthesis of the now available data, as we have recently obtained some additional facts.

The natural conditions and ecology of early people (the interconnection of factors of nature with factors concerning human behavior) represent in Northeast Asia, as they do, by the way, in other regions of the world as well, a dynamic aggregate of many factors: paleo-geographic (including orographic and hydrological, glaciological, and hydro-graphic), paleo-climatological, paleo-botanical, faunal, and some others.

In the neo-Pleistocene, extreme Northeast Asia (the Kolyma basin, Chukotka, and Kamchatka) experienced two periods of mountain valley glaciation: the Zyriansk (70,000 to 50,000 years ago) and the Sartan (27,000 to 10,000 years ago), and two large interglacials: the Kazantsev, which preceded the Zyriansk glaciation, and the Karginsk (50,000 to 27,000 years ago) (Fig. 1). Each of the named periods is characterized by

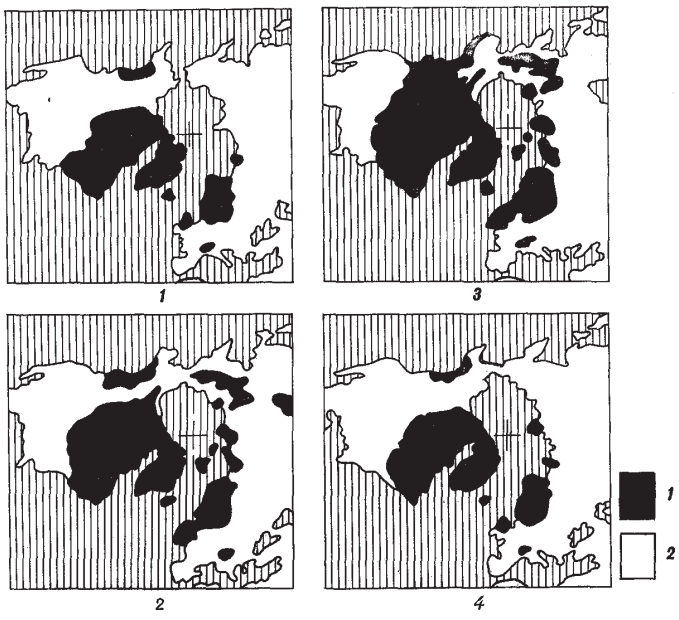

Figure 1. Stages of development of glaciation and the forming of Beringia (according to Müller-Beck). 1—end of Karginsk Interglacial; 2—beginning of the Sartan Glaciation; 3—maximum of the Sartan Glaciation; 4—end of the Sartan Glaciation.

nonuniform advance or retreat of the glaciers, which are accompanied by equally irregular zigzag-like fluctuations of temperature and ice cover of the surrounding seas and shifts of climate of the mainland. The changes in all these factors are mutually caused and are interrelated, but they are not always strictly synchronous. We will view this dynamic paleo-geographic picture in a generalized way; that is, we will discuss only those details that may have the most significance for us clarifying the time and possible routes of the initial spread of man through extreme Northeast Asia.

During the period of the Kazantsev, the warmest interglacial, when the neo-Pleistocene of Northeast Asia began, the climate there was somewhat warmer than today. In Chukotka during this time, swampy tundras, forest-tundras, and coniferous forests of larch and pines predominated, while in Kamchatka the landscape probably consisted of pine-fir forests with birch (Giterman and Golubeva 1965:373). The most characteristic representatives of the animal world here at that time were an elephant (*Elephas trogontherii*) and a mammoth of an early type (*Mammuthus primigenius*), which had inhabited these regions even earlier, in the middle Pleistocene (Sher 1969, 1970). In the opinion of some geologists, particularly S. F. Biske, during this time the Kamchatka Peninsula was probably separated from the mainland by a narrow strait (Biske, personal communication). The transgression of the sea is also shown in its flooding of the lower reaches of the Anadyr' River and substantial territory surrounding its mouth, as well as vast parts of the northern, eastern, and southern Chukchi Peninsula (Gasanov 1970).[3]

During the Zyriansk mountain valley glaciation, which advanced about 70,000 years ago, a full or partial drying of the shelf regions of the seas that wash Chukotka and Kamchatka occurred as a consequence of the sea regression. The result of this was the complete union of Asia and North America either by means of the so-called Bering Land Bridge, or "Beringia" (this term was first introduced by N. P. Sushkin, though the most general idea of the Bering Land Bridge emerged substantially earlier, with S. P. Krasheninnikov) (Baranova et al. 1968:Fig. 24; Flint 1963; Hopkins 1959; Krasheninnikov 1949:175, 179; Nalivkin 1960; Péwé, Hopkins, and Giddings 1965:355–474), or by means of an archipelago of islands located close to each other. L. A. Portenko (1970) turned his attention to the high probability of the latter. Regardless of the exact nature of the connection, an intensive exchange of flora and fauna took place between North America and northern Asia by this complete or broken Bering Land Bridge. In Chukotka during this time, judging by the edible types of faunal remains in the alluvial deposits of a stratotypical profile on the right bank of the Kolyma between the mouths of the Omolon and the Aniui, lived the following tundra-steppe animals: mammoth (*Mammuthus primigenius*), woolly rhinoceros (*Coelodonta antiquitatis*), horse (*Equus caballus*), bison (*Bison priscus crassicornis* Rich), northern deer (*Rangifer tarandus*), red deer (*Cervus elaphus* L.), elk (*Alces alces* L.), muskox (*Ovibos pallantis* Ham.-Smith.), and others. It was during this time that mammoths, bison, rhinoceroses, and northern deer (caribou) spread from Northeast Asia into North America (Sher 1969:9). At the same time, the elephant (*Elephas trogontherii*) also penetrated into America through Chukotka (Chard 1967). This elephant was not an Arctic form, and judging by this fact, the climate in Northeast Asia was not very severe during the Zyriansk period. Indeed, it is possible that this warmth-loving animal penetrated into North America along the southern edge of Beringia from northern Kamchatka across the drying Okhotsk shelf (Baranova et al. 1968:Fig. 24; Flint 1963:Fig. 129; Lindberg 1965) during the regression of the sea in the south near Priamurye. That the southern edge of Beringia approached

[3]In the opinion of geologists, during the Kazantsev Interglacial the sea left traces that are located at elevations of 30 to 35 m on the Chukchi Peninsula (Baranova et al. 1968:117).

the shores of Kamchatka during the Zyriansk period is indirectly attested by the fact, established by geologists, of the union of Karaginskii Island with Southern Peninsula on the northeastern shore of Kamchatka (Skiba and Khoreva 1966).

More than 20,000 years after the Zyriansk Glaciation, a relatively warmer climate was restored during the so-called Karginsk Interstadial, and again Bering Strait was completely reformed. Again the tundra and steppe were replaced in Chukotka, northern Kamchatka, and on the Kolyma by sparse forests and in southern Kamchatka by true evergreen-larch forests. The bones of deer have been found (*Cervus* cf. *elaphus* L.) in deposits of early *alassy* (depressions in the permafrost) of this time (Sher 1969).

The final Sartan, the coldest period of the upper Pleistocene (27,000 to 10,000 years ago), is better studied than the preceding ones. This period was not so glacial as it was severe in cold. The mountain valley glaciers occupied a substantially smaller part of the territory of the extreme Northeast but nevertheless determined its geography in a significant way. In the west, the glacial zone completely partitioned off Chukotka from the Lena valley, leaving only a passage along the dry shelf, and in the south, glaciers descended to the present coastline of the Sea of Okhotsk (Flint 1963:426, Fig. 129; Vas'kovskii 1963). Some geologists suggest that the mouth of the Anadyr' River was completely broken by glaciers, obstructing passage to North America along the Anadyr'-Penzhina "corridor" at this time (Baranova et al. 1968:117; Vas'kovskii 1963). However, this opinion is still being debated and is subject to further examination. And if there had not been the regression of the sea caused by glaciation, Chukotka and Kamchatka would have been completely isolated from the interior regions of Siberia and from Alaska. However, the Beringian union (complete or in the form of an island archipelago) of Chukotka and Alaska was created again by regression of the sea (Flint 1963; Hopkins 1959; Péwé, Hopkins, and Giddings 1965; Portenko 1970). In addition, more or less broad strips of dry land emerged along the shelf for this same reason. They formed two low-lying corridors between the sea and the glaciers. One of them, comparatively narrow, led from the basin of the upper Lena, the Aldan, and southwestern Priokhotye to northern Kamchatka (Chard 1967; Flint 1963; Lindberg 1965). The other, often called the "Arctida" and many times broader (no less than 500 km wide), went from the Taimyr to Alaska, including in it the Novosibirsk Islands and Wrangel Island (Baranova et al. 1968:118; Vas'kovskii 1963:51).

As a consequence of the greatest isolation of the Arctic basin from the warm currents of the Atlantic and Pacific oceans during the Sartan period, the thickness of the ice at that time reached, in the unanimous opinion of specialists, its maximum and is estimated by some of them at approximately 22 m (at the present time it is 5 m) (Chizhov 1970:74)—a mark of 10 on the scale of iciness adopted by P. M. Borisov (1970:68). Meanwhile, by this paleography, even with an ice crust of 10 to 12 m, the Arctic Ocean must have acted upon the atmosphere in practice like ice-covered dry land, that is, not at all protecting it against the cold in winter and not creating a variation of pressure in relation to the atmosphere over the dry land. As a result, the pole of cold was united with the geographic pole and the temperature in winter over the ice shield of the ocean reached – 40° C (at present it is 25° C). According to this thermal physics concept, above the ice-bound ocean during the Sartan period, circular easterly winds constantly blew, similar to those in Antarctica. Through such directed circumpolar atmospheric circulation, the Atlantic moisture was seized and absorbed by the Eurasian continent, creating a large European glaciation. It was exhausted in eastern Siberia, as a result of which, in the zone of moisture deficit there, glaciation was significantly less well developed. It again reached a maximum in North America owing to moisture seized over

the Pacific by the same directed atmospheric rotation (Shilo, Boichuk, and Tomirdiaro 1969:72, 73; Tomirdiaro 1969:93–96).

The dust storms created by the same constant, year-round easterly winds contributed to the deposit of loess in the periglacial area between river valleys in northern Yakutia and in Chukotka. In the valleys themselves, alluvium was deposited. During the period of glaciation there were no rivers as such, only torrents, and terraces appeared among them, as S. V. Tomirdiaro suggests, only in the Holocene. In his opinion, there were also no lakes during the period of glaciation. They appeared only in the interglacial and in the Holocene as a consequence of thermokarst activity (Tomirdiaro 1969, 1976). On the unglaciated Arctic dry land of Chukotka, formed by loess deposits and thick syngenetic subsurface glaciation, stretched a cover of dry and very cold tundra with a rich mixture of steppe vegetation (so-called tundra-steppe) during this time (Tugarinov 1934). Judging by the faunal bone remains of the Aleshkin suite from the first flood-plain terrace on the lower reaches of the Kolyma, the Chukotkan tundra-steppes were inhabited during the Sartan period by a later (but not smaller) type of mammoth (*Mammuthus primigenius*), relatively small horses (*Equus caballus* subsp.), northern deer (*Rangifer tarandus* L.), bison (*Bison priscus* subsp.), saiga antelope (*Saiga tatarica*), and a multitude of smaller animals (Sher 1969:9). In Chukotka, mammoth remains in particular are often found (on Aion Island and on the rivers of Anadyr', Amguema, Malyi Aniui, Omolon, and others).

Thus, the expanses of Arctic tundra-steppe in northern Chukotka, in spite of their uncommon severity, were not lifeless and unsuited for humans, and the northern route of the settlement of Chukotka could pass here over these expanses from the lower Lena. In light of this, finds of split mammoth bones on the Mukhomornaia River (in the Belaia River basin) in the center of Chukotka, as well as at another place in Chukotka (unfortunately, with no provenience), are extremely interesting. They were examined by V. K. Arsen'ev (1948:121) but are not yet fully clarified.[4]

In Kamchatka during the Sartan period vegetation was probably more abundant than in Chukotka, and the high-grass tundra-steppes fertilized by volcanic ash alternated there with sparse forests. The animal world was also undoubtedly abundant there, in particular, large mammal fauna.

The bone remains of mammoths have been discovered in various places in Kamchatka from the shores of Penzhina Bay and the Parapol'skii Valley southward to the Kamchatka River valley, where they are especially abundant. There, in 1918, Arsen'ev found the bones of woolly rhinoceroses and mammoths (Arsen'ev 1948:118, 119), and there our expedition found them in 1961–1965,[5] as did a special paleontological expedition of the Geological Institute led by N. P. Kuprina (1966). Judging by the geography of the mammoth bone remains in Kamchatka, noted above (and in particular, by A. R. Geptner's find of them near Tigil' in 1963) (Geptner, Lupikina, and Skiba 1966), they were spread across this peninsula, most probably along its western shore from Chukotka, but also possibly along the northern Okhotsk coastal zone, where mammoth bones are now being discovered (Vas'kovskii, personal communication). Indirectly corroborating this route of mammoth distribution along the Okhotsk corridor during the Sartan period are several mammoth sites discovered on Hokkaido Island by the Japanese geologist Minato (1955), since it

[4]The bones were discovered by Brykin and are preserved in the Anadyr' Regional Museum.

[5]We gave these mammoth remains, predominantly molar teeth, to V. E. Garuttu for study at the Institute and Museum of Zoology AN SSSR.

is obvious that mammoths could get there only by the union of Sakhalin Island with Priamurye in the late Sartan. The route also goes to the north through Priokhotye.

Not to reject the important and perhaps even paramount significance of the Chukotka-Arctic route of mammoth movement toward Beringia, Alaska, and Kamchatka, which has drawn the attention of many researchers (Campbell 1963; Chard 1960; Mochanov 1969a; Solecki 1951), it is nevertheless necessary to emphasize as well the attractiveness for these animals of both the Priokhotsk Sartan, and before it perhaps even the Zyriansk, coastal shelf along the present precipitous western and northern coasts of the Sea of Okhotsk to the Parapal'skii Valley in northern Kamchatka. And this route, differing throughout the whole period by its mild climate, and consequently also by the diversity of the flora, was, as indicated above, in fact already noted for the first finds of mammoth bones. So far relatively fewer of them are presently known than in northern Chukotka or in the valley of the Anadyr' River. This can be explained by two very understandable circumstances: the less favorable conditions there for burial of mammoths than in the north and scant study of northern and western Priokhotye in comparison with the Arctic zone of Northeast Asia. The recent find of a frozen mammoth near Susuman, much closer to the Sea of Okhotsk than to the Arctic Ocean, points to the truth of this (Shilo 1978).

Thus, during the climatically severe Zyriansk and Sartan periods, mammoths, bison, and northern deer could have spread through Chukotka and Kamchatka toward Beringia and North America by the two main routes available then: the Arctic and the Priokhotsk. The movement of these animals into North America had begun by the middle Pleistocene and occurred periodically with the emergence of the Bering Land Bridge (Flerov 1965; Sher 1970; Tugarinov 1934), which played the distinctive role of cold "filter" for them (Sher 1976:227; Solecki 1951).

The absolute age of the Zyriansk neo-glaciated bridge is presently estimated at various dates, but the most generally accepted is one of the late dates: between 50,000 and 40,000 years ago, according to H. Müller-Beck (1966:1191–1210).

The Sartan "bridge" (the broadest) is dated to 28,000 to 10,000 years ago by this researcher, who turns special attention to the period 28,000/25,000 to 23,000 years ago, during the course of which there was, simultaneous with this bridge, a passage from Alaska to the southern regions of North America between the Laurentide and Canadian ice sheets. Later, such an uninterrupted connection between Asia and America was not resumed until 13,000 to 10,000 years ago. Before 28,000/25,000 years ago and after 10,000 years ago, Northeast Asia was separated from Alaska by Bering Strait, and during the period 23,000 to 13,000 years ago the Canadian ice barrier was complete and represented an insurmountable obstacle that separated Alaska and extreme Northeast Asia, whose connection formed the whole of Beringia, from the remaining regions of the North American continent (Müller-Beck 1966).

The conclusion of paleo-zoologists on the penetration of mammoths, bison, and northern deer from Northeast Asia into North America is very important for us, as is our determination of possible routes of migration of these animals first into Chukotka, Kamchatka, and then into North America. Now we can suppose that it was by these routes that Paleolithic man, predominantly the hunter of large grazers, who gradually became accustomed to new hunting grounds, also went into Northeast Asia during the Pleistocene.

The Problem of the Initial Settlement of Northeast Asia and America

The closest approaches to Northeast Asia—the southern regions of Siberia and the Far East—could be settled by people for the first time from the Urals, Kazakhstan, and Central and Eastern Asia as early as the second half of the Pleistocene (in the Middle and possibly even in the Lower Paleolithic), which is indicated, in the opinion of some researchers, by the still possibly problematic Karginsk sites of the Altai, Pribaikalye, and Priamurye (Ulalinka, Ust'-Kanskaia Cave, the sites of Igitei and Tarakhai on the 100-meter terraces of the Angara, Filimoshki, and others) (Derevianko 1971, 1973; Okladnikov 1966a; Okladnikov and Derevianko 1973a, 1973b; Rudenko 1960; Tseitlin 1975). However, only traces of Upper Paleolithic people have been absolutely determined and are indisputable in Siberia and the Far East, beginning primarily with the Sartan period (Abramova 1975; Okladnikov and Abramova 1974). It is the character especially of Sartan cultures of Siberia, in comparison with much earlier cultures of surrounding territories, that permits evaluating the earliest ones, going back to the Middle Paleolithic time, the Mousterian (Levallois) sources of the Siberian Upper Paleolithic. There is no clarity here, and at present the discussion continues about the origins, stages, and variations of development in the Paleolithic of North and Northeast Asia, which were rather completely illuminated in W. R. Powers's large survey (1973). Thus, Z. A. Abramova, relying on the stratigraphy and dated typological complexes, distinguishes three cultural areas of the Upper Paleolithic in Siberia: (1) the South Siberian of the upper Yenisei, Altai, and Zabaikalye (unifying the Afontova, Kokoreva, Srostkina, and Oshurkova cultures); (2) the Middle Siberian (the Mal'ta-Buret' culture in Pribaikalye, the Achina site on the Chulyma, and the Tarachikha site on the Yenisei); (3) and the Northeastern Siberian (Diuktai and other possible cultures of this region) (Abramova 1975). This investigator objects to the term "Post Mousterian," proposed by G. P. Grigor'ev and V. A. Ranov, in the place of "Upper Paleolithic" for Siberia, correctly maintaining the progressive character of the Siberian Paleolithic in the Karginsk and Sartan periods (Abramova 1975; Grigor'ev 1968).

Yu. A. Mochanov proposed another systematization for Siberian Upper Paleolithic cultures (Mochanov 1977:223–240). In his opinion, they reflect two basic traditions of making stone points and knives: (1) the Mal'ta-Afontova, without bifaces (the Mal'ta, Afontova, Kokoreva, Srostkina, Oshurkova, and Sannomys' cultures), going back to the Mousterian-Levallois cultures of Middle and Central Asia; and (2) the Diuktai, with bifaces (the Lena, Indigirka, Kukhtui, and Kamchatka basins, and in southern Siberia and the Far East—Nian'gi, Batoiskaia Yama, Sokhatino, Kumary III, Osinovka, Ustinovka, and others), coming from bifacial Mousterian cultures with the Acheulian tradition of the southern Urals, Kazakhstan, and other territories adjoining Siberia on the south. He is inclined to subdivide the Diuktai bifacial tradition into two subtraditions in later times: with wedge-shaped cores, characteristic for Diuktai Cave, and without them (possibly the presently undated Kukhtui site on the north coast of the Sea of Okhotsk).

The separation by Mochanov of sites of bifacial and unifacial traditions is a good practice, which was started by A. A. Formozov (1969) with Eastern European material. It would not have caused objections by archaeologists (Abramova 1975) if it were not so speculative, confused, and inconsistent. Mochanov uses the terms "Diuktai tradition," "Diuktai province," and "Diuktai culture" equivalently (Mochanov 1977:236, 239, & others). And with the speculative division of a "Diuktai subtradition" without wedge-shaped cores, it turns out that only one thing stands for all

these—the presence in the cultural complex of bifacial tools, which, of course, is insufficient for an actual archaeological tradition or culture. It is not without reason that in his survey of the Siberian Paleolithic, Powers notes that the idea of the so-called Diuktai culture should be used "with certain caution" (Powers 1973:71). What is more, the question arises, should it be called Diuktai at all if one considers that bifaces in combination with wedge-shaped cores are known in other late Paleolithic sites of Siberia and the northern Far East—on Verkhnelenskaia Mountain, on Ushki Lake, and so on—before Mochanov found them in 1967 (and published them in 1969) (Mochanov 1969b).

The unreasonably high dating by Mochanov of the so-called Diuktai culture, allegedly beginning 35,000 years ago and continuing without particular changes up to 10,000 years ago (Mochanov 1977:223–240), is justifiably a subject of criticism. A full 25,000 years of such long and, consequently, extremely slow, stagnant development of the "Diuktai culture" does not agree at all with Mochanov's acceptance of my (Dikov 1971a) and Abramova's (1975) progressive character of the Paleolithic in Northeast Asia. However, there is no problem in this contradiction, since in light of available data the dating itself of the "Diuktai culture" and the sites representing it do not stand up to criticism. It is based on comparison of several stratigraphic profiles in terraces of different elevations on the Aldan River, the cultural layers of which are dated by radiocarbon analysis. However, the sequence of terraces proposed by Mochanov is very problematic, and in the radiocarbon dates themselves of the earliest sites of the "Diuktai culture" from the third terrace, either substantial inversion is observed (Ust'-Mil' II) (Mochanov 1977:35) or the dates are definitely unreliable (Ikhine II, dates GIN) (Mochanov 1977:40) or they are entirely absent (Ikhine I, Ezhantsy) (Mochanov 1977:51). It is no wonder, therefore, that the dating of the named sites to 35,000 to 23,000 years does not agree at all with archaeological criteria. Nor have wedge-shaped cores and bifacially worked leaf-shaped points been encountered at so early a time in Siberian cultures, which has been noted by Abramova, I. P. Laricheva, V. Haynes, Powers, and other archaeologists (Abramova 1972, 1973; Haynes 1976:435; Laricheva 1976a:136, 198; Powers 1973). This is also corroborated by Mochanov's observation that in the Diuktai complex at the Verkhne Troitskaia site a Gobi core was discovered just like at Ikhine I (Mochanov 1977:224) (and, notably, Ikhine is not dated at 35,000 years of age, rather substantially less, by twice as much). In addition, a biface from the Ezhantsy site is almost no different from oval biface knives in the Upper Paleolithic horizon at Diuktai cave (Mochanov 1977:223) (likewise, Ezhantsy is not 35,000 years old, but probably close to 13,000 to 14,000 years).

The very methods of excavation at the sites—not sufficiently distinguished by clear stratigraphy and often disturbed by permafrost formations and the activity of man—obviously also affected such an unfounded and contradictory dating of the "Diuktai culture" by Mochanov. The cultural layers at the Aldan sites were not divided by such clear sterile bands as, for example, the bands of volcanic ash in the Ushki sites in Kamchatka, and are located close to one another, owing to which, the penetration of cultural remains from one layer into another in many cases could not be controlled. This is especially true with regard to such sites as Bel'kachi I, Ikhine I, Ikhine II, Ust'-Mil', Verkhne Troitskaia, and Diuktai Cave.

Thus, geologists and archaeologists are obviously right in placing the age of the so-called Diuktai culture within the bounds of the late Sartan period (maximum from 18,000, and more probably from 14,000 to 10,000 years ago) (Abramova 1972, 1973; Laricheva 1976; Tseitlin 1972:116–125, 1975:34). With this correction, the "Diuktai culture" must be recognized as an

important cultural-historical stage of the Paleolithic past in the Aldan River basin. There is no sufficient basis for spreading it as a "tradition" or "province" throughout the Northeast as far as Japan and America. A tradition, as a historic society, is understood not only as a chronological and territorial concept, but surely as a genetic one as well. Simplistically dividing all the sites of northern Asia into two traditions—unifacial and bifacial—without consideration of their origin and distinguishing between them a so-called contact zone along the watersheds of the Lena and Yenisei basin and the Selenga and the upper Amur (Mochanov 1977:550), Mochanov does not take into account the fact that the Far Eastern regions of Northeast Asia, located beyond the other large watershed (the Kamchatka), belong to a special Pacific cultural zone of the Upper Paleolithic with their own personal technological traditions, including bifacial and unifacial, often combined in one and the same site (for example, in Cultural Layer VII at Ushki I) (Derevianko 1973; Larichev 1970; Laricheva 1976a; Vasil'evskii 1973a), though this zone, by its geographical position, cannot be seen as a contact zone. A. P. Derevianko (1973) wrote convincingly about the special parallel development of bifaces from cobble tools in Primorye using the Upper Paleolithic Kumary III site as an example.

The coexistence of bifacial and unifacial, as well as "cobble" technology can also be traced in the Sartan period in Alaska, where in the British Mountain culture (also non-contact), along with unifaces, only very crude and primitive bifaces are known, yielding significantly in quality to the simultaneous or, according to Mochanov, even earlier bifaces of the Diuktai culture (Laricheva 1976a:123). This fact cannot be explained if one follows Mochanov's schema about the distribution of the Diuktai tradition and culture to America, and even in America during the early and middle Sartan. We evidently have a case in Alaska at this time not of the "Diuktai tradition" but of convergence, the power of which is manifested with regard to bifaces on our planet, as is well known, beginning in the earliest times. It is sufficient to recall Formozov's conclusion that in the Acheulian tradition the technology of bifaces in Eastern Europe emerged independently almost in every indogamic community. As a result, this technology was widespread there alternately with a unifacial one, and both were isolated in each individual site, with each of them thereby presenting its own tradition (Formozov 1959a:112).[6]

Thus, the "Diuktai tradition" (or "Diuktai culture"), even if it is imagined by Mochanov as a community of the first order—a community first and foremost genetic, that is, having its own source—it was not spread throughout Northeast Asia and America as far as he proposes. In extreme Northeast Asia (in particular, in Kamchatka), in Alaska, and probably in Priamurye the Diuktai tradition stands in opposition to other bifacial traditions and cultures: Cultural Layer VII at Ushki in Kamchatka, the Siberdik culture on the Kolyma, the British Mountain culture in Alaska, and possibly Kumary III in Priamurye—these having convergent origins independent of the "Diuktai culture." Not to agree with this would be to acknowledge the possibility that all other bifacial cultures and traditions not now considered connected genetically with it, including "Solutrean" (the position that Müller-Beck occupied), belong to the "Diuktai tradition." And in such a case, the necessity for the term "Diuktai tradition" would cease and it would be possible, like Müller-Beck, to call a bifacial tradition on the Aldan simply a "Solutrean" tradition.

In light of new archaeological materials, distinctiveness is very evident in the Paleolithic cultures of Kamchatka and the Kolyma, the earliest of which, the early Ushki Cultural Layer VII,

[6]N. D. Praslov (1965:16) rejects total convergence of stone-working during the Mousterian.

is fundamentally different from the Diuktai, and the later, Siberdik culture differs from the Sumnagin. It is also evident that the Ushki culture, and not the Diuktai, could have played a certain role in the settlement of pre-glacial America even before influence could have spread through Chukotka to Alaska from the Diuktai culture.

One should briefly remember the basic hypotheses of settlement of America in the works of foreign and Russian scholars—our predecessors and contemporaries.

It became almost generally acknowledged that America was settled from Northeast Asia by people of modern appearance—*Homo sapiens* (Alekseev 1969, 1972, 1973; Chard 1969; Debets 1951; Okladnikov 1955b; Roginskii 1969; Zubov 1963). Therefore, the problem of initial settlement of America, as well as the northeastern extremity of Asia, is closely related (by a very similar connection) to the problem of the origin of modern people, in particular with the dilemma of its poly-centric or mono-centric resolution.

If one accepts the mono-centric hypothesis and acknowledges that modern people first appeared in the western Old World, and then from there settled eastern Asia, assimilating with or forcing out the indigenous paleo-anthropos, then it is clear that in such case a longer time must have passed before their expansion into the extreme Northeast and into America than if their own cradle of sapientation was in eastern Asia, in accordance with the poly-centric hypothesis (Weidenreich 1938).

Acceptance of the poly-centric hypothesis would give migrants to the Northeast a "starting" advantage in the thousands-of-miles route and, consequently, at least a few millennia in time. However, if one agrees with a later variant of poly-centrism, more precisely, di-centrism—drawing together two sources in the framework of northeastern Africa and Southwest Asia (Zubov 1970), then this advantage is very insignificant.

Thus, even accepting poly-centrism in its last, most probable variant, we see how important the route remained from the eastern cradle of sapientation in Southeast Asia to Bering Strait. Of course, by itself it does not resolve the chronological aspect of the problem of settlement of America, though it gives some objective representation of the lower boundary of the date of the earliest movement into this continent by people of modern form, which, as we see, is directly dependent on the date of their origin. The latter, unfortunately, is still very much discussed and fluctuates over a rather broad range: from 50,000 to 54,000 years B.C. (Yakimov 1972) and even 70,000 years, which is very questionable (Reshetov 1965), to 40,000 years (Ivanova 1965). The youngest of the named dates is sufficiently corroborated by reliably factual data and coincides both for Central and Southeast Asia (Boriskovskii 1971). Therefore, based on this minimal estimation of age of the first people of modern appearance, the first settlement by them of America could probably occur no earlier than 40,000 to 35,000 years ago. The supposition of an earlier settlement of America (50,000 to 100,000 years ago) (MacNeish 1971) inevitably leads to the contradictory (from the point of view of modern anthropology) conclusion that America had its own initial cradle of sapientation. In addition, it should be considered that people found themselves in Northeast Asia, and then on the American mainland, only after they learned to adapt to a cold climate by inventing warm clothing and houses. This most probably occurred in the Upper Paleolithic, not in the Lower.

The incompleteness of anthropological and archaeological data places serious limitations on the resolution of this problem. No traces in eastern and northern Asia up to the present

of an initial Upper Paleolithic culture of Amero-Asiatics have been discovered together with paleo-anthropological remains from which the earliest Paleo-Indian culture could directly have emerged, be it with bifacially worked stone points (bifaces) or without any points.

The problem of the antiquity of the penetration of man from Asia into the Americas is being resolved by intensive archaeological investigations both in North and South America. Interpreting the radiocarbon determinations of the age of archaeological remains difficult; scholars ascribe the appearance of man in the Western Hemisphere to different times. By the strictest estimation of geologists, this event belongs to the thirteenth to fifteenth millennia from the present to the very end of the last late Pleistocene (Sartan) glaciation, when a narrow passage to the south between the ice sheets of North America began to emerge or had possibly already emerged (Gromov 1969; Haynes 1971).[7] To this time belong sites with Sandia and Clovis points, and then Folsom points, which are indisputably dated (according to the "short" chronology), at least from the point of view of geologists. Other investigators suggest an age of the presently known earliest archaeological finds as substantially more—20,000 to 35,000 years (Campbell 1963; MacNeish 1963, 1971; Mochanov 1966, 1977) (and in the opinion of some of them, going even into the Middle Paleolithic) (Laricheva 1966, 1976a). In this regard, the American archaeologist Krieger (1964) distinguishes an earliest "pre-projectile point" stage, preceding, in his opinion, the specific North American projectile points of Sandia, Clovis, and Folsom. These stages of points are dated by some researchers by long chronology: Sandia—26,000 to 17,000 years; Clovis—17,000 to 12,000 years; and Folsom—12,000 to 10,000 years (Laricheva 1976).

Assigning a substantially deep Upper Paleolithic age to the earliest traces of people is corroborated by the recent discovery of two well-dated sites. One of them, Wilson Butte Cave in the state of Idaho, is dated to 15,000 years (M-1410). The other—Tlapacoya near Mexico City—has, in the opinion of some archaeologists, an even earlier date—23,000 years. Keeping in mind the age of these two sites and that at that time the ice barrier, which entirely isolated the New World over the course of 13,000 years, already existed, C. S. Chard concluded that man appeared in extreme Northeast Asia no later than 23,000 years ago and almost certainly somewhat earlier (Chard 1968, 1969:142).

H. M. Wormington (1971) takes a more conservative position with regard to the Tlapacoya site, considering its date not entirely reliable. Nevertheless, this authoritative researcher of the American Paleolithic (who, in fact, introduced the term "Paleo-Indian," and then distinguished five Paleo-Indian cultures within the United States), in a symposium on early man in the North America in 1970 in San Diego, made a bet with MacNeish that by 1980 the antiquity of the American Paleolithic would be convincingly established at more than 25,000 years (Wormington 1971). This is all the more significant in that Wormington rejected the "pre-projectile point" stage and thus reckoned on such an early and absolutely reliable date for the Sandia culture. A recent find of a bone point at Old Crow in Canada (dating to 27,000 years by C-14), which Wormington values highly, though A. Bryan doubts its age (he suggests that early people could have used fossil bone), is a good harbinger of reliable data earlier than 25,000 years (Harington 1975; Wormington 1971). Meanwhile, the early dates of the American Paleolithic (to 40,000 years and more) are very approximate and will be made more precise based on the appearance of well-dated archaeological materials.

[7]See Vol. II, Part II, "Archaeology," as well as the Preface by V. I. Gromov, 1969.

The question of the sources of Paleo-Indian culture from the point of view of their makeup is of definite interest in connection with the theme we touched upon, as well as with regard to the routes and stages of its penetration through northeastern Siberia into North America. This problem has its history and Chester Chard plays no small role in resolving it.

Chard was one of the first to attach proper significance to the eastern Mousterian-Levallois sites of the Old World in connection with the problem of the origin of the earliest Paleo-Indian cultures of America. He notes features similar to Paleo-Indian (in particular, rudiments of the blade technique, and in some cases, the presence of bifaces) in the Mousterian-Levallois Dintsun' complex; in Ust'-Kanskaia Cave in the Altai, investigated by S. I. Rudenko; and in the Mongolian Mousterian-Levallois sites of Ottson'-Man't and others, discovered by A. P. Okladnikov (Chard 1959, 1963:115–121, 1969:139–146; Okladnikov 1973; Rudenko 1960).

At the same time, Chard did not limit the problem to the discovery of only this Central Asian source of Paleo-Indian culture, rather he convincingly showed the presence of another tradition going back to the cobble industry of Southeast Asia, as well as an Aurignacian influence later (Chard 1969:139–146).

Proceeding from the paleo-geographic conditions of Northeast Asia during the period of the Sartan glaciation, Chard suggests that there were two routes of human migration to Bering Strait, which at that time was dry, and farther toward Alaska along northeastern Siberia during the Upper Paleolithic: (1) from the south along the Okhotsk coast and then along the Anadyr'-Penzhina lowland, and (2) from the lower reaches of the Lena along the coast of the Arctic Ocean. Cultures with a predominantly cobble tradition penetrated into North America by the first route. The Pacific watershed, in Chard's opinion, separated the Far Eastern Pacific cultural zone from the inner-continental eastern Siberian zone and was a permanent barrier between them, which stimulated movement along the coastal zone of the Sea of Okhotsk toward the north in the direction of Kamchatka and Beringia during the periods of glaciation when this coastal route was accessible and restricted it during interglacial periods to the Amur River basin and adjoining areas (Chard 1960, 1967).

As for the stages of settlement of America, Chard adheres to the opinion that earlier than 27,000 years ago there was only the possibility of movement of people in the northern direction to America, and that during the course of the last 27,000 years Alaska and Beringia could have been settled uninterruptedly, although intercontinental contacts and access to interior areas of North America over the course of 10,000 years was prevented by the Canadian ice barrier (from 23,000 to 13,000 years ago) (Chard 1967, 1969:141).

Chard's hypothesis about the sources, routes, and stages of settlement of America does not suffer from the one-sidedness that is peculiar to many other hypotheses, which, as a rule, are "attached" only to those sites and cultures that were investigated in the field by the authors of the hypotheses themselves. This bold and well-disposed hypothesis immediately attracted attention and enlivened elaboration of the problem.

The basic aspects of the problem of the settlement of America are also developed and defined by Campbell, Wormington, MacNeish, Müller-Beck, Borden, Bandi, Ikawa, Malaurie, Laughlin, Okladnikov, Vasil'evskii, Laricheva, Mochanov, and others.

Thus, with care and reserve in the dates, Wormington (1962:230–242, 1971) derives the American Paleolithic from the region of Lake Baikal, where, in her opinion, the blade technique of the Paleolithic of southern Siberia was mixed with the Asian chopper tradition and was spread from there to Bering Strait, which, she believes, was not an obstacle in the Paleolithic even during the submergence of Beringia. Fluted points, as she has said for a long time, emerged in glacial America convergently (she adheres to the short chronology for the Folsom and Clovis cultures in this). It is curious that P. Bosh-Gimpera also considers it possible to derive the Paleolithic of America from the Lake Baikal region, though he bases this conclusion on the similarity of petroglyphs there with cliff illustrations near the Great Lakes, as well as in Patagonia and California (Bosh-Gimpera 1968:175). Other data based on Paleolithic art do not agree with this conclusion: a Paleo-Indian engraving of a mammoth on a slab from Delaware (an eastern North American variant of the Clovis culture—Enterlay complex) most probably has, in the opinions of V. E. Larichev and I. P. Laricheva, a convergent origin independent of the Old World (Larichev and Laricheva 1976:127).

Campbell discovers in the complex of stone artifacts investigated by him from the Kogruk site (in Anaktuvuk Pass in the Brooks Range of northern Alaska) Levallois typological features, and derives this complex from Europe, substantiating from all angles the advantages of a northern tundra route from Europe to Beringia (Campbell 1963).

MacNeish, investigating sites in the southwestern Yukon, uncovered several traditions, the earliest of which in Alaska—British Mountain—he connected in origin with Mal'ta and Buret'e (MacNeish 1964:366). However, as Abramova correctly notes, he did not consider the fact that the Levallois-Mousterian technique was not at all characteristic for these earliest Pribaikalye sites (Müller-Beck 1966).

Müller-Beck, having summarized vast material, viewed the origin of only two traditions of Paleo-Indian culture, specifically the tradition with biface points and Aurignacian with unifaces (though he also acknowledges a "pre-projectile point" tradition or stage). Having subjected the aggregate of geological, paleo-geographical, and ecological factors to interdisciplinary study, he maintains a discontinuous settlement for America across the Bering Land Bridge during the following three stages.

1. First stage: 40,000 to 35,000 years ago—intrusion into Chukotka of a Mousteroid culture of the Kostenki type (with bifaces).

2. Second stage: approximately 28,000 to 26,000 years ago—penetration of this culture by the Bering Land Bridge and the Canadian ice-free corridor into the territory of the lower United States.

3. Approximately 20,000 to 12,000 years ago—interruption in the settlement of northern northeastern Siberia and Alaska owing to the severe cold of the Sartan glaciation.

4. Third stage: about 11,000 to 10,000 years ago—penetration into Chukotka and Alaska of an Aurignacian culture meeting a returning movement of the Plano culture from the central regions of North America. The mixing of these cultures led to the formation of the Eskimo culture (Müller-Beck 1966).

Concerning this hastily produced imitation of an efficacious hypothesis, the eminent Russian specialist on the Paleolithic G. P. Grigor'ev responded quite negatively, turning attention to the

imperfection in the methods of its argument. Grigor'ev notes that in fact, Müller-Beck's hypothesis is doubtful, based as it is on the uncertain similarity, stated by him, of the European Paleolithic technology and the technology of the Paleo-Indian cultures. As evidence for a "Solutrean" migration from Europe into America, for example, Kostenki and the Paleo-Indian Plano culture are equated. But in general, they have only bifaces in common (Grigor'ev 1973:203) (as we saw above, Mochanov's method of determining traditions is also characterized by this approach).

Geologist C. V. Haynes, like Wormington, believes that people could have crossed Bering Strait in summer by water and in winter by ice during the last 30,000 years. Dividing the whole Paleolithic of America into three Paleo-Indian stages (Sandia, Clovis, and Folsom), he suggests that using projectile points to hunt large animals was characteristic for all of them. Leaving open the question of whether the origin of the Clovis culture was indigenous or Asian (which he dates in the framework of the short chronology), he is convinced that Folsom fluted points appeared first in Alaska under conditions of isolation and only from there found their way along the ice-free corridor (which was opened 14,000 years ago) into glacial America (Haynes 1969:5, 22, 1971:15). However, he is not supported in this by other American archaeologists, in particular, Wormington (1962). Bryan especially sharply disagrees with Haynes. He does not accept Haynes's Paleo-Indian schema and suggests that the Paleo-Indians enjoyed a complex and multi-layered economy, not just the hunting of large game. In this regard, Bryan's concept is more flexible and broader (Bryan 1975).

E. Borden, investigator of the site with perhaps the most components in the Western Hemisphere, which is located in the lower Fraser River canyon in British Columbia, gives irrefutable evidence of early penetration into North America of a cobble tool culture. Similar tools of the uniface chopper type (among them are also those with a beak-like point, as at Osinovka on the Amur and at Filimoshki on the Zeia River, discovered by Okladnikov) were found by Borden in the lowest level of the named site, forming there the so-called Pasik complex, dating to the Two Creeks Interglacial stage (11,442 ± 350 B.P. by C-14). This complex, in Borden's opinion, could have arrived in northwestern North America from Southeast Asia before the Wisconsin Glaciation (Borden 1970:331–334).

H.-G. Bandi, in his summary work on the early Eskimos, gives great significance to the mentioned Pasik complex, and like Borden, interprets it as one of the earliest Paleo-Indian complexes appearing in the Fraser River valley from the south, since from the north at this time access was still closed by glaciers. Before this the culture had penetrated into the central regions of North America from Southeast Asia no later than 23,000 years ago (Bandi 1969).

Thus, we see that the Pacific route from Asia into North America is not simply a hypothesis, but a reality. Other archaeological finds attest to the fact that by this route, just as evidently by the Chukotka Arctic route, passed migrations or cultural influences to Beringia or Bering Strait, especially the Hoshino complex with cobble tools: uniface choppers and massive skreblos, and flakes, similar to Levallois (Ikawa 1968; Serizawa 1970:350–357), as well as the cobble tools with "beaks," mentioned above, found by Okladnikov at the Filimoshki on the Zeia River (Okladnikov 1973:55). Both this and other complexes probably belong to the middle Pleistocene. Corroborating later contacts in this Pacific zone, in the opinion of the American researcher Ikawa, is the similarity of large knife-like blades of the Horoka complex (Hokkaido, 16,300 years ago) with knife-like blades of the Clovis type found by Green in Mexico (Ikawa 1968; Laricheva 1970:Fig. 1). In this connection, I. P. Laricheva recently turned her attention to the

developed blade and burin technique of pre-ceramic Japanese cultures (Laricheva 1970:150). V. E. Larichev also pointed to possible contacts of the earliest cultures of Asia and the New World, noting the early appearance in Japan of the technique of bifacial percussion flaking; the making of bifaces, spear points, and conical and semi-conical cores; and the grinding of point bases (Larichev 1970:108). These contacts could have been carried out, of course, only along the Pacific route.

As if in confirmation of these views, the extremely interesting interdisciplinary historical-ecological and paleo-geographical research of J. M. Malaurie appeared. It convincingly testifies to the great role of the Pacific coast in the spread of the Paleolithic population into Beringia at the end of the Ice Age. Along the southern edge of Beringia, just as along the northern, the population spread to America. Providing evidence of this, in his opinion, are the Ushki sites (Cultural Layer VI) in Kamchatka and the early Aleut site of Anangula (Malaurie 1970). R. S. Vasil'evskii very quickly took up this idea and in his book vividly reproduced some archaeological materials relating to early proto-Aleuts by both Russian and American researchers (from the latter, using predominantly Laughlin's material on Anangula) (Aigner 1966; Denniston 1966; Dikov 1964b, 1967d, 1969b, 1971a, 1971b; Laughlin and Aigner 1966; Semenov 1963; Vasil'evskii 1973). He borrowed Laughlin's idea of a genetic connection of Anangula with a Japanese "pre-ceramic culture" through the realm of a late Ushki Paleolithic. It is worth mentioning that I have also had occasion to write about connections between Anangula and the Ushki sites, Cultural Layer VI, suggesting they were proto-Eskimo-Aleut (Dikov 1967d, 1969).

Russian physical anthropologists have also turned their attention to the problem of the settlement of America. G. F. Debets, who wrote a large, detailed work on this theme, on the basis of the study of blood groups, finally concluded that the Indians of America descended from one small group of the population (Debets 1960). An effective hypothesis was proposed by A. A. Zubov. He believes that America was settled in at least two stages and that the Eskimos and Tierra del Fuegans, as well as some Indian tribes from unfavorable regions difficult to access, are relicts of the earliest Paleo-American ethnic stratum. Their anthropological type is the most archaic, and they share a whole complex of Paleo-American traits (short stature, head shape, broad nose, thick lips, wavy hair, dark skin). They are similar also in dermatoglyphics (Zubov 1968). And this, of course, is the result not only of bipolarity, the adaptation to the same climatic conditions, as V. P. Alekseev (1967) suggests, but also of the commonality of their origin. The Eskimos, California Indians, and Tierra del Fuegans are descendants of the earliest Paleo-Americans, the first discoverers of America. If Eskimos are a product of the mixing of the earliest Paleo-Americans with a subsequent late Pleistocene and early Holocene wave of migrants into North America, then the Tierra del Fuegans have preserved the initial anthropological type and some original elements of culture in the purest form.

Two recently published summarizing books—by Laricheva (1976a) and by Mochanov (1977)—contain mutually exclusive conclusions on the problems of the settlement of America from Northeast Asia.

Laricheva conducted a huge source study and historiographic work in order to overcome needless skepticism and distrust with regard to the earliest sites in North America, and to some degree she was successful. She convincingly showed that the American Paleolithic (which she dates by the "long chronology") is a separate phase of the Upper Paleolithic of the world that developed convergently under conditions of geographic isolation. Correspondingly, she revised her previous

point of view regarding the role of the Japanese Paleolithic in the formation of the American Paleolithic industry of knife-like blades, burins, and bifaces. All these elements emerged in America, in her opinion, entirely independently of any kind of influences from the Old World, including the Japanese Islands. Laricheva's unconditional acknowledgment of Krieger's "pre-projectile point" stage (dating to a period from 50,000/40,000 to 27,000 years ago), from which, in her opinion, the whole Upper Paleolithic of America (except Denali, its latest culture) developed, lies at the base of her reconstruction of the Paleolithic past of America. In its main features, this reconstruction appears entirely logical, though the conclusion about the unique "experiment" of Paleolithic convergence in America, set up by "nature itself," is still in need, of course, of strict control to maintain the "purity" of this experiment. In this connection, it should be mentioned that both Laricheva and Wormington, and some other researchers, still allow the possibility of the existence of a land route into glacial America along the Cordillera even during the period of its glaciation, and they believe Bering Strait was passable during interglacial periods. On the whole, the concept maintained by Laricheva, and hotly supported by Arutiunov in the preface to her book, is more fruitful than Mochanov's opposing hypothesis about the role of the "Diuktai people" in the settlement of the New World.

Mochanov, as is well known, substantially changed his previous hypothesis of the settlement of America by an Arctic route from Yakutia and Chukotka by bearers of the the Diuktai (35,000 to 22,000 years ago), "Ikhine" (22,000 to 10,000 years ago), and "Sumnagin" (10,000 to 6,000 years ago) cultures (Mochanov 1969a), now conceding the possibility also of a Bering Sea route (the Maiorych site) to North America (Mochanov 1972). But as before, the theoretical base of his hypothesis is the doubtful ideas of Müller-Beck about the decisive role of bifacial and unifacial traditions of the Old World in the emergence of the American Paleolithic, the ideas of geologists about the dynamic system of the "Bering Land Bridge" and the "inter-glacial corridor," and Chard's notions of Asian Middle Paleolithic sources of the American Paleolithic. Proceeding first from the "long" chronology (Mochanov 1966a) and then from the "short" chronology (Mochanov 1977) of the Sandia and Clovis cultures, postulating a general similarity of the Diuktai with them, and always categorically rejecting a "pre-projectile point" stage and even the possibility of subsequent bifacial convergence in America, Mochanov concludes a major role in the initial settlement of America by mammoth hunters equipped with bifacial spear points (bearers of the Diuktai culture), the spread of the Diuktai tradition into America beginning seemingly 35,000 years ago and later, and the subsequent migration of "unifacial Sumnagin people," who 10,000 years ago replaced the Diuktai people (Mochanov 1977).

However, this speculative construction by Mochanov does not at all agree with the facts. Contradicting it is the complete lack of Diuktai wedge-shaped cores in any of the Paleo-Indian glacial cultures of America, which Abramova, Haynes, Laricheva, Larichev, and other Russian and foreign archaeologists who did not accept Mochanov's hypothesis immediately noticed (Abramova 1973; Haynes 1976:435; Larichev and Laricheva 1976; Laricheva 1976a:136). The author of this book also noted connections of the Diuktai culture and the Ushki culture (Cultural Layer VI), which is similar to it, only with the late Paleolithic sites of Alaska (Donnelly Ridge, Healy Lake, Akmak, Campus, Teklanika East, Teklanika West, Anangula, and others) (Dikov 1969, 1971a). The researchers noted, focusing mainly on the biface technique—allegedly the same for Diuktai and Clovis—that Mochanov entirely ignored its result—typology (Larichev and Laricheva 1976). Under the pressure of criticism, Mochanov is left to take refuge in the sheer speculative creation of a Diuktai bifacial subtradition without wedge-shaped cores (earlier than with them). He

believed that this subtradition had not yet been found anywhere, but if it suddenly was, then the earliest American Paleolithic could allegedly be derived from it (Mochanov 1977:239). In this regard Mochanov rested his hopes on the Kukhtui III site, but judging by the material he published (Mochanov 1977:87, Pl. 28), it turned out to be related not to a Pleistocene Diuktai culture, but rather to a Holocene culture of the upper Kolyma to which the lower layers of the Maltan site, which we examined, are affiliated: the same triangular bifacial dart and arrow points, skreblo-like/adze-like tools, leaf-shaped biface knives, and incompletely retouched knives on large flakes (Dikov 1977b:Pls. 194, 195).[8]

Even if Mochanov finally discovers such a subtradition, it will no longer be Diuktai. It is not difficult to propose that to this completely independent and entirely non-Diuktai tradition can be assigned even now, for example, Kumary III, with its bifaces convergent with regard to Diuktai bifaces and without wedge-shaped cores (Derevianko 1973). It is also possible to assign to it, or rather, to another independent non-Diuktai bifacial tradition, the early Ushki Paleolithic culture, the remains of which were preserved in clear stratigraphic conditions in Cultural Layer VII of the Ushki sites, covered by Cultural Layer VI with artifacts of Diuktai appearance.

It is quite evident that in this complex, problematic situation the Kamchatka and Kolyma Paleolithic materials, obtained in recent years by the Northeast Asian Interdisciplinary Archaeological Expedition of SVKNII DVNTs AN SSSR, take on exceptional significance. We will proceed to examine them.

The Early Ushki Upper Paleolithic Culture of Kamchatka and the Hypothesis About Its Role in the Settlement of America

The earliest of the Paleolithic cultures that we investigated in the Northeast is Cultural Layer VII at the sites of Ushki I and Ushki V. It is absolutely isolated from the Paleolithic layers lying above, since it is covered by undisturbed layers of rosy-yellow loam and gray sandy loam with bands of sand, as well as superimposed volcanic ash.

In this layer were discovered traces of hearths that are dated to a time of 13,000 to 14,000 years ago (13,600 ± 250 and 14,300 ± 200 B.P.). Traces of them are preserved on the shore of the lake at a depth of more than 2 m, which corresponds to 5 to 6 m nearby on the bank of the Kamchatka River.

At the present time a rather large area of Cultural Layer VII (at Ushki I, 1,320 m^2; and at Ushki V, about 150 m^2) has been opened, as a result of which two large Paleolithic camps were discovered, the earliest in the northern Far East. In essence, these are the only Upper Paleolithic sites of such early age in Northeast Asia (including all of Yakutia) and the Far East that provide fully preserved remains of many houses and even a burial. The latter, found in 1964 at Ushki I and, as supposed typical for Paleolithic burials (Grigor'ev 1968:162, 163), was constructed directly in the site between the large, wholly surface dwellings near early hearths, some of which were covered with

[8]See Figures 35–38 in this work.

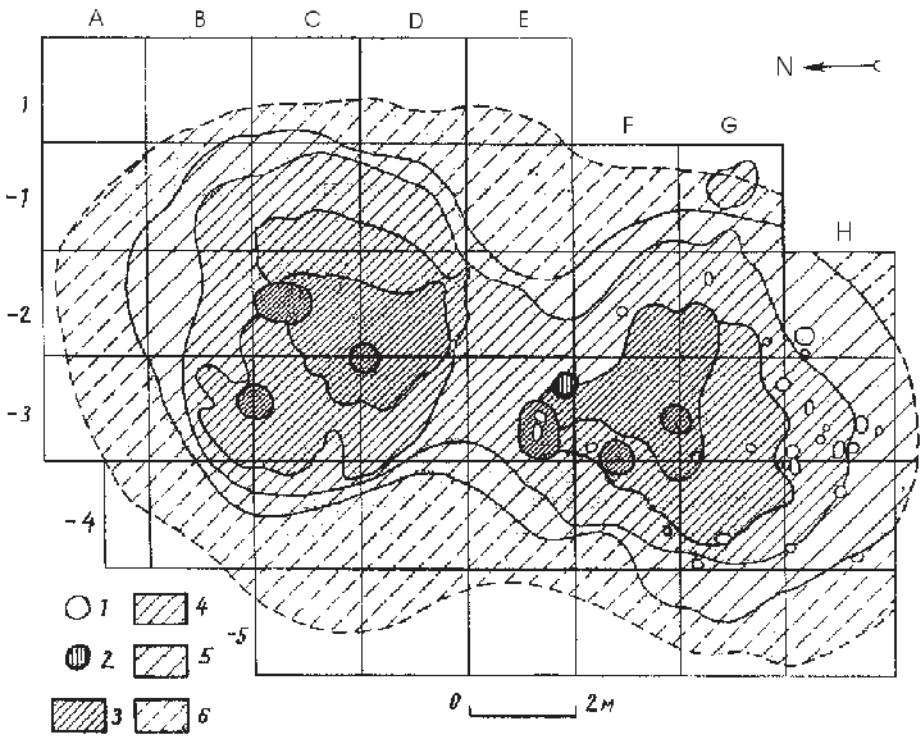

Figure 2. Carbonaceous area of a double Paleolithic dwelling in Cultural Layer VII at the Ushki I site. 1—pits; 2—stone; 3–6—amount of charcoal (corresponding to the density of the sloped lines).

debris from the burial pit. Round in plan (about 2 m in diameter) and deep (to 1 m), the burial was filled from top to bottom with mixed earth containing charcoal and lumps of red ocher. On its bottom, in red ocher, was a large number (881 pieces) of flat pyrophyllite and amber beads and biconically drilled pendants, as well as chalcedony points for making them. Owing to the intensive water saturation of the cultural layer, only yellowish traces of the bones were preserved in the burial and, judging by them, the deceased had been laid in the grave probably in flexed form, with bent legs (Dikov 1967d:22–28, 1969:Fig. 3). A substantial area around the grave (about 50 m^2) was also richly filled with red ocher.

Especially abundant materials were obtained here in 1971, 1974, and 1975. At that time, at the Ushki I site large carbonaceous areas were discovered on both sides of the grave (at a distance of about 25 m from it)—the bases of a double dwellings (Dikov 1977b:Fig. 8)—with a substantial number of stone bead blanks just like those in the grave, as well as stone flakes and tools (including numerous stemmed arrow points). At the Ushki V site, in 1975 another double house was completely excavated (Fig. 2) and initial discovery made of two other such houses. As a result, it is possible even now to reconstruct some features of the structure of these houses, as well as features of the village plan.

The most prominent features of the early Ushki houses are their large (more than 100 m^2) size and doubleness, just like the houses in the upper level at Kostenki IV (Rogachev 1970:Fig. 3) and Pushkari I (Boriskovskii 1953:Fig. 89), and the lack of stonework around the hearths, of which each house has several (three hearths in each of the doubled huts). They were scattered in disorder in the middle of the house (forming a rather complex structure in the large carbonaceous central area), as in houses of the second type, according to P. I. Boriskovskii's (1977:41–42) classification. Unlike

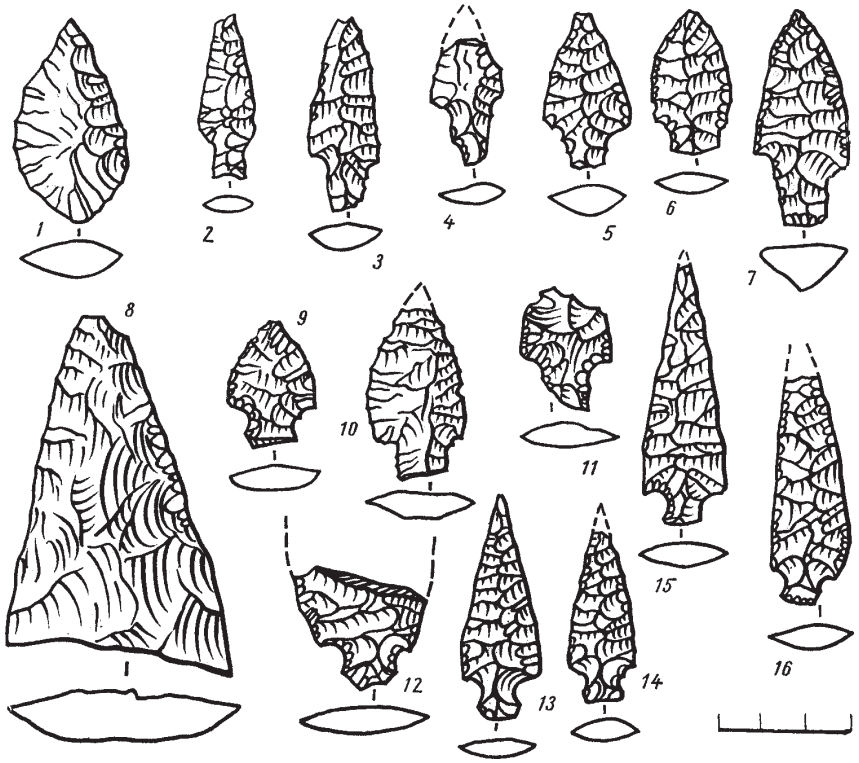

Figure 3. Projectile points from the early Ushki Upper Paleolithic culture (1–16).

the Kostenki and Pushkari houses mentioned, the frame of the Ushki surface huts was built not of large animal bones, but probably of wooden poles covered with animal skins. The primitiveness of the hearth arrangement, without any stone facing, suggests a very archaic appearance for these dwellings, sharply distinguishing them from the house in the late Paleolithic coastal site of Ustinovka on the Tadushi River (Derevianko 1971:33; Vasil'evskii 1973:42) and, of course, from the Anangula pit houses (Vasil'evskii 1973). The appearance of the hearth rather brings them close to Paleo-Indian sites without developed points (the British Mountain culture) or to such large Paleo-Indian living areas as the Debert site in Nova Scotia (McDonald 1966:59–74).

Judging by the thick accumulation of bone and wood charcoal in the complexly structured hearths of the dwellings in the seventh layer at the Ushki I and Ushki V sites, these houses were rather long-term. The question of their synchroneity is still not resolved, but even if there were only one or two houses in the village, its population consisted of no more than six to ten families, corresponding to the number of "smallest living spaces"[9] (each family with one hearth), which made up these houses. This adds significantly to the picture of Paleolithic houses that I. G. Shovkoplias recently sketched. He supposed that late Paleolithic houses were substantially smaller in dimensions and, incidentally, he did not take the Ushki houses into consideration at all (Shovkoplias 1973:49, 50). The data are presently insufficient for a socioeconomic interpretation of the earliest Ushki village; thus, the only thing left is to agree in general with P. I. Boriskovskii, V. R. Kabo, and G. P. Grigor'ev, that a maternal clan community consisting of paired families and carrying out a common communal household economy most probably lived Paleolithic sites of this kind (Boriskovskii 1977:40; Grigor'ev 1972:12; Kabo 1972:62).

[9]We borrowed this idea from G. P. Grigor'ev as it seemed very expedient for such estimates (Grigor'ev 1972:12; see also Gladkikh 1974).

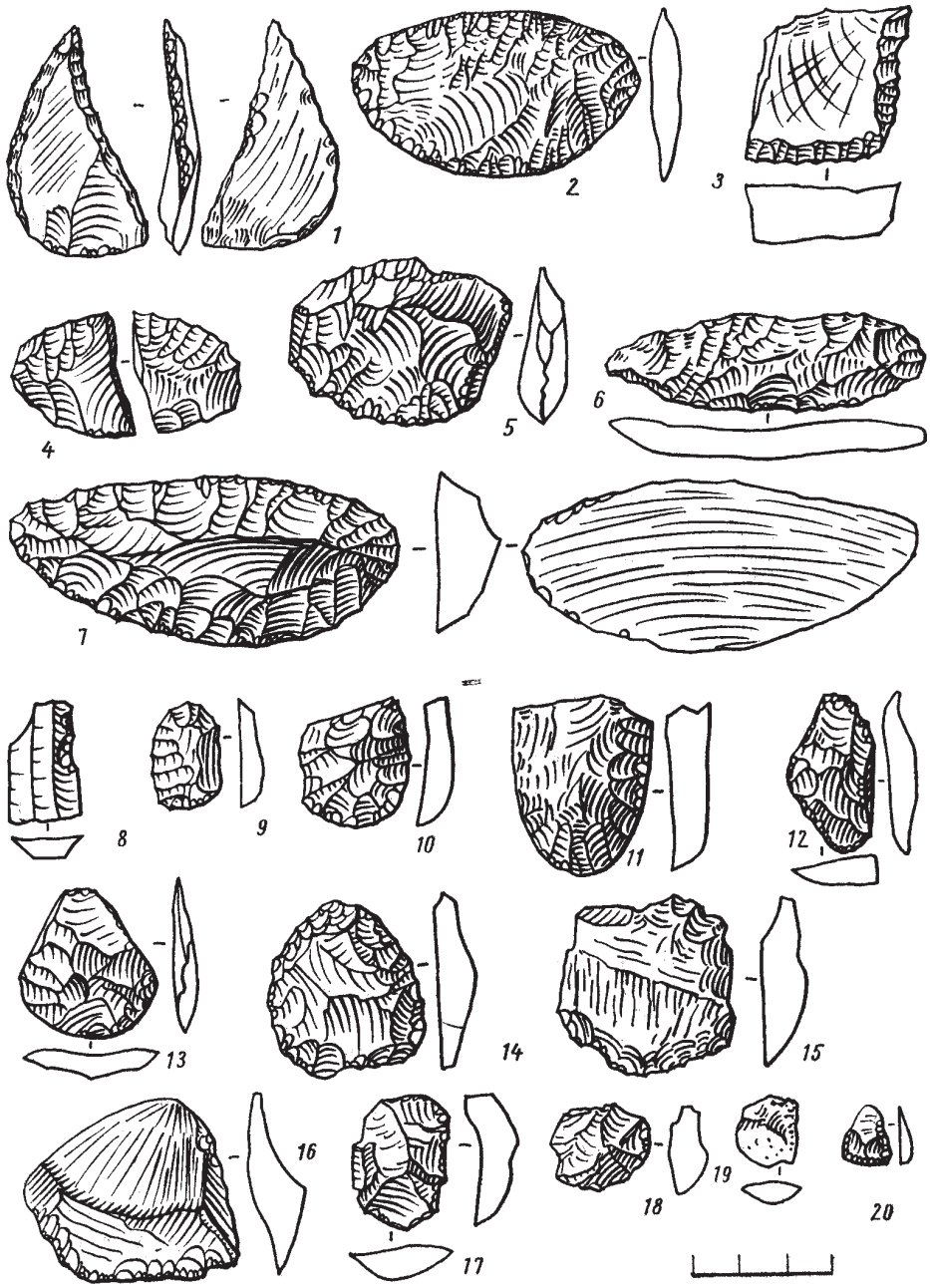

Figure 4. Stone knives and scrapers from the early Ushki Upper Paleolithic culture (1–20).

At the base of stone-working production in the early Ushki Paleolithic culture was the technology of producing flakes from amorphous cores and flaking knife-like blades (Fig. 5:10, 11) from subprismatic cores (Fig. 5:8, 9), as well as probably blades from Levallois cores, which is indicated by a blade similar to Levallois (Fig. 5:12). Wedge-shaped cores were not at all characteristic for this culture, though microblades are encountered on very rare occasions (Dikov 1967c:Fig. 6:3, 4). However, as some archaeologists suggest, they could have been obtained as burin spalls (Hayashi 1968). This is probably even more so as in this culture the burin technique was very well developed (Fig. 5:1–5). The basis of the Ushki stone industry of this period was made up of the combination of two basic technological traditions—unifacial (Fig. 4:1, 7) and bifacial, the latter being prevalent (Figs. 3, 4:2–6).

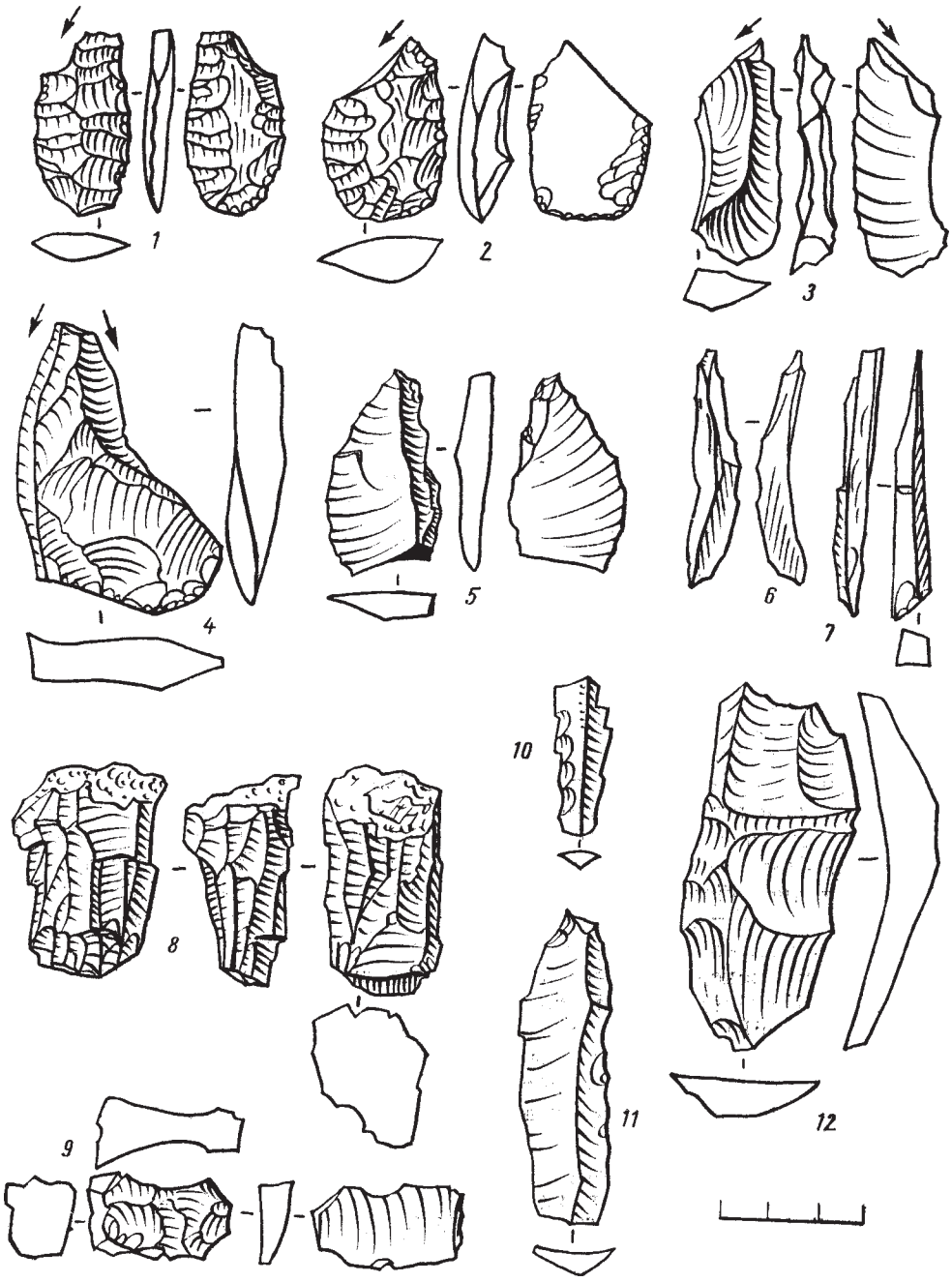

Figure 5. Burins, cores, knife-like blades, and other artifacts from the early Ushki Upper Paleolithic culture (1–12).

Specifically, the stone tool complex of the early Ushki culture consists of arrow and spear points, knives, scrapers, burins, points and punches, cores, a few knife-like blades, and a large number of flakes, as well as beads and pendants, and half-burned (with charcoal) loamy "cakes."[10]

Almost all the arrow points have a flattened lenticular cross section, the points being worked on two sides by complete bifacial retouch, and have a subtriangular blade with convex lateral edges and a stem that is straight or more or less concave along the sides, in some cases having the form

[10]Such "cakes," but somewhat smaller and flatter, were found at Kostenki and Dolní V stonice.

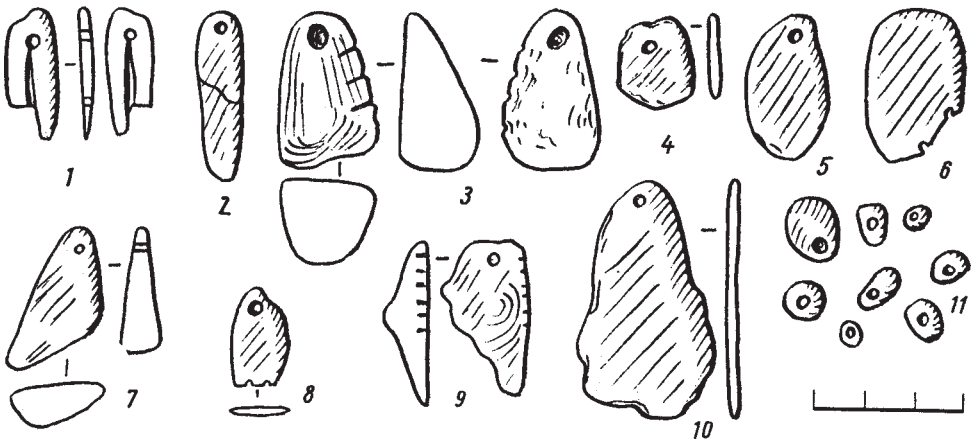

Figure 6. Stone pendants from the early Ushki Upper Paleolithic culture (1–11).

of a button (Fig. 3). Only one point (Dikov 1971a:Table) has a broad leaf-shaped form, while two others (Dikov 1967c:Fig. 6:1) (evidently still point blanks) are only unifacially worked. One stemmed point has a more convex triangular cross section (Fig. 3:7). Two biface fragments can be viewed as spear points; one is a pointed tool (Fig. 3:8), the other preserves the small "button" stem (Fig. 3:16). The analogs closest in time to the stemmed points, as we have repeatedly noted, are in the final Pleistocene and Holocene sites of America (Dikov 1967c, 1971a, 1974b), as well as to some degree in the early Holocene sites of Japan (Tachikawa I) (Morlan 1967:Fig. 23:9), with the complete lack of them in the Paleolithic and Mesolithic of Siberia.

Knives have predominantly a more or less regular leaf-shaped form and complete bifacial (Fig. 4:2, 4–6) or complete unifacial (Fig. 4:7) work. There are also knives on flakes that are worked only by edge retouch (Fig. 4:3). One of them is a pointed tool (Fig. 4:1).

Scrapers of different forms and sizes were made from flakes (Fig. 4:9–20). Sometimes end scrapers are found.

Burins are diagonal on lamellar flakes (Fig. 5:3) or lateral on flakes (Fig. 5:5). But most often they were made from other tools—points, scrapers, or knives (Fig. 5:1, 2, 4)—similar to what is known for the Clovis culture (Laricheva 1976a:Fig. 29). Burin-like points of chalcedony in the form of elongated rod-like or lamellar spalls were made rather crudely (Fig. 5:6, 7) and represent a very distinctive type of artifact primarily intended, according to S. A. Semenov, for working stone plaques, pendants, and beads (Dikov 1967c:28, Fig. 12:6–30).

The last (Fig. 6), except for one pendant (Fig. 6:3), are flat and have traces of rubbing on one surface, which indicates their having been sewn flatwise to clothing (Dikov 1967c:25–27, Fig. 12:1–5). Two pendants have notches: on one there are three (Fig. 6:3) and on the other there are seven (Fig. 6:9). The third pendant is in the form of a "horned oval" with one broken horn (Fig. 6:1). According to A. D. Stoliar's interpretation of such amulets, it is evidently possible to view it as a symbolic female image (sign) (Stoliar 1972:203).

It must be assumed that the basis of the complex economy of the earliest Paleolithic inhabitants of the Ushki camps was not just fishing—they probably settled on the bank of the lake, which has plentiful fishing even now and never freezes—but also hunting—probably driving reindeer, horses, bison (the bones of which were preserved in the deposits of higher, Cultural Layers V and VI), moose (a piece of a moose antler was found in a double dwelling at Ushki I), and possibly even

mammoths, though the last assumption requires corroboration by investigation of bone remains. Hunting was most probably done with the bow and arrow. In any case, the stone points that we found in Cultural Layer VII are very small and would not be of use for equipping spears or even darts. It should be noted that hunting large mammals was by no means the only economic occupation of the Ushki people at this time. Besides the mentioned fishing, their diet was supplemented, of course, by collecting, which is indirectly corroborated by a large, crudely made grinder of volcanic tuff discovered in the fill of the burial pit in Ushki I (Dikov 1967c:25). We mention that also in America during this time the economy of the Paleo-Indians, according to the informed opinions of Bryan and Wheat (Bryan 1975; Wheat 1971), was also complex and did not consist only of the hunting big game, contrary to the opinions of Haynes and Mochanov.

On the whole, the level of the economy and technology was quite high in Kamchatka (the bow and arrow and the grinding of stone ornaments) and not at all lower than in the European Paleolithic, which I have repeatedly stated (Dikov 1967c:30, 1969:112, 1975:51, 1976a:179), and am joined now by R. S. Vasil'evskii (1973), I. P. Laricheva (1976:141), and Yu. A. Mochanov (1977:235). The Upper Paleolithic, as has already been noted (Dikov 1969:112, 171:13, 1976a:165), could not have begun in Northeast Asia essentially any later than in Europe, considering its role in the initial settlement of America, which could have been carried out only by *Homo sapiens* well equipped against the Arctic cold, who had arrived in Chukotka no later than 27,000 to 25,000 years ago on the eve of the Sartan Glaciation, during the period of the severe Karginsk Interglacial.

The culture characterized above is the first truly Paleolithic one discovered in Northeast Asia. The Diuktai culture revealed in Yakutia is of a later stage, while in Kamchatka it is an absolutely later culture. The Sumnagin culture of Yakutia is in essence Mesolithic. At the same time, the early Ushki Paleolithic culture does not resemble either of the Siberian Paleolithic cultures. Therefore, it is natural that the first Kamchatka Paleolithic evidence discovered would become an object of critical discussion and even disbelief.

The stemmed points, very unusual for the Paleolithic of Siberia, in particular provoked disbelief (Powers 1973). Instead of recognizing their great informational worth (indeed, nothing similar was actually known in the Paleolithic of Siberia), the very fact that they belonged to Cultural Layer VII was doubted. Mochanov even indiscriminately rejected the indisputable accuracy of the stratigraphy of the Ushki sites; while he accepted the presence of these points in Cultural Layer VII, he ascribed their presence to their having dropped from Cultural Layer III located substantially above (Mochanov 1977:224).

It is worth saying that the supposition of some mystical displacement of flat stemmed points from Cultural Layer III—for which they are entirely atypical (the points there are three-sided)—into Cultural Layer VII through undisturbed ash and other sterile layers, passing Cultural Layers IV, V, and VI—in which not one such point was found, rather entirely different ones (the points are rhomboid in cross section in Cultural Layer IV and flat leaf-shaped in Cultural Layers V and VI)—does not withstand criticism. What is more, practically no other arrow points except stemmed ones were found in lower Cultural Layer VII—where there were about 30 of them, as is well known—nor any other items from the upper levels. This is especially true of the knife-like blades and prismatic cores characteristic for Cultural Layers III and IV and wedge-shaped cores so common in Cultural Layers V and VI. Also, the "theoretical" base of such an assumption is unacceptable—that the penetration of points from Cultural Layer III into Cultural Layer VII was the result of pits being dug by early occupants of the site—inasmuch as with the disturbance of the cultural layer by

pits, objects penetrate, as we noted above, not from an upper layer into a lower one, but from lower ones to the upper ones, from the level into which the pit was dug.

Mochanov's statements that the stratigraphy of the Ushki sites is not irreproachable, that pits could lead to the mixing of artifacts in Cultural Layer VII, and that we did not take permafrost deformation into account, are based on not being adequately conscientious with regard to the available materials in the stratigraphy of the Ushki sites and on ignorance of the distinctive stratigraphic conditions in the Kamchatka River valley. Mochanov nowhere considers the role of the volcanic ash, which is not only a perfect marker and isolator of cultural layers, but also at the same time provides ideal conditions under which to observe any damage in them, in particular by permafrost formations. The latter, it is apropos to say, were not at all characteristic and practically absent from the Ushki deposits that we investigated—in distinction from the Aldan and Kolyma—as can be seen from our field reports and in the dissertation, with which Mochanov was acquainted, and by the publication of additional controlled stratigraphic investigations conducted in cooperation with geologist E. E. Titov in 1974 (Dikov and Titov 1976; Dikov et al. 1977). Mochanov did not take into account at all the simple fact that if there were any pits whatsoever in the strata at the Ushki sites it would be impossible not to see them since they would inevitably have led to very easily noted disturbance—through color contrast—of the ash bands covering Paleolithic Cultural Layers V, VI, and VII. As I have already remarked, such disturbance was recorded only in the excavation at Ushki I in 1962 and it led to the mixing there of materials only in the upper cultural layer owing to the introduction into that layer of wedge-shaped cores from below (Dikov 1964b)[11] and, of course, by no means in the lower Paleolithic layers. Finally, arguing against the intrusion of artifacts into the lower layers from the upper layers is also the fundamental fact of the confinement of the overwhelming majority of physical finds—and among them stemmed arrow points—to the carbonaceous bases ("floors") of houses covered above by fill without artifacts and by sterile layers of loam and volcanic ash. This fact also relates to the majority of artifacts of Cultural Layers V and VI: pure complexes of artifacts were also found there, which lay in thin carbonaceous layers isolated from above and below, representing trampled and charred earthen house floors. Such a stratigraphic situation, of course, does not lead to the possibility of penetration from above into these isolated carbonaceous strata, covered above by sterile layers, of things from the upper levels, whatever they may be. Meanwhile, it is these carbonaceous areas of the bases of houses that provide complete and characteristic complexes of artifacts: with only stemmed points (just one broad leaf-shaped point in 30 stemmed points) in Cultural Layer VII and only leaf-shaped points (with no stemmed points) in Cultural Layers V and VI (Dikov 1977b:Fig. 9).

While doubting the stemmed points of Cultural Layer VII, Mochanov willingly acknowledges the leaf-shaped points of Cultural Layer VI, which does not seem logical. Mochanov himself once acknowledged the baselessness of these doubts in the dating and stratigraphic connection of the stemmed points.[12]

The clear and irreproachable stratigraphy of the Ushki Paleolithic, and in particular its lowest layer, Cultural Layer VII, is actually an indisputable fact, whether one likes it or not. It would be naive

[11]A detailed analysis of the reasons for the mixing of this part of the upper layer of Ushki I is given in Dikov 1971b:87, 88.

[12]See materials of the All-Union Conference on Problems of the Ethnogenesis of Peoples of Siberia and the Far East held in Novosibirsk on 20 December 1973 (discussion on N. N. Dikov's [1973b] report "The Basic Contours of the Ethnic History of Northeastern Siberia in Light of the Archaeological Data").

to think that the stemmed points are not the most widespread form in many cultures in different periods (from the Aterian stage and Parpallo to the Late Neolithic). But the fundamental fact is that these bifacial stemmed points predominate over all other forms of points in Cultural Layer VII of the Ushki sites and are entirely absent in the above-lying Cultural Layers V and VI, thereby defining the sharp difference of these two cultural layers from Cultural Layer VII and making them comparable through the presence of the wedge-shaped cores and leaf-shaped bifacial points in them with the so-called Diuktai culture. In precisely such stratigraphic context the Ushki stemmed points give maximum information and naturally do not have a place in old schemas. In this is their indisputable value as a new historical source that still requires an interpretation.

A large number of investigators (geologists and archaeologists) have already accepted the dating and the Paleolithic interpretation of Cultural Layer VII of the Ushki sites, together with its remarkable stemmed points (Boriskovskii 1969; Gurina 1973; Ivanova 1969:37; Jelinek 1971; Malaurie and Daniel 1971; Hayashi 1968:172; Powers 1973; Sher 1971:137; Simchenko 1976:14, 1975:157; Tseitlin 1975, 1977; Vasil'evskii 1973:34). For example, the American archaeologist Roger Powers, on the question of the Ushki stratigraphy, considered it more correct to adhere to our data (Powers 1973). At the same time, there exists the personal opinion that under conditions of volcanism the radiocarbon dating of the lower layers of the Ushki sites was possibly too high (Arutiunov and Sergeev 1975:9). However, it is not considered in this that the layers lie substantially deeper (more than 0.5 m) than the layers of volcanic ash and that primarily all the Paleolithic layers in the Ushki sites are water-bearing, and impregnation of the hearth charcoal by ground water lowers, as is well known, the absolute age by radiocarbon (Laughlin 1976a:494). Hence, it can be seen that there is insufficient basis for suggesting that "the most probable age of the Paleolithic layers of the Ushki site falls in the interval 12,000 to 10,000 years ago" (Mochanov 1977:220). Giving such a date for Ushki Cultural Layers VII and VI, Mochanov summarily tries thereby to smear and mask the primary difference between them in order to include both layers in the Diuktai culture—in its final stage. Our opinion, which is based on the facts and known to the reader (Dikov 1971a), is that the culture of Cultural Layer VII at the Ushki sites was fundamentally different from Cultural Layer VI, which covered it above and which is similar to the Diuktai culture. It is interesting that Powers noted in his detailed investigation of the Northeast Asian Paleolithic that Ushki Cultural Layer VII had no basis for being included in the Diuktai culture since, if it were, in his correct opinion, the Diuktai culture would become too heterogeneous and its concept would cease to be useful (Powers 1973). At this Powers categorically insisted on the existence of a vast difference between the complexes of Ushki Cultural Layers VI and VII (Powers 1973).

The tendency not to distinguish Ushki Cultural Layers VI and VII and to view them in combination is noted sometimes among other archaeologists as well, for example, by A. P. Derevianko (1971), I. P. Laricheva (1976a), and to some degree, R. S. Vasil'evskii (1973:126) and A. P. Okladnikov (1977:119), inasmuch as they through some misunderstanding erroneously consider wedge-shaped cores peculiar to Cultural Layer VII in the same degree as to Cultural Layer VI. It is possible that the author himself is also guilty of this, having insufficiently clearly defined the specifics of each of these very different cultures in one of his first works (a popular science one) (Dikov 1969a:113–115), though he later repeatedly clarifies this (Dikov 1969b:93–109, 1970:19–34, 1971:14–17, 1973a:124, 1973b:31, 1973c, 1974:157–162, 1975:44, 1976a:175–181). A. P. Okladnikov's conclusions should be noted. First, he dated the unusual Ushki stemmed points of Cultural Layer VII to the Pleistocene-Holocene transition, showing that they continue to exist in the Neolithic as well, and noting their similarity with points in the pre-ceramic complexes of North and

Central America (Okladnikov 1970:174). Later, he focuses attention on the similarity with those from Anangula in the Village site (dated to 6,000 to 5,000 years ago) (Okladnikov 1977:119; Okladnikov and Vasil'evskii 1976:107); though based on typological indices they are substantially different: the Anangula are leaf-shaped/paddle-shaped, with a straight stem markedly narrowing downward (Okladnikov and Vasil'evskii 1976:109; Figs. 4, 5; p. 110, Fig. 3), while the Ushki are triangular/paddle-shaped, often with slightly concave lateral sides along the stem (Fig. 3). Therefore, Okladnikov's previous comparisons of the Ushki stemmed points with those of North and Central America are more correct. This is corroborated by new analogies from outside the glacial areas of America (south of Canada), which is discussed below. No, there is consequently no reason to doubt the late Pleistocene Sartan age of these stemmed points or, in general, the whole cultural complex of Cultural Layer VII of the Ushki sites. Their age, based on palynological, stratigraphic, technical-typological, and radiocarbon data, is strictly determined as being within the interval 15,000 and 11,000 years B.P.

It was noted earlier that, judging by the isolated position of the early Ushki cultural complex among the known Paleolithic cultures of Siberia, for which stemmed points are entirely uncharacteristic, it may be a surviving fragment of some widespread culture in Northeast Asia without wedge-shaped cores, one possibly earlier than all the known Siberian Upper Paleolithic cultures with wedge-shaped cores (Dikov 1971a). It is remarkable that Mochanov gives an entirely inaccurate meaning to this clear statement, as if we suggest that the culture of the seventh layer of the Ushki sites was one of the earliest in Siberia (Mochanov 1977:224). This view that is ascribed to us is, of course, disposed of right here. Meanwhile, we noted only that our Ushki culture was possibly a relict culture earlier than all known cultures with wedge-shaped cores, and, in any case, earlier than the Diuktai covering it. But these cultures, as is well known, are not the earliest in Siberia. From the very first moment of discovery of the Ushki Paleolithic culture we definitely believed and have repeatedly written that it is not the earliest of possible Siberian cultures and not the very first stage for settlement of neighboring North America, though it could nevertheless have played a specific role in this process covering many thousands of years.

The problem of the origin of this unique Ushki Paleolithic culture is very complex and must be resolved with consideration of its distinctive position at the juncture of Asia with America.

One of the generally recognized primary facts for the resolution of this problem is the separation of the Ushki culture (without wedge-shaped cores) from other Paleolithic cultures of Siberia—the latter having an absence of any analogies to the Ushki stemmed points or in general any roots of the Ushki culture (Powers 1973). Another fact is its notable similarity to the pre-ceramic culture of the Japanese Islands, and especially to such sites as Tachikawa (8000 B.P.), where there are stemmed points and burins very similar to those at Ushki (Larichev 1970).

It has already become traditional to designate by virtue of this phenomenon a special cultural sphere of the Kamchatka Paleolithic (Daniel 1971; Laricheva 1976a; Vasil'evskii 1973:127); V. E. Larichev and I. P. Laricheva have written unequivocally about the spread of the Paleolithic of Hokkaido to the north into Kamchatka (Larichev 1970; Laricheva 1976a:139). The same position is generally maintained by R. S. Vasil'evskii (1973:127). However, comparatively recent data from the Tachikawa III site (8000 B.P.) and other Japanese pre-ceramic sites with stemmed points similar to those at Ushki (about 8000 to 10,000 B.P.) and a developed technology of wedge-shaped cores (Yubetsu, Horoka, and Fukui) in earlier (14,000 to 10,000 B.P.) pre-ceramic sites (with which R. S. Vasil'evskii is inclined to compare Ushki Cultural Layer VII) do not support the notion of a

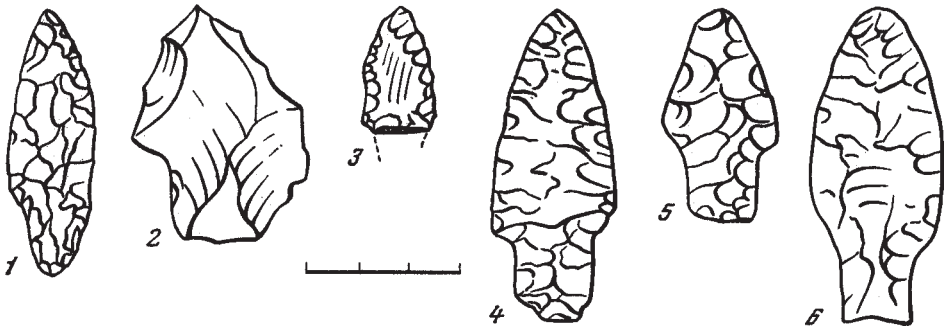

Figure 7. The earliest stemmed projectile points found in America. 1—Sandia; 2—British Mountain; 3—Trail Creek; 4—Marmes; 5—San Dieguito; 6—Palli Aike.

southern—from the Japanese Islands—origin of the Ushki culture very convincingly. It would be most possible to speak of the inhabitants of Hokkaido borrowing stemmed projectile points from the Ushki people, but not about the spread there of a whole culture of the latter inasmuch as for the earliest Ushki people wedge-shaped cores were entirely uncharacteristic.

Finally, several connections are noted between the early Ushki Paleolithic culture and the culture of British Mountain (Daniel 1971; Laricheva 1975:57, 1976a:140), which poses, in this author's view, an interesting question for us in the most correct route toward solving the problem of connections with consideration not only of the Japanese, but also the Alaskan archaeological materials.

In fact, the British Mountain culture, which corresponds to the transition from a stage without points to a culture with points, emerged on the technological base of the "pre-projectile point" stage common for Siberia and America. A cobble technology (cobble tools of the unifacial and bifacial chopper types and Levallois cores), points of Mousterian type, and unifacially retouched flakes unite it with Siberian cultures (Laricheva 1976a:140). In Laricheva's view, it is not at all remarkable that it has features of similarity with Ushki Cultural Layer VII (microblades split from cores, similar (?) in type to cores/scrapers, and bifacially, though crudely, worked knives and artifacts reminiscent of points of primitive stemmed form) (Laricheva 1976a:140).

If our idea is correct that the early Ushki Cultural Layer VII is a relic of a culture earlier than the Siberian cultures with wedge-shaped cores, then the British Mountain culture can give some idea about its still unexposed beginning stage. It is known in Alaska by 20,000 to 18,000 years ago, and one must believe that its area then was broader than is noted by its presently well-known sites (Kogruk, Senda Creek, and Engigshiak), that it embraced Beringia, reaching Chukotka, and possibly Kamchatka. The character of the British Mountain culture corresponds to such a supposition and completely satisfies that base that was most probably found in the early Ushki culture. We see in the British Mountain culture an entirely probable prototype of the Ushki stemmed points (Fig. 7:2) (Schlesier 1967:Fig. 3:o, p, g, r) and bifaces (Laricheva 1976a:123, Fig. 32:9, 27, 28; Schlesier 1967:Fig. 60) with a complete lack of wedge-shaped cores.

The British Mountain culture and the Sandia culture have a common source in the cobble culture without points (in the "pre-projectile point" stage). The opposing advance of the Canadian and Laurentide glaciers, which separated the British Mountain and Sandia cultures about 23,000 years ago, played a huge role in their differentiation. This source can also evidently be found in the idea, already conceived, of a stemmed point with lateral indentations, most probably in the first

attempts of its realization. As a consequence of this, during the course of the cultural divergence that was begun on both sides of the glacier, this point remained a long time in Alaska in its initial primitive form (Fig. 7:2), then later was transformed into the Ushki stemmed point. While in the south of glacial America, the bifacial Sandia biface (Fig. 7:1), which evolved then into the Clovis bifacial point, had acquired completely developed features by 23,000 years ago.

It is usually believed that at the beginning of Sartan times, movement of the population went from Asia to North America. "There is almost no serious objection," writes Laricheva, "against the assertion that at precisely that time (when the Sartan bridge had emerged) the second wave of settlement from Asia into the New World by groups of Upper Paleolithic hunters was begun. And so it apparently happened" (Laricheva 1976:140). Though at first glance convincing, it is possible not to agree with this assertion if one takes into account the stated correlations of the British Mountain culture with the Sandia and Ushki cultures and the role that must have been played here by the advancing and continually expanding Wisconsinan glaciation.

That the periodically changing glaciation of the huge territory must have influenced the settlement and direction of human migrations has been known for a long time. But meanwhile, only the fact that glaciation in North America could either block the route of migrating peoples or open it up by forming "corridors" between the melting glacial sheets has been noted. Thus, S. A. Arutiunov has very recently written about the first movement of Paleo-Indians from south to north after the formation of a passage between the ice sheets, and of the ejection through this corridor from the south to the Arctic of surplus population (Arutiunov 1976:5). Yes, in fact, nature, as they say, "does not like a void," and huge territories, upon release from the glaciers, were sooner or later settled by the surplus population of neighboring territories. And it fell to us to repeatedly write about the role of the glacier as a distinctive gigantic valve and pump, drawing the migrating streams of population through its corridor passages (Dikov 1969). However, up to now the other side of the influence of large-scale glacial processes—the expelling, repelling role of the glacier with its advance—on the human settlement has entirely escaped from view and we must now turn special attention to this. It is easy to imagine how unavoidable expansion of the ice in northern Canada forced people to abandon previously settled places that were now occupied by the glacier, and it must have brought on an outflow of the population in various opened directions, including obligatorily to the north and west—from the territory of northern Canada toward Alaska and through Beringia to Chukotka and Kamchatka. Finally, the "repelling force" of the glacier reached its maximum when after complete fusion of the Canadian and Laurentide glacial sheets it became an absolutely impenetrable boundary. It must be suggested that the waves of migration, as if blocked by an immense dam, spilled broadly and were turned back, and with the attainment of a certain critical density of the population could have brought on a return "flow" toward Chukotka. Thus, it is highly probable that this return outflow of the population went farther, particularly toward Kamchatka along the gradually expanding Beringian shelf, which was entirely unoccupied and closed off from other possible migrational streams from the Anadyr'-Penzhin basin by mountains of the Koryak Range.

Thus, in spite of the supposition of a necessary, total migrational wave from Asia to North America at the beginning of the Sartan period, a hypothesis of opposite significance appears entirely possible: that of the episodic movement of North American hunters into Northeast Asia under pressure of an advancing North American glacier, as a result of which the influence of the British Mountain culture could have spread into the whole vast Beringian zone from Alaska to Kamchatka.

And it is very probable that the British Mountain cultural substrate (unifacial-bifacial with a prototype of stemmed points of Asian-American origin) could have provided the beginning of our early Ushki Paleolithic culture with stemmed points, which were divergently formed in Kamchatka based on substantially more primitive British Mountain stemmed points. Thus, our idea about the relict character of Ushki Cultural Layer VII can be essentially substantiated: this culture is a relic of one produced from a substrate, in the formation of which the British Mountain culture played a significant role.

In forming this Kamchatka Paleolithic culture, a southern influence, of course, must also have played some role inasmuch as it is impossible to deny its proximity to other cultural areas, including the Japanese Islands. Interaction with the pre-ceramic cultures of Japan was probably weak at first, and then increasing, resulting in the expansion into Hokkaido (judging by the Tachikawa III site) of stemmed points similar to the Ushki types, dating to 8,000 to 10,000 years ago (Morlan 1967:Fig. 23:9).

As for the generally negative attitude of Vasil'evskii toward a statement that we allegedly expressed about a "not yet discovered earlier Paleolithic culture with wedge-shaped cores that served as the base for the Ushki Upper Paleolithic culture" (Vasil'evskii 1973:126), this is simply a misunderstanding. We had always indicated the opposite, precisely, that the beginning phase of the Ushki culture, not yet revealed, was without wedge-shaped cores and thus the Ushki Cultural Layer VII was developed on its own base and is a relic of that culture without wedge-shaped cores that had not yet been found in Kamchatka and that was indisputably earlier than any other culture with wedge-shaped cores, including Diuktai. We repeat, this agrees well with our supposition of a Siberian-American British Mountain base for the Ushki culture. And, of course, the pre-ceramic complexes of Japan cannot, contrary to Vasil'evskii's (1973) opinion, explain the origin of such culture because in those cases when the analogies (stemmed points) noted by Vasil'evskii are observed, they are substantially younger (8,000 years ago) than the Ushki ones. In other cases, these "analogies" (microblades and wedge-shaped cores) in fact do not pertain to the matter inasmuch as such things (especially wedge-shaped cores) are entirely uncharacteristic for the Ushki culture.

Such is the problem of the origin of the early Ushki Upper Paleolithic culture, and we see that finding a satisfactory solution requires a departure from the usual ideas about allegedly unilateral migrations from Asia into North America since the beginning of Sartan times and the acknowledgment for the early Sartan of a single Siberian-American cultural region in extreme Northeast Asia, Alaska, and, of course, the now-flooded lands of early Beringia.

The question of a possible role of the early Ushki culture in the settlement of America arose long ago, invoked by its geographic and chronological position and by some features of its similarity with early American cultures, especially the American-like appearance of its stemmed points. Of course, it is a matter not of the initial settlement of America, but rather the role that this culture could have played in its settlement at the end of Sartan times, approximately 13,000 to 12,000 years ago, when in North America the interglacial corridor appeared once again, leading to the interior of the continent from Alaska. In addition, as a possibility for such intercontinental contacts, it is necessary to keep in mind the hypothetical narrow migration corridor along the eastern slope of the Cordilleras during the course of a large part of the Wisconsinan. Various researchers have turned their attention to this, including H. M. Wormington and I. P. Laricheva (Laricheva 1976b; Wormington 1971), though Laricheva in general maintains the position of complete isolation of glacial America from any kind of influence from Paleolithic Asia.

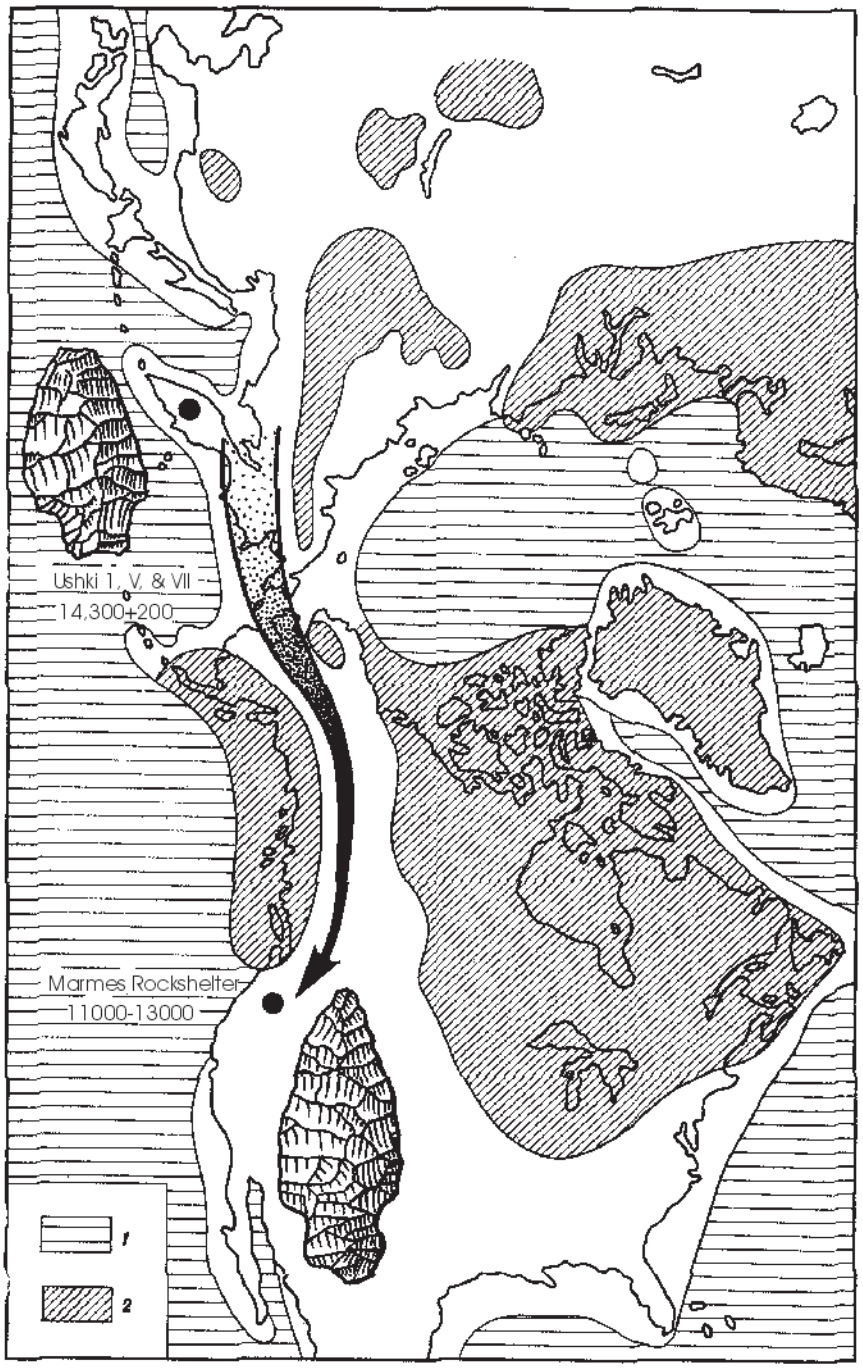

Figure 8. Probable route of spread into America across Beringia of the technical traditions of the early Ushki culture at the end of Sartan times. 1—water area in Sartan times; 2—Sartan glacial sheets.

The appearance in America of stemmed points is generally accepted as falling within a very broad chronological range: they are contemporaneous with the American pre-ceramic period (Okladnikov 1970:174), with early-Holocene Anangula from the Village site (Laughlin and Okladnikov 1975:16; Okladnikov 1977:119; Okladnikov and Vasil'evskii 1976:107, 108), with points from Marmes Rockshelter (Dikov 1970:29, 1976a:177), and even with southern Patagonian from the final Pleistocene caves of Fell and Palli Aike (Dikov 1969:114). Now, with the occurrence

of about 30 of these points (Fig. 3) (with almost a complete lack of unstemmed types) in Cultural Layer VII of the Ushki sites, it is again entirely appropriate to bring forth the most careful comparison of them with American stemmed points.

The closest (in the spatial and chronological sense) analogy with Ushki stemmed points, as we have already noted, is in the lower cultural layer of the flood plain in front of Marmes Rockshelter in the state of Washington in the northwestern United States (Fryxell et al. 1970).

The Marmes Rockshelter site is distinguished by clear stratigraphy. The lower cultural layer, dating from 13,000 to 11,000 years ago (Fryxell et al. 1970) or slightly more than 10,000 years (Irwin 1971), belongs to the so-called Windust phase with stemmed bifacial points—the first of six phases in the prehistory of the northwestern United States. It was replaced in the seventh millennium B.C. by the Cascade phase with leaf-shaped bifacial points belonging to the Old Cordilleran tradition (the upper strata of the Marmes Rockshelter site, the DiRi-3 site, and others). The Windust phase is characterized by the hunting of large animals (in particular, moose) and probably fishing (which is attested by finds of leisters). During the Cascade phase a transition occurred to hunting small animals. Judging by the physical anthropological remains (the most firmly dated so early are in the New World), the population of the Windust phase shows almost no difference from modern Indians (Irwin 1971:57, 58).

The Marmes Rockshelter site can probably be assigned to the earliest stage of the Old Cordilleran culture of the northwestern United States, subsequent stages of which were characterized chiefly by leaf-shaped points (Lerma). However, in some of the early sites of the second stage of this culture (for example, DiRi-3), not to mention Marmes Rockshelter, stemmed points were encountered along with leaf-shaped ones. Later, this tradition of stemmed points transforms into the San Dieguito culture of the southwestern United States, which was formed as a result of a mixture of the Old Cordilleran and Folsom cultures. It is very important to note that the Ushki points have some—only the most general, it is true—similarity with many points of the San Dieguito culture (Fig. 7:5) (Laricheva 1976b:Fig. 41:12, 15).

The fact that the above-cited series of stemmed projectile points can be compared—the earliest being the Ushki and the latest being stages of the Windust (Marmes) and the San Dieguito culture emerging in western glacial North America only after the formation of the glacial corridor—permits the assumption of the first penetration of stemmed points from the Ushki culture from Northeast Asia either immediately after the formation of the glacial corridor (13,000 to 11,000 years ago) or possibly even earlier along the hypothetical Cordilleran passage considered by Wormington and Laricheva. Meanwhile, there is only one intermediate vestige of this migration of Ushki type points and it consists of a rather dubious fragment of a bifacially worked—judging by the fragment—stemmed point (Fig. 7:3) from the Trail Creek site, found by H. Larsen and dated to the thirteenth millennium B.C. (Larsen 1968:Fig. 3:i).

The delay of the stage without developed point forms in Alaska and the western United States created a favorable environment for the penetration there of distinct new technological influences, in particular those new types of points from Northeast Asia. As a result, cultures syncretic in the highest degree—the Old Cordilleran and San Dieguito—arise here, having besides their own American roots a Northeast Asian source, a circumstance to which insufficient attention has been directed at present (it is proper to mention that Laricheva never finds material about connections of the Old Cordilleran culture with the North Asian) (Laricheva 1976a).

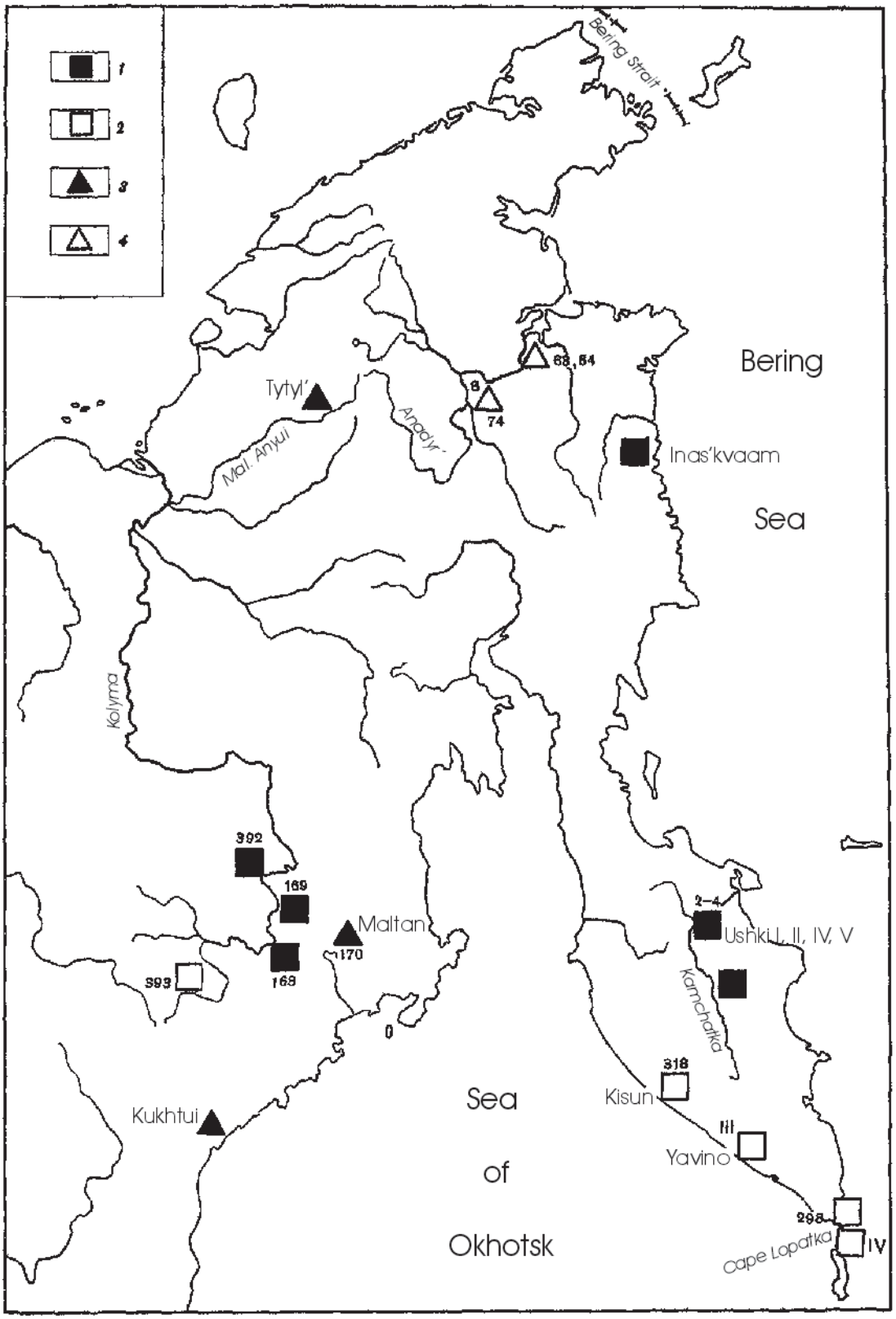

Figure 9. Paleolithic and Mesolithic sites in Northeast Asia. 1—Paleolithic sites; 2—presumed Paleolithic sites; 3—Mesolithic sites; 4—presumed Mesolithic sites; 63, 64—Osinovskaia Spit; 74—Chikaevo; 168—Siberdik; 169—Kongo; 392—Maiorych; 393—Shilo Creek.

By virtue of their syncretic nature these cultures are the least specialized (unlike the Folsom culture) and therefore, having great possibilities for adaptation, could quickly expand ever farther into South America. In any case, the less specialized, handy, and simple stemmed points of these cultures could be taken up with much greater success by South American peoples, who still lived in a stage without developed forms of points, than the highly specialized Folsom points. It is not by accident that we have such an overwhelming distribution of them in the western United States and in South America as far as Patagonia during the Folsom period, and then in the remaining territory of the United States during the Archaic period, when Folsom points completely disappear there. It is thus not by accident that the Ushki Paleolithic points suddenly appear revived in very typical form in late Holocene sites of the eastern United States, in particular at the Lamoka and Hart sites (McNeish 1952:Fig. 12:A, B; Wright and Morlan 1964:Pl. I:Fig. 1).

Earlier the proposition was stated of a genetic relation between stemmed points (with stems in the form of a fish tail) from Fell and Palli Aike Caves (8760 ± 300 B.C.) and the Ushki stemmed points, and correspondingly of the spread of the Ushki culture to the American continent in its early stage, still not revealed, but not later than the beginning of the Sartan glaciation (Dikov 1977:15). We connected such a proposition with A. A. Zubov's hypothesis of the commonality of the origin of the Eskimos, Tierra del Fuegans, and California Indians, which are descendants (according to the named hypothesis) of the earliest Paleo-Americans, who retained the most archaic physical characteristics (Zubov 1968). Then we added a correction to our proposition, having turned attention to the striking similarity of Ushki points with Marmes points and limiting our analogies to Ushki points with western North American cultures of the Clovis period (Dikov 1973a:123, 1973b:31, 1973c:265). Later, almost simultaneously, the possibility of direct genetic connections between Ushki and Patagonian points was subjected to doubt by Vasil'evskii (1973:128) (though we never actually spoke precisely of direct genetic cultural connections between the Ushki site and Fell and Palli Aike Caves). Vasil'evskii provides as the single argument against a connection between Patagonian and Ushki points only the fact that most American archaeologists consider these south Patagonian points a derivative of Clovis (Vasil'evskii 1973:127). This fact (that is, the opinion of some American archaeologists) is generally known, and we noted it earlier (Dikov 1971a:162). However, it is questionable, and problems in science do not get resolved by vote. In any case, an American specialist on this problem, A. L. Bryan, not to mention many other specialists, categorically object to the assertion that points with stems in the form of a fish tail (Fell and Palli Aike), as well as intermediate larger points from Pakhian [Paiján?] in Peru, could derive from Clovis points. It would be necessary to prove, he writes, even if Clovis fluted points were known to appear sufficiently early in the Andes. And meanwhile, in the southern central part of North America, Clovis points are no older than 11,500 years (Bryan 1975:157; Ossa and Moseley 1971:1–16). Another leading archaeologist, C. V. Haynes, argued for this date. The age of Fell Cave is firmly dated to 11,000 years ago (9500 years B.C.) (Bird 1970; Wormington 1971). Thus, the difference in time (500 years) between it and the earliest Clovis sites in the southern United States is clearly inadequate for traversing the route of these points to Tierra del Fuego. Besides, the intermediate points from Paiján in Peru turn out to be generally earlier (8645 ± 370 B.P. to 12,795 ± 350 B.P.) than the Clovis ones in the southern United States (Ossa and Moseley 1971:1–16).

But even if we acknowledge South American points as derivative of Clovis, they are nevertheless stemmed, consequently, deriving from stemmed variants of Clovis points and becoming in their turn stemmed, probably having undergone influence from western American cultures with developed forms of stemmed points, in the production of which, as we showed,

influence could have been rendered from the Kamchatka Paleolithic. And this is moreover probable by the fact that the latter, as many researchers note, possess some features of similarity with Clovis cultures (similar are the burins, knife-like blades, and the developed bifacialness of the tools) (Hayashi 1968:172; Jelinek 1971). Ultimately, it is completely impossible to exclude some, even though remote, influence of this Asian culture on the culture of the North American continent. Nevertheless, the question is not resolved—don't such outlying regions of the Americas as California or southern Patagonia and Tierra del Fuego turn out to be refuges not only for archaic and relict, as Zubov suggests, physical anthropological features, but also archaic cultures of the Paleolithic, which were left for a long time without developed forms of points, and then adopted their later stemmed versions as a result of diffusion of cultural influences from Asia through the western, relatively uninhabited archaeological province of North America.

And finally, there is another consideration. Between cultures of Sandia and Clovis is a hiatus of 10,000 years. The culture of Ushki Cultural Layer VII is somewhat similar to the British Mountain culture and probably arose on its foundation. At the same time, the Ushki culture has some similarity also with Clovis, especially with its western variants. Therefore, is not this Kamchatka Paleolithic culture in a certain sense a link between the cultures without developed points and Clovis? Is it not an intermediate link, which was developed convergently on the Asian side, and then came in contact with the Clovis culture on its western periphery, where traditions of the stage without developed points were preserved longer?

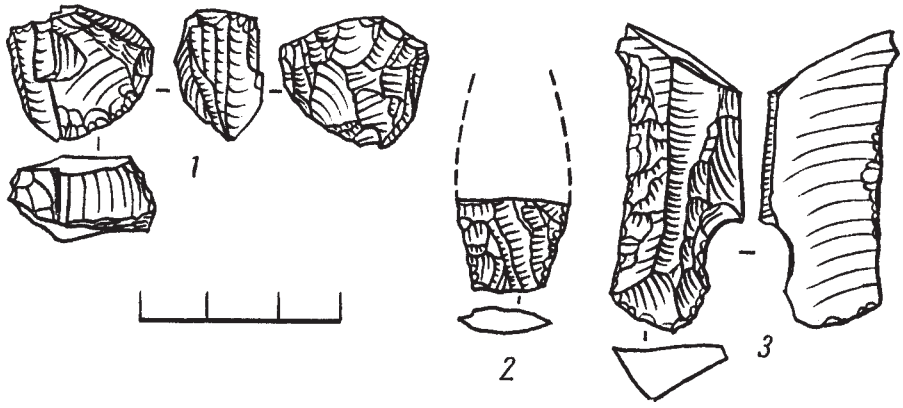

Figure 10. Wedge-shaped core and other tools from the site on the Inas'kvaan River (1–3).

The Late Ushki Upper Paleolithic Culture of Kamchatka

Unmixed Cultural Layers V and VI of the Ushki I, II, IV, and V sites found and excavated within an area of about 2,000 m^2 belong to the second, later culture of the Kamchatka Paleolithic. In addition, a wedge-shaped core, a ski-shaped spall, and a fragment of a leaf-shaped point can probably be assigned to it. These were discovered in 1977 by Yu. A. Koliasnikov in evidently mixed sites on the left bank of the middle course of the Inas'kvaam River in southern Chukotka (Dikov 1969:Fig. 16; Dikov and Koliasnikov 1979). A wedge-shaped core (Fig. 10) from the mixed Chikaevo site on the Anadyr' River can probably be assigned to this culture as well.

On the whole, the culture being examined is sharply different from the one investigated in the deeper Ushki Cultural Layer VII. There the methods of working stone were completely different—small cores of distinctive wedge-shaped form were very widely used, from which the thinnest knife-like blades were split.

Figure 11. Plan of the upper layer of the late Paleolithic dwelling in Cultural Layer VI of the Ushki I site (see Figure 13 for symbols).

We will first examine the early, Pleistocene stage of this culture, represented by Cultural Layer VI of the Ushki sites, dated to 10,860 ± 400, 10,760 ± 110, and 10,360 ± 345 B.P.[13]

Judging by the remains of spores and pollen, the climate still continued to be cold. Woody plants were few and open grassy tundra-steppe with rare bushes of procumbent cedar, alder thickets, and birch predominated. The cold of the Sartan glacier continued.

Through excavations an ever more complete picture of Paleolithic camps with different kinds of dwelling have gradually emerged here. Nineteen have already been discovered in Cultural Layer VI of the Ushki I, IV, and V sites. The remains of the largest, not yet completely excavated, Paleolithic site were preserved at Ushki I. Here in an area of about 1,700 m^2, 16 individual dwellings were opened prior to 1977, which exceeds in number of houses the Mal'ta site—the largest, according to A. A. Formozov (1976), Paleolithic site in the world, which has been completely excavated and where 15 dwellings were discovered in an area of 1,148 m^2.

No particular regularity in the arrangement of the dwellings has been discovered yet in Cultural Layer VI at the Ushki I site. Here, only the predominance of comparatively small dwellings arranged alternately with larger ones is evident, as well as the various orientations of the entryways of the houses, where preserved and noted (Dikov 1977b:Fig. 11). Each of them was constructed somewhat differently from the rest. Especially remarkable is the presence among them not only of relatively shallow semisubterranean dwellings with a corridor-like entryway, but also wholly surface, tent-like dwellings. In the middle of each of them was the stone ring of a hearth (as in the Clovis culture) or only a charcoal-ash burned spot.

Some dwellings had two or even three layers with stone hearths arranged one on top of the other. One of the houses (Figs. 11–14) has the burial of a dog near the hearth in the middle layer (Fig. 13) and a bison scapula (for divination) in the upper layer (Fig. 11), which probably belonged to a sorcerer. The dog, of the wolf type (determined by N. K. Vereshchagin), was buried on its left side with the paws placed under the muzzle. By its back in a spot of red ocher were an obsidian knife and a scraper, as well as a sandstone whetstone (Fig. 15). In this same middle layer, on the southeast side of the house by the corridor-like entryway ("on the shoulder" of the opened base of the pit house), fragments of scorched grass bedding were preserved (Fig. 13).

In another house, the hearth stones of which were spread out, we found the remains of a human burial, most probably of a child, in a special pit with ocher and a large number of stone tools and ornaments.

Similar to many southern Siberian houses of this time, the living structures here were of comparatively small size in most cases. Most were slightly sunken into the ground and seven of them had corridor-like entryways. It is by these elements that this building tradition, of very great antiquity, is characterized in Kamchatka; these elements were preserved there over the course of subsequent millennia and discovered in the eighteenth century by S. Krasheninnikov. At the same time, the distinctiveness of the layout and construction of the hearths of the Ushki pit houses should

[13]It should be kept in mind that during the course of field investigations the numbering of the Upper Paleolithic layers of the published profile of the Ushki sites was made more precise (Dikov 1969b:Fig. 2, 1977b:Fig. 6). Two horizons were distinguished in what was previously designated as Cultural Layer V: Va and Vb. Cultural Layer VI now corresponds to Cultural Layer Va (10,360 ± 350 B.P.—Mo–345), and in several cases it falls into two horizons: VIa (formerly Cultural Layer V) and VIb (formerly Cultural Layer VI).

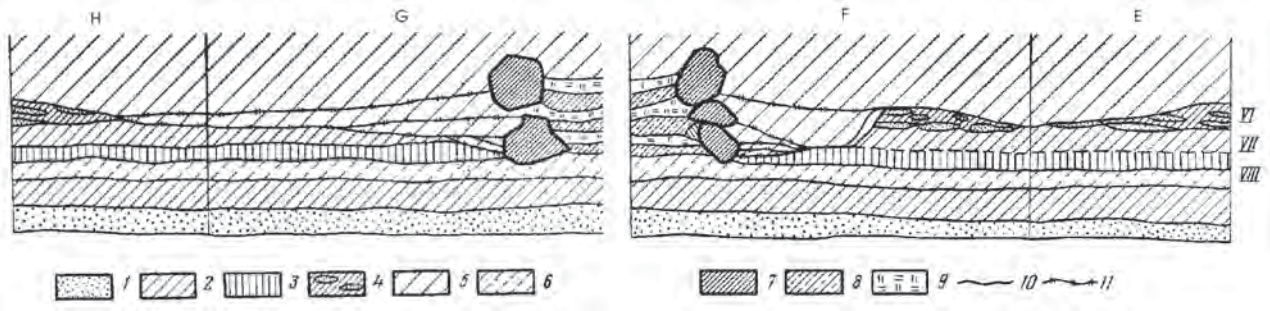

Figure 12. Cross section through the multi-layered dwelling in Cultural Layer VI of the Ushki I site. 1—sand; 2—gray-yellow loam; 3—yellow loam corresponding to Cultural Layer VII; 4—grayish-ocherous colored loam with bands of sand; 5—yellow loam; 6—gray-yellow sandy loam; 7—stones in the profile; 8—bone hearth mass; 9—hearth charcoal and ash; 10—band of volcanic ash; 11—carbonaceous bands of the house floor.

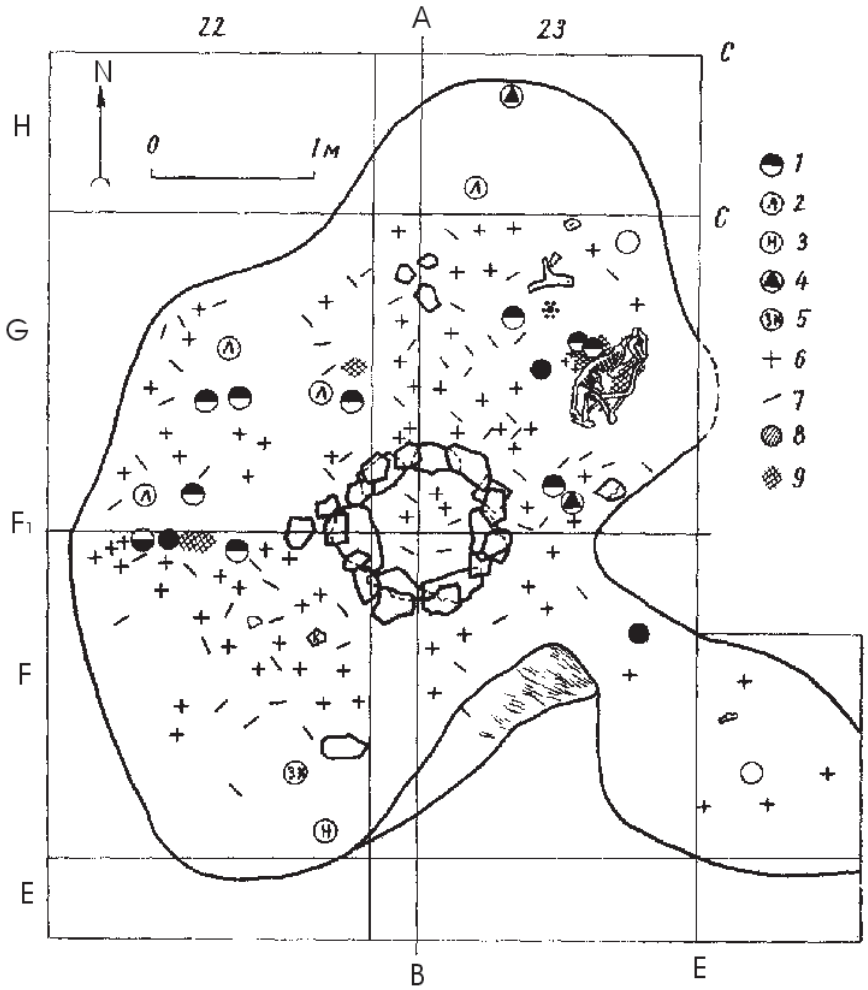

Figure 13. Middle layer of the Paleolithic dwelling in the Ushki I site (Cultural Layer VI). 1—stone knife; 2—ski-shaped spall; 3—core; 4—wedge-shaped core; 5—green stone; 6—flake; 7—knife-like blade; 8—sandstone slab; 9—red ocher stain.

be noted, as well as their essential difference from the semisubterranean house style contemporary to them with an oval framework, found in the sixth layer with wedge-shaped cores at the Ust'-Timpton site in Yakutia and dating to 10,650 ± 80 B.P. (Mochanov 1977:Fig. 33).

A house, as is well known, is an element of culture having substantial significance for the reconstruction of the way of life, and in some degree even social relations. Large, wholly surface, tent-like houses of irregular oval form with several fireplaces were preserved, possibly through tradition, from the preceding period, each made up of a few "minimal living spaces." At the same time, the small sizes of most houses attest to some new tendencies in the development of the clan community, to its increasingly complex structure, and to the striving in the community toward separation of the comparatively small family production groups, probably paired families, into small dwellings. It is possible that this was brought on by a crisis situation in the transition from hunting primarily large pachyderms to smaller, herd animals—reindeer, bison, and horses, as well as moose, the bones of which (predominantly teeth) were found in Cultural Layer VI (determined by N. K. Vereshchagin and E. V. Alekseeva). This circumstance apparently also explains the clear signs of seasonality of settlement on the shores of Ushki Lake, represented by numerous carbonaceous bands separated by sterile sand in the hearths of some dwellings (Fig. 12).

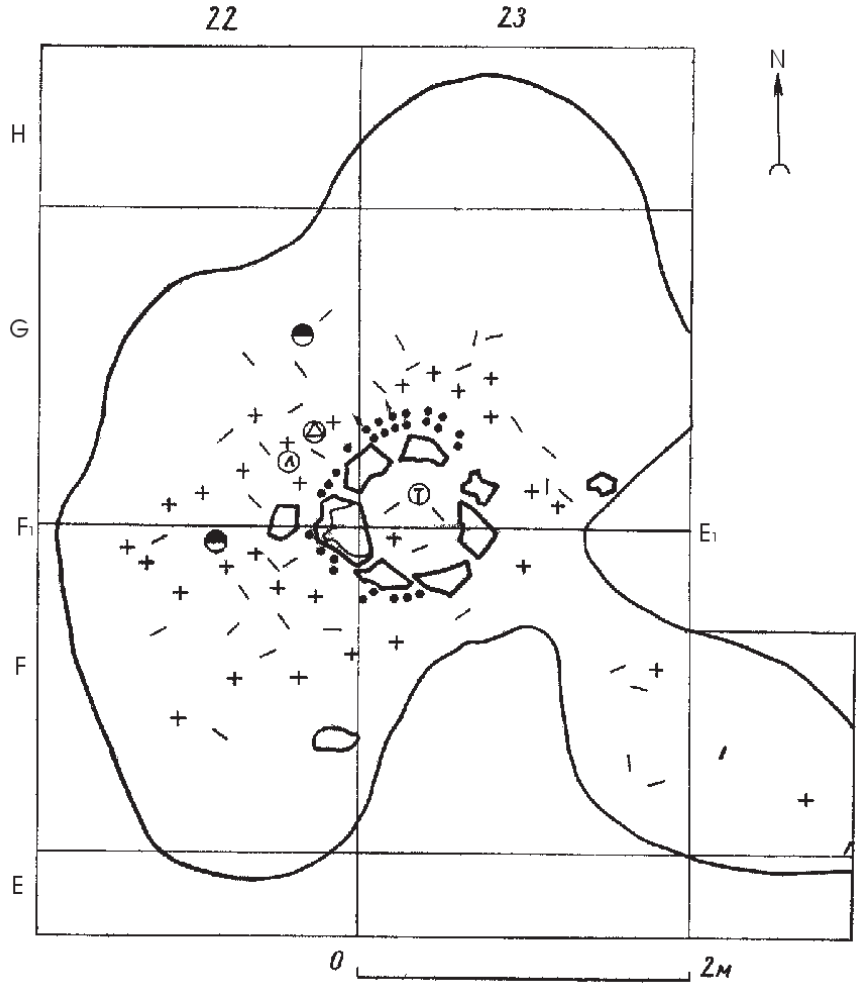

Figure 14. Lower layer of the Paleolithic dwelling (Cultural Layer VI).

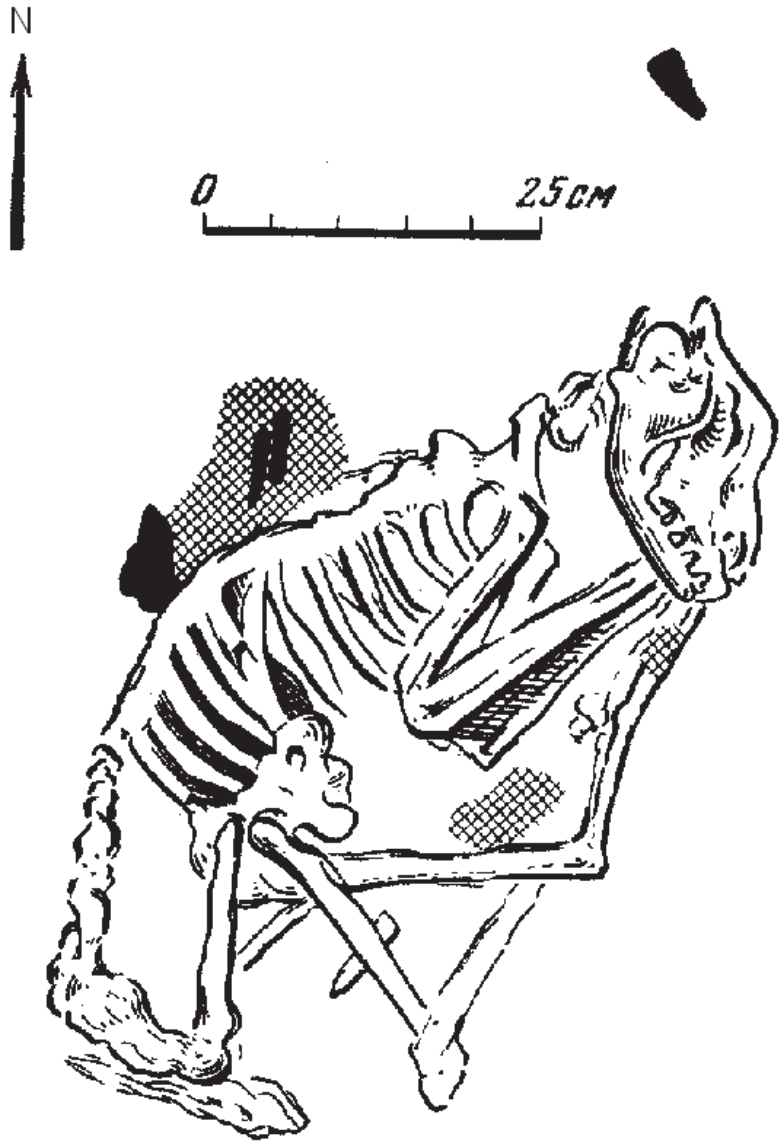

Figure 15. Burial of a domestic dog in the dwelling of the late Ushki Upper Paleolithic culture (sketch).

The domestic dog was already a reliable aid to man in the hunt, its very early taming in Northeast Asia being attested in Kamchatka by the dog burial in a house at the Ushki site, mentioned previously. Taking the circumstances into account, the dog here was domesticated earlier or, in any case, no later than in the Near East, where the remains, so far considered the earliest, have been those of domestic dogs of the Natufian culture belonging to the ninth and eighth millennia B.C. (Masson 1964). Consequently, there is now rather definite confirmation of the domestication of the dog in the late Paleolithic in Northeast Asia, which earlier could only be conjectured, based on the very indefinite finds of bones of domesticated wolf in the late Paleolithic of northern Asia (Bogoliubskii 1959:515).

The abundance of burned bones of salmon and other fish in the hearths of the houses speaks eloquently of the important role of fishing among the inhabitants of the Ushki Paleolithic houses.

Figure 15a. Burial of a domestic dog in the Paleolithic dwelling of Cultural Layer VI in the Ushki I site.

Figure 15b. Illustration of a Paleolithic dwelling on a sandstone slab and poly-iconic and mammoth-like figures from the Paleolithic Cultural Layer VI of the Ushki I site.

The complex of stone artifacts from Cultural Layer VI of the Ushki sites consists of numerous wedge-shaped cores (IV–2–7[14]; Fig. 16:1–10), some of which are large (Fig. 16:13); knife-like blades split from them (Fig. 18:7) and ski-shaped spalls (Figs. 16:11, 12; 18:6); very rare, crude prismatic and conical cores (I–2; Fig. 16:14, 15, 16), including uniface blades split from them, and amorphous cores; crude striking tools and skreblo-like tools (Fig. 17), in some cases flaked like biface choppers, but often indistinct from crude cores; points of spears, darts, and arrows of leaf-shaped oblong form (I–1c, I–3b; Fig. 18:9–14), as well as broader ones (Fig. 18:15); knives of

[14]Here and on the following pages the indices of the varieties (types) of stone artifacts is given by affixing a Roman numeral based on the appendix (see Tables 1–10).

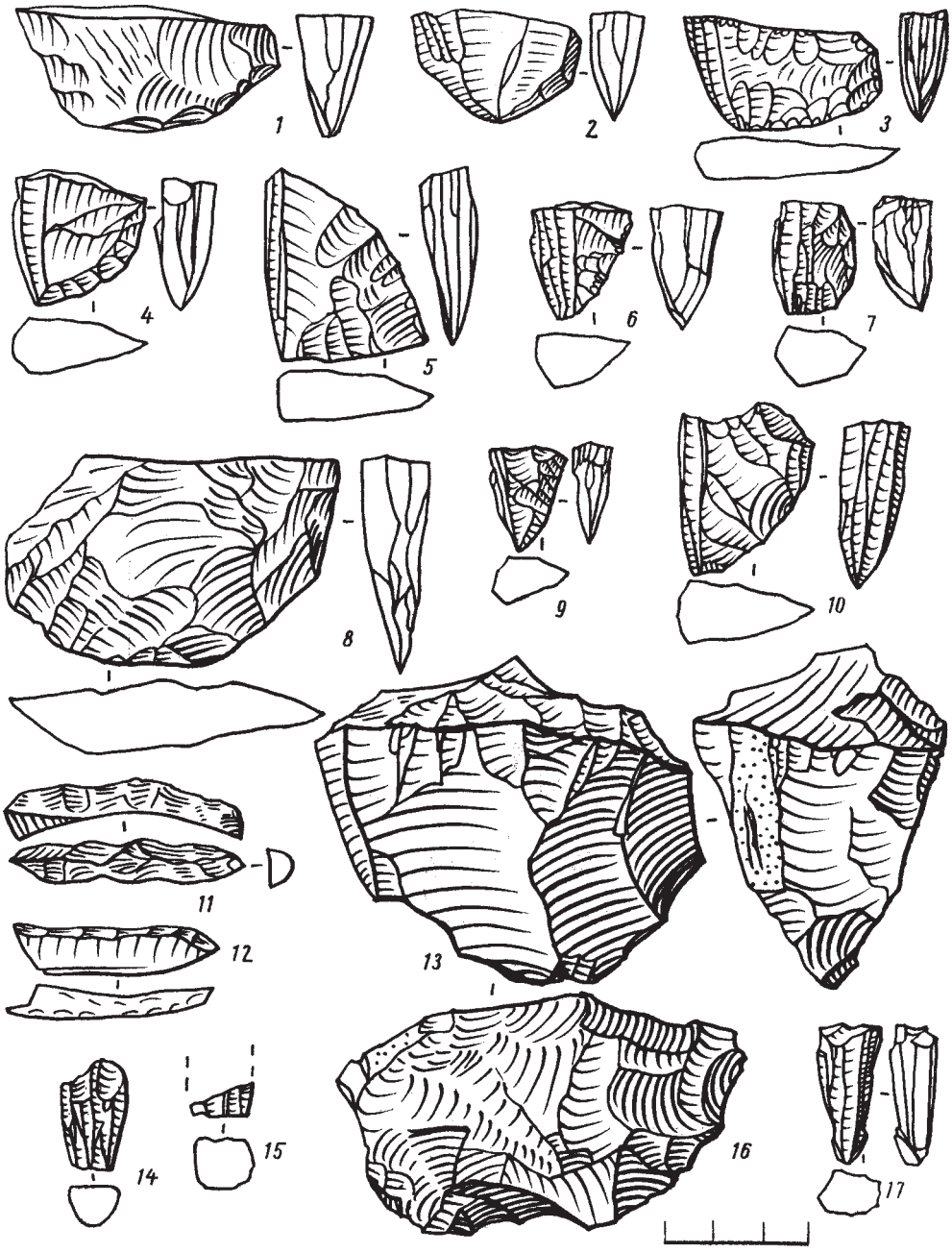

Figure 16. Cores of the late Paleolithic Ushki culture (Ushki V, Cultural Layer VI) (1–17).

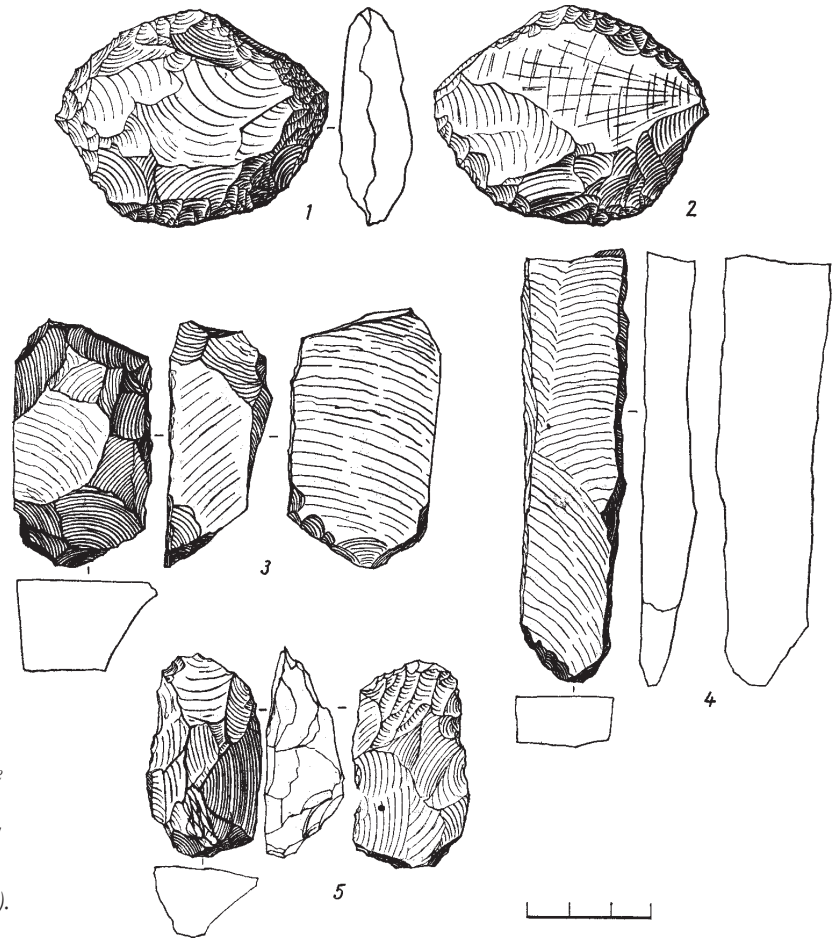

Figure 17. A biface and crude striking/skreblo-like tools of the late Ushki Upper Paleolithic culture presumably from Cultural Layer VI of the Ushki I and II sites (1–5) (2–5 surface material).

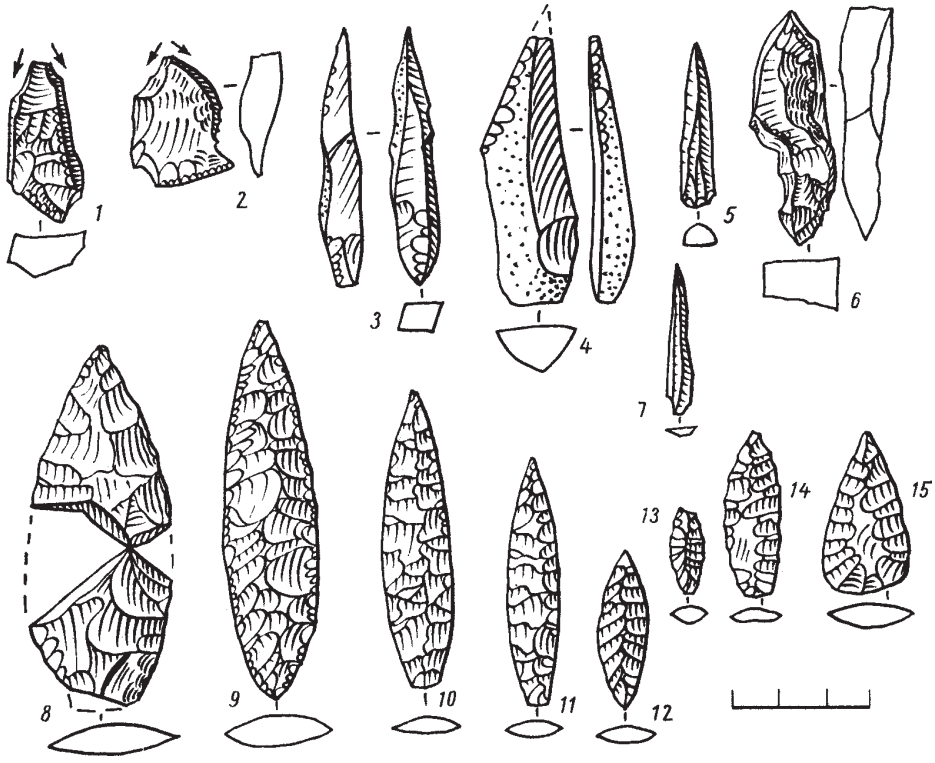

Figure 18. Burins, gravers, punches, and projectile points of the late Ushki Upper Paleolithic culture (Cultural Layer VI of the Ushki I site) (1–15).

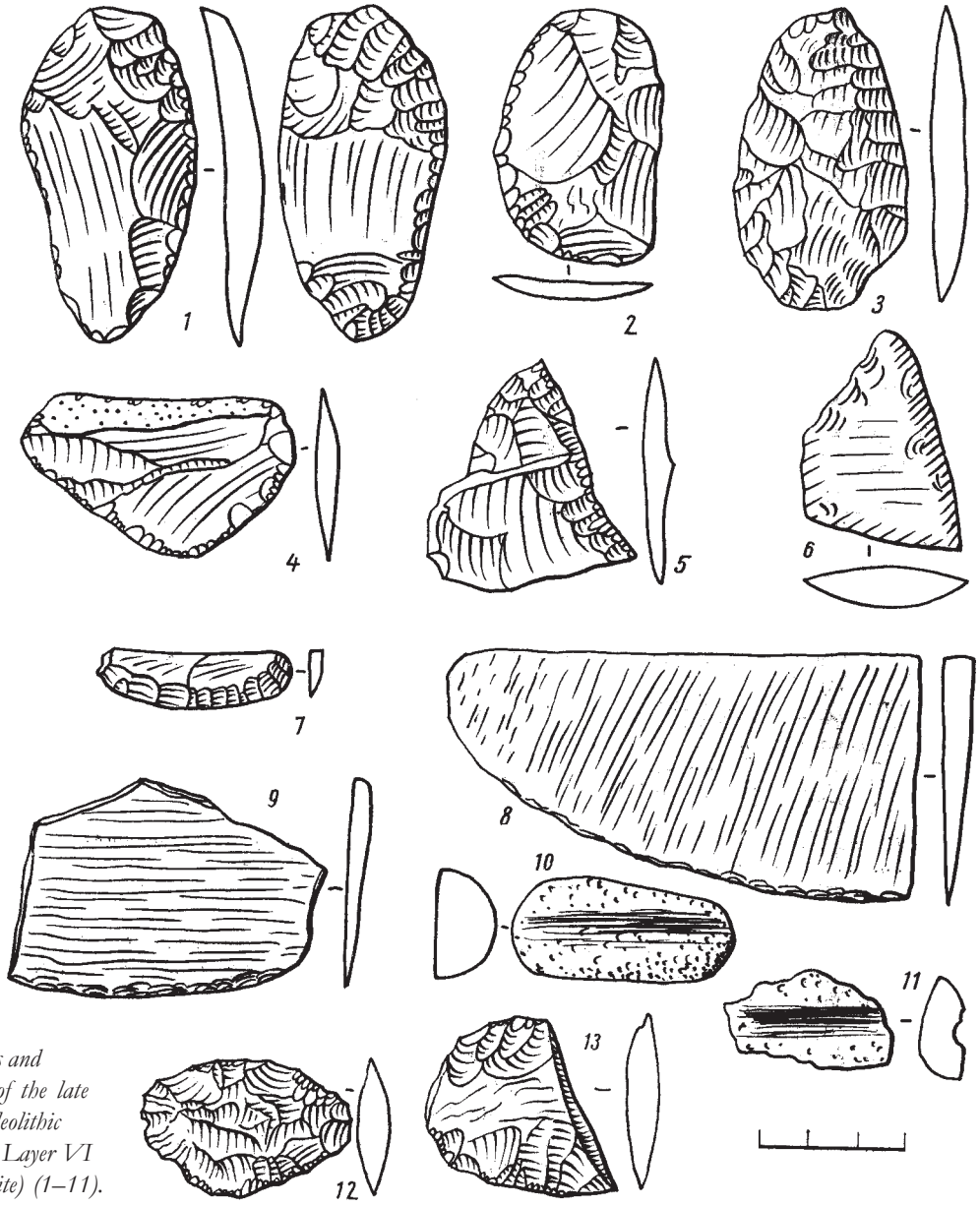

Figure 19. Knives and polishing stones of the late Ushki Upper Paleolithic culture (Cultural Layer VI of the Ushki I site) (1–11).

various types (Fig. 19)—leaf-shaped bifaces worked bifacially by pressure retouch (II–1; IV–1), asymmetrical bifaces with a beak-like end (IV–1), semi-lunar bifaces with an oval working edge (VI–1, 2, 3), knives on thin and broad blade flakes with a straight (VII–2, 3), curved (VII–4), or pointed (VII–5, 6) working edge, and knives in the form of ground slabs of argillaceous slate retouched along the edge or without retouch (III–4, 19, 23); an inset blade retouched on one edge (I–8)[15]; scrapers and skreblos of different sizes and various forms, but predominantly end types (I–6, 11, 18; II–3, 4, 6, 10, 11, 18, 19, 22, 24; III–1; IV–7; V–6; VII–1, 4, 9, 10; IX–1, 2, 5, 16, 17, 18; X–9; XI–2; XII–3; XIII–1, 2; Fig. 20); two dihedral burins on flakes (Fig. 18:1–2) and punches (Fig. 18:3, 4); and edge spalls and flakes, as well as grooved (?) grindstone slabs of volcanic tuff (Fig. 19:10, 11).

[15]Investigation has shown an error in our previous supposition of the presence among the knives in the Ushki Cultural Layer VI of the Japanese Kiridasi knife type (Dikov 1967d).

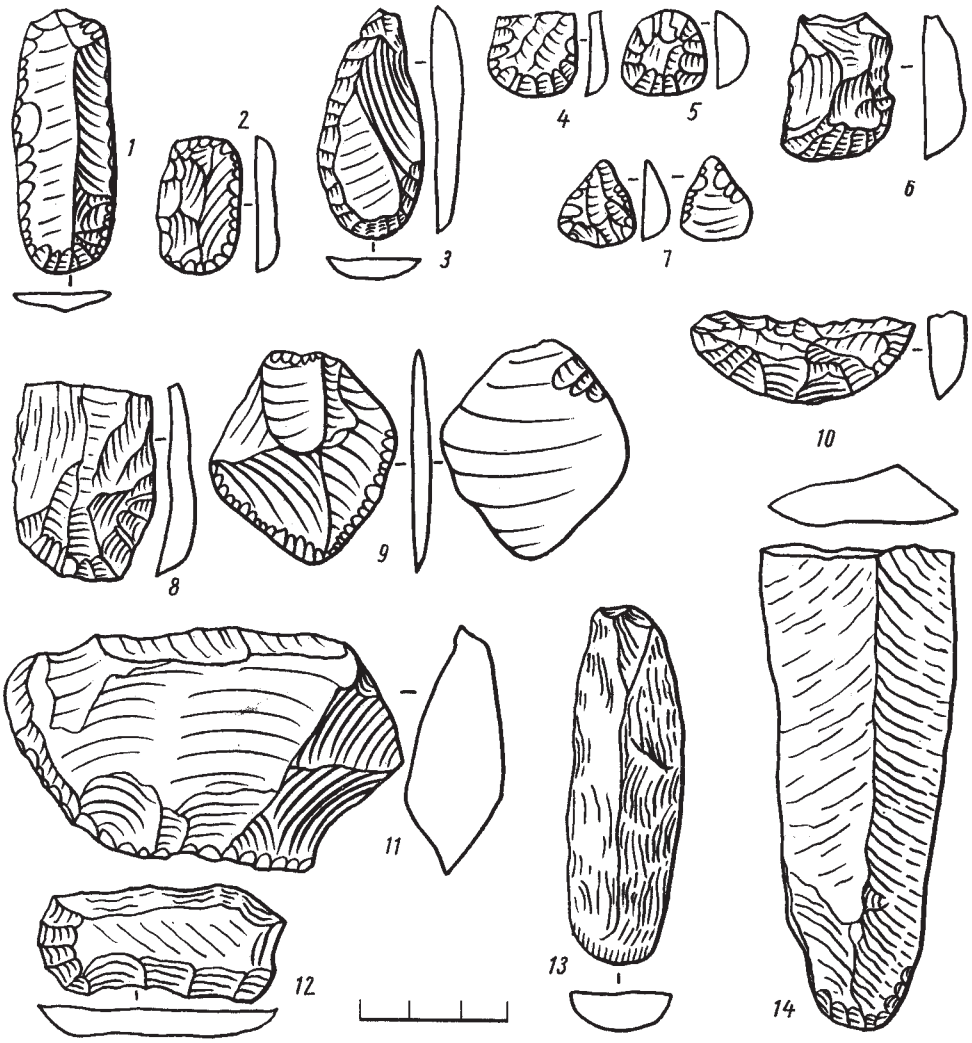

Figure 20. Skreblos and scrapers of the late Ushki Paleolithic culture (Cultural Layer VI of the Ushki I site) (1–14).

This whole set of artifacts, forming part of the complex of Cultural Layer VI, was made from the most different kinds of stone, but predominantly from gray and green siliceous slate, brown and yellow flint, chalcedony, volcanic tuff, and varieties of obsidian, basalt, and argillaceous slate. Especially soft kinds of stone, such as steatite, went into making pendants and ornaments. One of them, of mushroom-like form (Fig. 21:6), and another, of oval form (Fig. 21:5), were found among the remains of House 3.

An interesting artifact was made from soft sandstone—a slab with a cross-shaped design (made by seven? pits in each branch of the cross)—is possibly one of the earliest lunar calendars (Fig. 21:10). On another oval sandstone slab an image was quite visible (Fig. 22) that illustrates a conical tent-like structure and probably a forest around it (presumably of coniferous trees).[16] With a certain amount of imagination one can see here not just one tent but three. Of course, the remaining two were applied by the early artist very sketchily and fragmentarily (Fig. 22). A similar illustration

[16]There are also possibly elements of the landscape on a Berelekh disk with an image of a mammoth—the first, if such is the case, piece of Paleolithic art of this kind (Bader 1972, 1975).

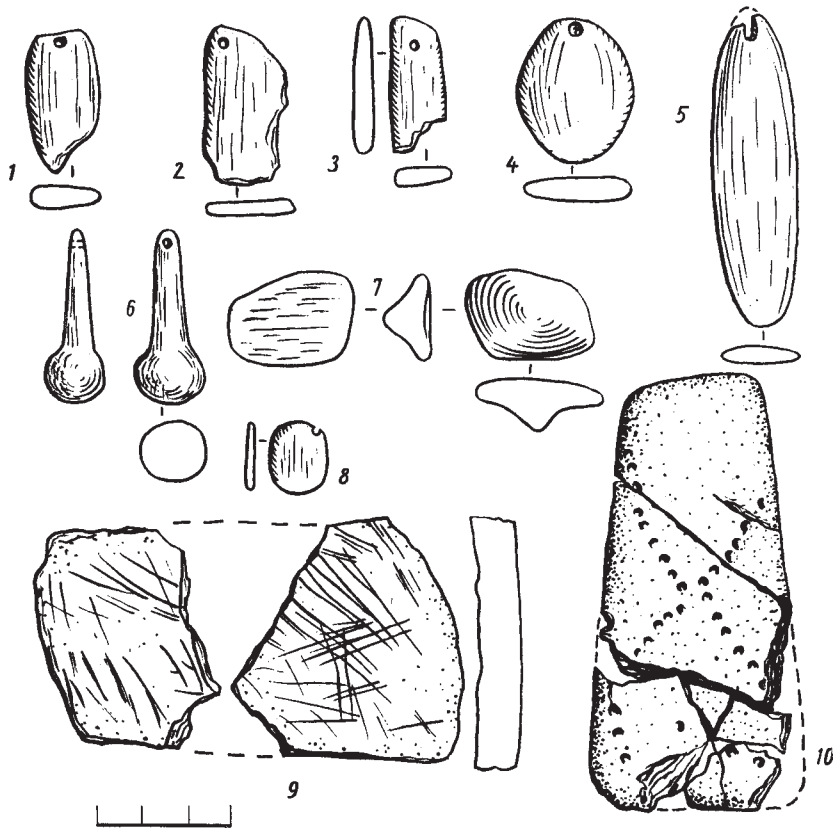

Figure 21. Stone pendants, labret-like artifacts, a "lunar calendar," and striated slabs from the late Ushki Upper Paleolithic culture (1–10).

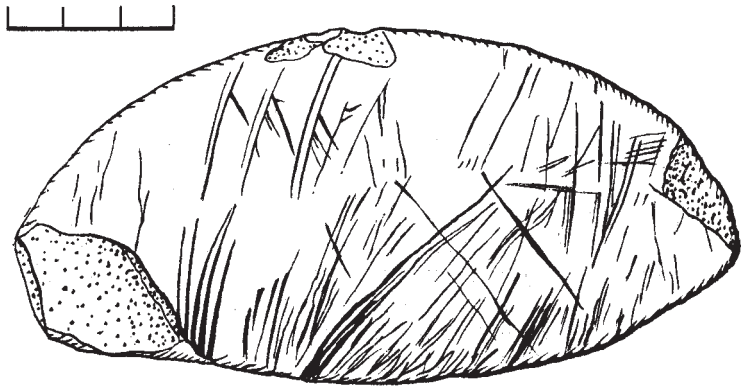

Figure 22. Image of a tent-like dwelling on a sandstone slab from the Ushki I site (Cultural Layer VI).

is found in the cultural layer of the late Paleolithic Mezin site on a bone mattock-like "tool with decoration," as Z. A. Abramova (1962:Pl. XXXIV:13) interprets it. If attentively examined, similar images of tents can be clearly distinguished in many other Upper Paleolithic illustrations, for example, on a bone plate with so-called "macaroni" at Dolni Vestonice in Czechoslovakia (Abramova and Graziosi 1976:Fig. 7).

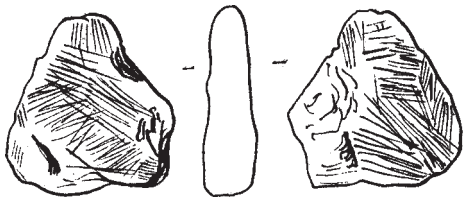

Figure 23. Poly-iconic image from Cultural Layer VI of the Ushki I site.

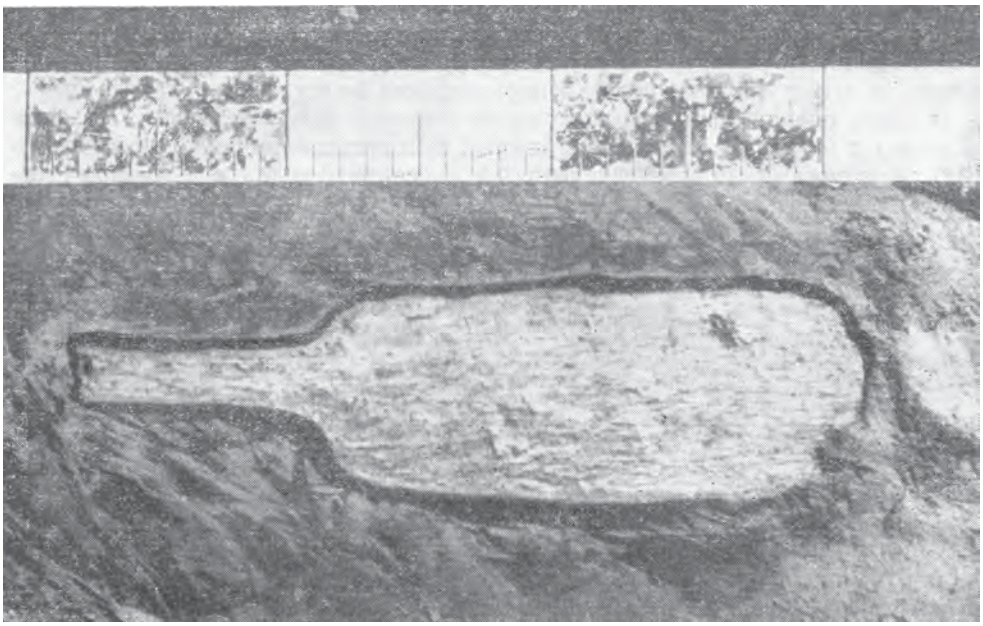

Figure 24. Bone paddle from Paleolithic Cultural Layer VI of the Ushki I site.

Some items of stone have either an anthropomorphic-zoomorphic appearance, as, for example, an artifact of soapstone dotted with strokes reminiscent of a man sitting en face or the head of an animal (Fig. 23), or a zoomorphic image, as, for example, a flat sandstone pebble reminiscent in its outline of a mammoth, its similarity being emphasized by several strokes drawn from one of its edges as if denoting the tail of the animal (Fig. 15b). Of the bone artifacts in this complex, only paddles of Kostenki appearance are represented, and their domestic assignment is not entirely clear (Fig. 24).

The complex of stone artifacts from Cultural Layer VI differs only very insignificantly from the complex of superimposed Cultural Layer V, which represents the final stage of the late Ushki Upper Paleolithic culture.

The sharp distinction of the Cultural Layer VI complex from the cultural remains of earlier Cultural Layer VII immediately strikes the eye. Similar, but by not necessarily related, elements that transferred from the preceding culture are found in only very uncharacteristic skreblos with a slightly convex working edge (IX–1) and end scrapers on flakes (X–9; II–15), as well as bifacial leaf-shaped knives. The sharp difference in the most characteristic items—arrow points and cores—is probably a consequence of the membership of both cultures to entirely different ethnic communities with separate technical and technological traditions.

We will examine the essential analogies to individual elements of this cultural complex in order to finally determine its genetic and cultural connections. Similarities with the surrounding contemporaneous cultures are evident in many respects.

The connections, evidently predominantly of genetic character, chiefly with Upper Paleolithic sites earlier than this complex, are manifest in the Aldan basin and in the Angara-Yenisei cultural district.

The closest analogy to wedge-shaped cores of the elongated type (IV–5), broad bifaces (II–3), and elongated leaf-shaped points (I–2c) were obtained in very recent times through excavations by Yu. A. Mochanov on the Aldan, at Diuktai Cave (Mochanov and Fedoseeva 1968).

Short, wedge-shaped cores (IV–3) have analogies in late Paleolithic Yenisei sites of Tashtyk, Kokorevo IV, and Krasnyi Yar (Abramova 1962a:Fig. 4:1–3), while wedge-shaped cores with a sloping platform (IV–4) are analogous to artifacts of such type from Horizon II of Verkholensk Mountain in Pribaikal'e (Aksenov 1966b:Fig. 8:6, 9).

In the same place, in Layer II of the Verkholensk Mountain site, elongated types of cores (IV–5, 6—so-called Gobi cores) were also encountered (Aksenov 1966:Figs. 8:8; 9:24). The latter were also found in Layer VI of the Krasnyi Yar site, which evidently belonged to a substantially earlier time (Medvedev 1966b:Fig. 8:1, 2, 5), as well as at Cheremushnik and in Layer VI at Ust'-Belaia, which are dated to the eleventh and tenth centuries B.P. (Aksenov 1966a:Fig. 6:3; Medvedev 1966a:Fig. 2:19).

Arrow points of narrow elongated form (I–2c) have no precise similarities in any of the Siberian Paleolithic cultures, except the Diuktai on the Aldan. But broad, leaf-shaped biface knives (II–1, 3) are now known in late Paleolithic sites not only on the Aldan, but substantially farther away: at Cheremushnik, in the second horizon at Verkholensk Mountain, and on the first flood-plain terrace at Ustinovka village on the Tadushi River in Primor'e (Aksenov 1966a:Fig. 10:3, 11; Okladnikov 1966c).

The same can also be said about semi-lunar biface knives, which have analogies in artifacts of Horizon III at Verkholensk Mountain and among artifacts from Diuktai Cave on the Aldan.

Many types of scrapers and skreblos from Cultural Layer VI of the Ushki sites are also encountered in sites of the late Siberian Paleolithic, at times quite far from Kamchatka. Pear-shaped end scrapers (II–11) have their earliest analogies among scrapers from the Mal'ta site (Gerasimov 1958:Fig. 8:e). Scrapers close to this type (I–11; II–10), as well as crude skreblos (IX–1, 2), were found in the later site of Krasnyi Yar (Abramova 1962a:Figs. 4:8; 5:12), and small scrapers (VII–4) were found in Layer III at Verkholensk Mountain (Aksenov 1966b:Fig. 5:3, 4). In Horizon II of this site, skreblos similar to those at Ushki (IX–5, 16) were found (Aksenov 1966b:Fig. 8:13, 15). These also have some similarity to the oblong skreblo-like tools of XIII–2 (Aksenov 1966b:Fig. 8:13, 15). Skreblos with a round working edge were encountered also at a late Paleolithic-early Mesolithic site of Cheremushnik (Aksenov 1966a:Fig. 6:2, 3, 15).

Wedge-shaped cores of Mongolia are similar to those at Ushki (IV–3, 5, 6). Judging by the stratified sites of Bulun-Khudzhir and Mol'tyn-am, investigated by A. P. Okladnikov together with geologist S. L. Troitskii, these cores-scrapers (IV–3) are no older than the chronological boundary between the Mesolithic and Paleolithic (Okladnikov and Troitskii 1967:Fig. 12:1).

Completely comparable in age with the Kamchatkan culture being examined is the earlier tradition of making wedge-shaped cores in Primor'e, where they are known now not only in the so-called Mesolithic complex of the Tadushi site, but also in its undoubtedly Upper Paleolithic complex of the lower terrace (Okladnikov 1966c:Pl. V:4, 7). The Tadushi cores are comparable to Type IV–6 and were made by the Horoka technique, which was widespread from the seventeenth to twelfth millennia B.C. in the Japanese Islands (Morlan 1968).

In the same place, at Ustinovka village on the Tadushi River, we also found analogies to other late Paleolithic Kamchatka stone artifacts: semi-lunar biface knives (VI–2) (Okladnikov 1966c:Pl. VII:6), end scrapers on large massive blades (XIII–1) (Okladnikov 1966c:Pl. VI:3), and lateral scrapers with a concave working edge (XII–3) (Okladnikov 1966c:Pl. VII:3).

Almost all analogies of the late Ushki Paleolithic culture that we find in the Japanese Islands are present as well in the continental part of northern Asia, while in Japan we do not find many forms, especially skreblos and scrapers, that we note in Siberia. Also essential to note is that items similar to ours in the Japanese Islands are dated, as a rule, to an earlier time than in Kamchatka. More rarely they are synchronic, and only in very rare cases is it possible to consider them later. In general, they are placed in the broad chronological range of the so-called pre-ceramic cultures of early Japan (15,500 to 9000 B.C.).

Elongated wedge-shaped cores (IV–6), made by the Horoka technique, are known on Honshu Island in the Araya site, in Layer IV of Fukui Cave (on Kyushu Island), and in some other sites of the pre-ceramic period of the Japanese Islands (Serizawa 1967:Fig. 2:20, 1968:5; Sugihara 1970:Fig. 13). Oblong wedge-shaped cores, made in large part by the Yubetsu technique, similar to the Kamchatka oblong type (IV–5), are found on Kyushu Island in Fukui Cave and on Hokkaido Island at Sirataki 30, at Sakotsu, Towarubetsu, and at the Tachikawa and Tagashita sites (Morlan 1967:Figs. 12:2, 3; 15; 18:3; 21:13; 30:5; Sugihara 1970:Fig. 4:16), which does not exhaust the entire list of sites with such artifacts. This catalog has been rapidly increasing in number in recent years in Japan. Wedge-shaped cores (IV–4) with a sloping front edge for flaking off blades, formed by the Yubetsu technique, are known on Hokkaido at Sirataki-Hattoridai and on Honshu Island at Nakato (Jidai and Sugihara 1965:Fig. 54:3; Morlan 1968:Fig. 2; Sugihara 1970:Fig. 10:15), while cores having a working edge with a vertical front, made by the Yubetsu method (IV–2, 3), were found at Okedo-Adzumi, Shirataki 32, and other locations on Hokkaido Island (Morlan 1967:Fig. 14:2, 1968:Fig. 2; Sugihara 1970:Fig. 7).

Knife-like blades retouched along the edge (I–7) also have rather close analogies in the Horoka complex (14,300 B.C.) at the Horokazawa I site on Hokkaido Island (Ikawa 1967:Fig. 4:e, f; Morlan 1967:Fig. 56:8).

Narrow, oblong biface projectile points (I–2) are known from Takei II on Honshu Island in Gumma Prefecture (their age is about 15,000 years) (Serizawa and Ikawa 1960:1–3, Fig. 11).

Broader, leaf-shaped biface points (I–1) have been noted at Magarikawa on Hokkaido Island and in the south-central regions of Honshu Island at Kamisisiba and Uenodaira, where they are dated to about 15,000 B.P. (Morlan 1967:Fig. 20:1; Sugihara 1968:4, 5).

Symmetrical, bifacially worked, broad, leaf-shaped knives (II–1) have their analogs in Magarikawa on Hokkaido (Morlan 1967:Fig. 20:2) and in the upper layer of Takei II on Honshu

Island (Serizawa 1967:Fig. 17:1; Tozawa 1965:Fig. 47:1). Asymmetrical bifaces of similar kind (II–3) are a very early form in Japan, evidently going back to the twenty-fifth millennium B.P. at Iwajuku I in the Kanto valley on Honshu Island, and are known later in the pre-ceramic period on Hokkaido Island in Sirataki 33 and Toma (Toma H), where their age is determined to be 15,200 to 12,150 B.P. (Ikawa 1970:Fig. 3:e; Serizawa 1967:Fig. 15:7).

Among end scrapers are also types in the Japanese Paleolithic close to the Kamchatkan: at Magarikawa on Hokkaido, at Yanagimata, in complexes at Araya and Sinnari-tipu (I–6) (Morlan 1967:Fig. 20:6; Serizawa 1967:Fig. 12:24; Serizawa and Ikawa 1960:Fig. 8:b; Tozawa 1965:Fig. 60:6), and in the Nakato complex (II–10) (Nakamura 1965:Fig. 51:1). Finally, dihedral burins encountered there at Sirataki 33 and at Kitaiama (Serizawa and Ikawa 1960:Figs. 4:A, 5:A, 3) are also close to the Kamchatkan Paleolithic type (IV–4).

The connection of the late Ushki Paleolithic culture with cultures of the American Arctic and Subarctic that are comparable in time is reflected in the similarity of wedge-shaped cores and bifacially worked points and knives, as well as some kinds of scrapers. In distinction from connections with Siberia and the Japanese Islands, where the analogies as a rule are earlier than Kamchatkan specimens, similar items in America are in general relatively younger than in Japan and belong predominantly to the end of the Sartan glaciation and to the beginning of post-glacial times. This fact has substantial significance for clearing up the direction of spread of the early culture of Upper Paleolithic Northeast Asia toward America.

As in the Kamchatkan late Paleolithic, stone artifacts in North America belong to that transition from Pleistocene to Holocene culture that was discovered there long ago in the Campus site near Fairbanks, but for a long time was erroneously considered comparatively late Mesolithic. Only several other analogous sites recently discovered in Alaska—Donnelly Ridge, Teklanika, and Healy Lake—permitted correct estimation of its age and assignment of all the named sites tentatively to the thirteenth to eighth millennia B.C. On the whole, these early Alaskan sites can be assigned, in our view, as we noted in 1971 (Dikov 1971a), to a single culture, which is characterized by almost the same complex of stone artifacts as in Cultural Layers VI and V of the Ushki sites in Kamchatka. This culture, following in time the British Mountain culture, has now been named the Denali culture (Laricheva 1976a).

Wedge-shaped cores similar to Kamchatkan types (IV–3, 5, 7) (Bandi 1969:Fig. 15:2; Hadleigh-West 1967) have been known for a long time at the Campus site. At Denali Ridge they are represented by narrow and oblong types (IV–4, 5) (Hadleigh-West 1967:Figs. 4:f; 6:a, e), and they have also been found at the Healy Lake (McKennan and Cook 1970) and Teklanika (Hadleigh-West 1967) sites. At the Teklanika site there were also bifaces similar to symmetrical and asymmetrical leaf-shaped types (II–1, 3) (Hadleigh-West 1967:Fig. 9:d, g). Projectile points, narrow and oblong leaf-shaped, worked by retouch on two sides (I–2e), are very similar to such points from the complex at Healy Lake in Alaska recently investigated by McKennan (McKennan and Cook 1970). Forms similar to them, but often wider—approaching the North American Lerma type point—are encountered in the following, Cordilleran culture of the sixth and fifth millennia B.C. (Beregovaia 1967:Fig. 2:1; Butler 1961). For this same culture, pear-shaped, as well as limande scrapers of the Kamchatkan late Paleolithic types are also common (II–11; I–18). They are known, for example, from sites of Kaiyuk at Anaktuvuk Pass (Campbell 1962:Pls. 2–18) and in the complex of Flint Creek named above (Beregovaia 1967:Fig. 2:12, 15).

Definite, though weaker similarity can be traced also with the Akmak complex of the Onion Portage site in Alaska, which is similar in many ways to the Denali culture, differing from it chiefly by special bifacial cores that are not found in the Denali culture. In the Akmak complex one finds the same broad bifaces, wedge-shaped cores, ski-shaped spalls, and microblades (Anderson 1970:Figs. 21, 24, 25:10, 15) as in Cultural Layer VI of the Ushki sites. There is even something similar to the core-like biface of the almost-Akmak type (Fig. 17:1) from our excavations in 1961 at Ushki I (from a test trench in a mixed layer of fill from a Remnant Neolithic pit house that cuts through the sixth cultural layer) which also strengthens this similarity with Akmak (Anderson 1970).

The similarity that we have repeatedly noted between the late Ushki culture (Cultural Layer VI) and complexes of the Denali and Akmak is acknowledged by leading specialists of the Paleolithic of Siberia, in particular Abramova (1973:26). However, Vasil'evskii's own very contradictory and, in our view, erroneous position should be noted. He categorically rejects the similarity of the Ushki culture to complexes of Denali and Akmak of Northwest Alaska and at the same time acknowledges their similarity to the Diuktai culture, which by the same indices of similarity is close also to our Ushki culture. In doing this, Vasil'evskii does not take into account the principal heterogeneity of the combination of Akmak-Campus-Kobuk being designed by him, and mixes two different traditions: the American Paleo-Arctic (Akmak, Kobuk, and Layer 2 at Trail Creek) and Denali (Vasil'evskii 1973:129, 130).

The typological analogies to some components of the complex of finds from Cultural Layer VI, noted above, by no means show an absolute identity with any of the mentioned cultural complexes. It is possible to speak of the relative similarity to surrounding cultures only in some features, though on the whole Cultural Layer VI gravitates more toward the Aldan and south Siberian late Paleolithic, especially the Angara-Yenisei. Analogies with Angara-Yenisei provide significant dating opportunities for Cultural Layer VI. Its close similarity to such sites as Kokorevo III on the Yenisei and the Fediaevo site on the Angara, which belong to the very end of the Sartan glaciation (Abramova 1966:15, 16), permits assigning the concluding stage of development of the Kamchatkan Pleistocene Paleolithic, noted in Cultural Layer VI of the Ushki sites, to this time. This agrees well with palynological data of the Ushki profile and with radiocarbon dating of Cultural Layer VI—10,760 ± 110 and 10,360 ± 350 B.P. (Vinogradov et al. 1966). At the same time, this forces one to doubt the paradoxical result of an age determination of another charcoal sample—2110 ± 900 B.P. (GIN–186)—from Cultural Layer VI. We have already noted that the too-late age of this specimen is explained by its distinctive location in immediate contact with a layer of volcanic ash.

The closest typological connection of the late Kamchatkan Paleolithic with the Diuktai on the Aldan must be assessed to be, in this author's opinion, partially genetic. It testifies to the significant role of east Siberian sources in the composition of the late Paleolithic culture of Kamchatka. However, contrary to Mochanov's opinion (Mochanov 1977), it is impossible to trace its origin only to the migration to Kamchatka of the Diuktai culture. The role of the preceding indigenous culture of the Ushki Cultural Layer VII, in which we have already noted several analogies, must be taken into account. At the same time, one cannot overstate, as does Vasil'evskii (1973), the role of such early pre-ceramic cultures in the Japanese Islands as Sokkotsu-Araia and Sirataki-Tawarubetsu, which are substantially earlier than the late Ushki culture, and not connected with it chronologically or typologically, and thus could not have served as its source. Their role could have had some effect only on the composition of the culture preceding Cultural Layer VII of the Ushki sites. However,

we have already noted above that even then a different cultural base, close to the British Mountain culture, predominated in this regard.

Connections of Kamchatka with Japan at the time, it must be suggested, were not direct, since the Kurile Islands—which are separated by the very deep straits—contrary to Vasil'evskii's opinion (1973:130, 1976:513),[17] could not have served as a bridge between Japan and Kamchatka, which, owing to this, was a dead-end region in Asia. The similarity of some elements of the late Kamchatka Paleolithic with the pre-ceramic cultures of Japan is not as strong and comprehensive as with late Paleolithic sites on the Aldan and in southern Siberia (including Zabaikal'e), and probably reflects only contact connections between the Asian continent and the Japanese Islands.

The population of the Japanese Islands, which penetrated there in part through Sakhalin along the dry Pleistocene "land bridge," soon—at the beginning of the Holocene—found itself in isolation on the islands. Spreading to the south along the Japanese archipelago, this population developed a technical tradition of bifacial projectile points of the Uenodaira and Tachikawa types (their earliest forms are dated to 15,000 B.C.) and these types survive up to the Neolithic and later in Japan, in distinction from southern Siberia, where similar points for this period are not typical and are known only in the late Paleolithic site of Verkholensk Mountain and in Zabaikal'e (Morlan 1967; Okladnikov 1961:Fig. 6; Sugihara and Tozawa 1960).

The problem of the origin in the Japanese Islands of the earliest biface points is still not resolved. It is possible to hypothesize their introduction into the Japanese Islands from the northwest, from Primor'e, where in recent years cultures of the Tadushi type (Ustinovka) have been discovered and investigated. The investigator, A. P. Okladnikov, views these earliest Primorian cultures as the initial base for the origin of the earliest pre-ceramic cultures of Japan (Okladnikov 1966c). However, it is possible that biface points were invented in the Japanese Islands (Larichev 1970) and appeared in Kamchatka owing to later diffusion.

Be that as it may, the late Paleolithic narrow leaf-shaped biface points, which spread on the Aldan and in Kamchatka, give the Northeast Asian late Paleolithic cultural region a certain originality, notably distinguishing it among other cultures of the north Asian cultural zone.

The late Kamchatka Paleolithic differs by its notable originality also from the Japanese pre-ceramic cultures contemporaneous with it. In Kamchatka, in distinction from Japan, the Paleolithic blade industry is comparatively weakly developed and, as a consequence, there are almost no transverse burins like those in Japan. The late Kamchatka Paleolithic is also distinguished in that slate knives are associated with it (in Cultural Layer VI). The uniqueness of the Kamchatka Paleolithic culture was caused by its isolated geographic location, the difficulty of access to this region, the early settlement (evidently from Karginsk times), and the relative sedentism of its population, which we stressed long ago.

Considering the analogies cited previously in this work in the Denali culture and in the Akmak complexes, the late Paleolithic Ushki culture can be reliably considered to have spread to Alaska at the end of the Pleistocene. Also important is the fact that this culture attained limited Subarctic and Arctic distribution there, coinciding on the whole with the area of early Eskimo cultures.

[17]Correctly iterating my stance, that Kamchatka was a distinctive geographic "blind alley" in which the migrants settled, R. S. Vasil'evskii (1973:130) falls into the contradiction of suggesting the presence of intensive cultural connections between Kamchatka and Japan through the Kurile Islands and even the penetration along these islands into Kamchatka of a pre-ceramic population from Japan.

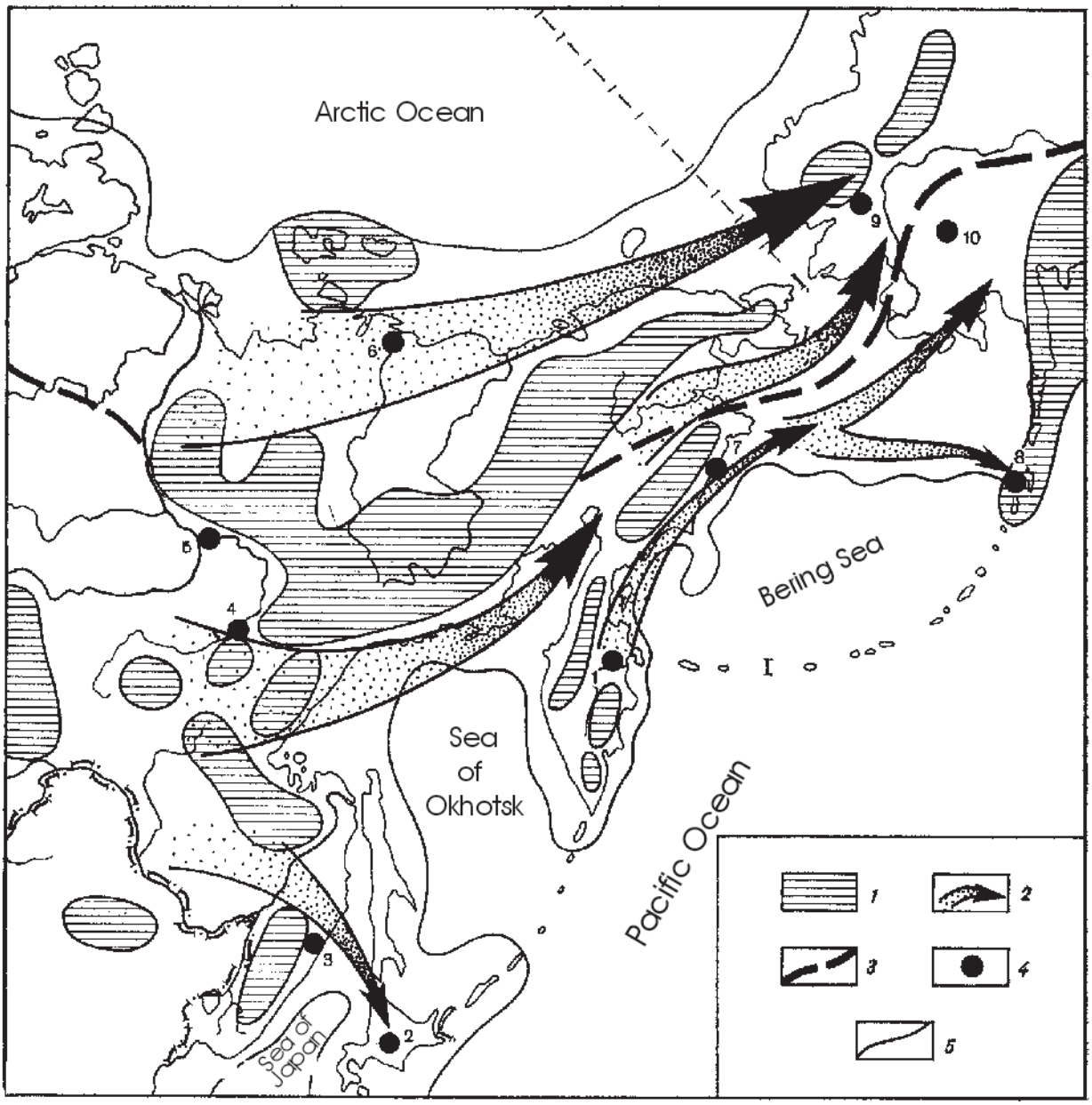

Figure 25. Route of penetration of Siberian cultural influences into America and Japan along the dry continental shelf at the end of the Sartan glacial period. 1—glaciers; 2—route of cultural penetration; 3—northern forest boundary; 4—sites: Ushki (1), Sirataki (2), Tadushi-Ustinovka (3), Diuktai Cave (4), Ikhine (5), Berelekh (6), Inas'kvaam (7), Anangula (8), Akmak (9), Healy Lake (10); 5—outline of the early mainland.

The physical anthropological difference of the Eskimos from the Indians made many investigators think for a long time that this late migration must have been a migration of the earliest American proto-Eskimos-Aleuts.

In this connection, Okladnikov (1941) was one of the first to turn his attention to Mesolithic cores-scrapers of Mongolia and Alaska as evidence of southern sources, specifically for the Eskimos. Then later these cores-scrapers acquired an earlier late Paleolithic date, but nevertheless, Laughlin (1963), Müller-Beck (1966), Bandi (1969), Chard (1969), and Malaurie (1970) connected them with so-called Aurignacian industry proposals of migration of proto-Eskimos and proto-Eskimos-Aleuts into America from Asia at the end of the Pleistocene.

There are more grounds for interpreting this migration as proto-Eskimo-Aleut if one considers that among the Aleuts and Eskimos there is a common linguistic stock (Swadesh and Marsh 1952) and that the division of their languages occurred together with their specialization in sea mammal hunting, which could occur only after the migration of their common ancestors into Beringia and Alaska. Many other specialists adhere to this position as well (Arutiunov and Sergeev 1969:30, 1975:195; Simchenko 1976).

In this connection, Vasil'evskii's attempt to equate the late Paleolithic culture of Cultural Layer VI of the Ushki sites with the proto-Aleut culture of Anangula Island (Aleutian Islands) and based on this to "give proof" of the separation of the Aleuts from the Eskimos as early as the late Paleolithic in Kamchatka looks very unconvincing (Vasil'evskii 1973). Close examination of the analogies cited by Vasil'evskii indicates they do not fully correspond with reality. It sounds reasonable when Vasil'evskii attempts to derive unifacial Anangula from Ushki and explains that Ushki bifaces are the result of influence from the Diuktai culture (Vasil'evskii 1973). But, as everyone knows, they can be traced back to the Ushki Cultural Layer VII and consequently they have a local origin in Kamchatka. Such "influence" of Diuktai is equivalent to its presence. But it should be kept in mind that there has never been enough evidence to support deriving the Anangula unifacial culture from the Diuktai bifacial culture (the same could be said for the Ushki).

There is even less basis for deriving the later Aleut stemmed points of the fourth millennium B.C. (the Village site) from the earliest Ushki Cultural Layer VII of the thirteenth millennium B.C. Here the chronological profile is disproportionately great. It is filled in Kamchatka by cultures with other, very different points, and the points do not have, as we have already noted, sufficient similarity.

Meanwhile, the culture of Ushki Cultural Layer VI is in fact very close to the Denali culture and the Akmak complex on the basis of its major features,[18] which can probably be viewed as proto-Eskimo-Aleut. In Alaska their divergence led, on the one hand, to the proto-Eskimo Denbigh complex and, on the other, to the proto-Aleut Anangula complex. This divergence was connected with the early Holocene development of sea mammal hunting among ancestors of the Eskimos on the shores of the frozen seas and among the ancestors of the Aleuts on islands in the sea, completely free from ice.

[18]Z. A. Abramova (1973:26) also agrees with this.

The Early Holocene and Final Paleolithic in Kamchatka

At the beginning of the Holocene, approximately 10,000 years ago, after the melting of the glacial cover, Asia's land connection with America ceased to exist, the Bering Sea and Sea of Okhotsk reached their present contours. The climate, at first still cold, gradually began to become warmer. Instead of fertile, dry tundra-steppe, wet, swampy tundra began to be widespread, and as a consequence of this large grazing animals—mammoth, then bison, and finally horses—became extinct. Finally, by the mid Holocene only the reindeer, as the most adapted to new, more severe conditions for grazers, remained in Northeast Asia. From then on reindeer became the primary object of land hunting in northern Siberia and the Far East. As a result, hunting in the Holocene continued to preserve Paleolithic features in these regions for a long time.

On the sea coasts at this time, immediately after the melting of the glaciers, very favorable conditions were created for sea mammals and they multiplied here in huge quantity. Thus, preconditions were created for an entirely new kind of economic activity by people, connected at first with collecting on the shore of the sea and then with the active hunting of seals, bearded seals, walruses, and later even whales (Malaurie 1970, 1972). A similar picture can also be seen on the opposite, Atlantic side, in the high-latitude zone of the Old World, where transition to sea mammal hunting also began in the Mesolithic (Matiushin 1976).

Thus, nature compensated man for the post-glacial decrease in large land procurement with an abundance of sea fauna, no less rich. But in consequence of this, the general orientation of the most progressive economic activity of man was redirected from land to sea.

In the center of the Kamchatka Peninsula at the beginning of the Holocene 8,000 to 9,000 years ago, the Ushki Paleolithic culture nevertheless continued to develop, reaching its final character here. Its remains can be clearly traced in Cultural Layer V (in the lower part of the brownish-yellow sandy loam, to a depth of 1.3 to 1.5 m) in the sites of Ushki I, II, and V.

Here, traces of surface dwellings were preserved that in essence are the same, but simpler, like those in the sixth cultural layer (the second and third types). A total of six of them have been investigated. Their round or oval carbonaceous area with hearths, constructed of two or several stones, had been conserved. In one case (Ushki I) the hearth was obviously a masonry ring, but was not preserved in its original form. The burned stones were spread out, with one of them—the largest (to 0.6 m in length)—having a flat surface and possibly serving for cooking fish (in the fire area were many burned fish bones). In all these dwellings, which, judging by everything, appear to have been of brush or skin tent construction, the usual artifacts for Cultural Layer VI were encountered: bifacial leaf-shaped stone points, scrapers, biface knives, wedge-shaped cores, various types of knife-like blades, and flakes (Fig. 26). The difference consists only in that substantially fewer artifacts appeared in Cultural Layer V and, along with previous types of narrow and high wedge-shaped cores (Fig. 26:2), a new type of core with a rib on the striking platform appears (Fig. 26:3). Vasil'evskii (1973) turned his attention to this, but we do not agree with his findings because supposedly at the same time wedge-shaped cores without such rib on the striking platform no longer continued to be used by the inhabitants of the Ushki sites of this period.

Vasil'evskii proposes that the culture of Cultural Layer V of the Ushki sites can probably be viewed as proto-Itel'men (Vasil'evskii 1973). However, one must keep in mind its organic connection with the preceding Cultural Layer VI, which is either proto-Aleut, as he suggests

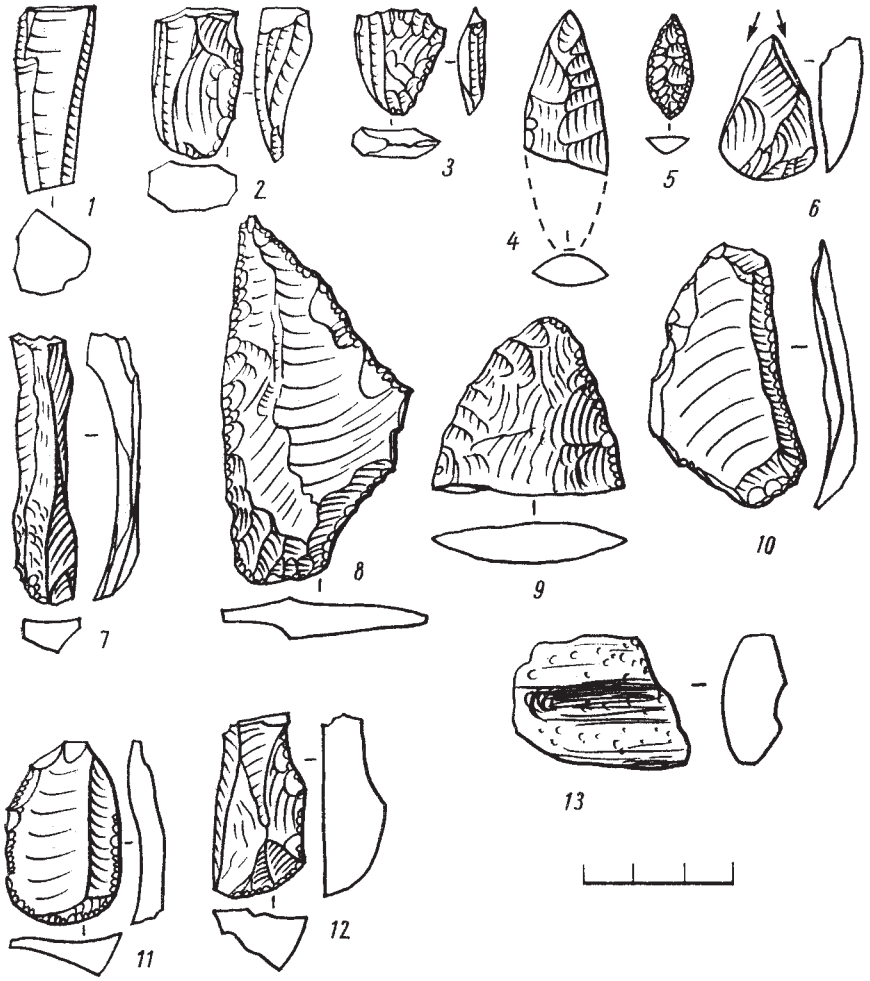

Figure 26. Stone artifacts from the final Paleolithic stage of the Ushki culture (Cultural Layer V) (1–13).

(Vasil'evskii 1973), or proto-Eskimo-Aleut, as we suggest. Meanwhile, nothing specifically Itel'men can be seen in this culture. However, we cannot completely reject the idea that this culture had some role as the substrate in the later formation of the proto-Itel'men culture and ethnic group. In this sense, the earlier Paleo-Indian substrate, represented in Kamchatka by Cultural Layer VII, and the subsequent proto-Eskimo-Aleut culture of Cultural Layer VI, can also be considered in some degree as forerunners for Itel'men ethnogenesis.

The two upper Pleistocene and one early Holocene cultural complexes that we examined here embrace in general complexity the last 4,000 to 5,000 years of the glacial and early post-glacial periods. Despite the difference between them in types of dwellings, projectile point styles (at first stemmed, then narrow leaf-shaped), and generally in technique, they both (not only by their chronological position but also by the character of the dwellings, their burial custom, and their stone industry) are typically Paleolithic, in that understanding of Paleolithic as it was formed for the upper Paleolithic of Eurasia.

The cultural remains from the superimposed Cultural Layer IV of the Ushki sites belong to an entirely different, later cultural-historical period. Before proceeding to their characteristics, we need to touch on the debatable problem of the so-called Mesolithic and its relation to the Paleolithic and Neolithic and examine the available materials on the transition from the Paleolithic to Neolithic in the Kolyma.

From the Paleolithic to the Neolithic on the Upper Kolyma

The Problem of the Mesolithic

The concept "Mesolithic" is invested by archaeologists, as is well known, with different meanings, and comprehending it often depends on the understanding of two related terms—"Paleolithic" and "Neolithic."

Some archaeologists, supposing that the Paleolithic ends with the Pleistocene, are inclined to consider any culture beginning in the Holocene as Mesolithic, treating the Mesolithic thereby as a purely chronological idea. Thus, some of them assign the Mesolithic period in northern Europe to the tenth through fifth millennia B.C. (Krainov and Briusov 1961), while others assign it to the eighth through fourth millennia B.C., leaving a place in post-glacial times for a Holocene Paleolithic (Rogachev 1966).

M. V. Voevodskii, reflecting the view of the phasic nature of historical development prevailing in his time, understood the Mesolithic as a stage in the development of primitive society, which was later adopted by other archaeologists, in particular Yu. A. Mochanov (1969b).

The idea is more accurate, in our view, when the stress is not on the socioeconomic aspect of historical development, but on the historical-cultural and historical-technical aspects. This point of view, dominating Soviet archaeology, is most clearly expressed by O. N. Bader: "The Mesolithic is a definite stage in the development of the material culture of the Stone Age. It is transitional from the Paleolithic to the Neolithic but chronologically heterogeneous in different territories, and in particular in ones distant from each other" (Bader 1966:194). A. P. Okladnikov formed his understanding of the Mesolithic simultaneously, its specific historicity being especially valuable. Okladnikov reminds us that "the term Mesolithic in its broadest and most general concept means the transition time from the Old Stone Age, flaked stone tools, to the New Stone Age, ground tools" (Okladnikov 1966b:213). At the same time he also allows an Epipaleolithic as an individual possibility—"a relict Paleolithic culture in several regions at that time when in other areas a more progressive culture had already been formed" (Okladnikov 1966b:213). Such a remnant Paleolithic (Epipaleolithic) existed, in Okladnikov's opinion, in Siberia and eastern Asia immediately before the Neolithic. At the same time he writes about the Mesolithic of the Far East (in particular, about the Ustinovka site seventeen to twelve millennia old), assigning it to the pre-ceramic period in a broad chronological framework embracing not only the Holocene but several millennia of the late Pleistocene, thus following the terminology of Japanese archaeologists (Okladnikov 1977:116). Okladnikov's multi-plan position evidently conforms with P. I. Boriskovskii's conclusion about the necessity of more fractional local periodizations for all the periods of the Stone Age after the Early Paleolithic (Boriskovskii 1954).

At the end of the 1960s in the Institute of Archaeology AN USSR two doctoral dissertations were equally successfully defended, each of which in essence approached identical late Pleistocene and early Holocene cultures with treatments that were diametrically opposed: Yu. A. Mochanov interpreted the Sumnagin culture of the eighth–fifth millennia B.C. as Holocene Paleolithic (Mochanov 1969), while G. I. Medvedev assigned the generally significantly earlier Angara sites with wedge-shaped cores and often with bifaces—Verkholensk Gora, Ust'-Bel'aia, Kamenka I–III, and Uliakha—to the Mesolithic (Medvedev 1968, 1971). Mochanov "proved" the Paleolithic character of the Sumnagin culture by the lack in it of bifacial stone artifacts. Medvedev defended the Mesolithic in Pribaikal'e as a transitional period from Paleolithic to Neolithic on the basis of a consistently evolutionary principle: "If it were not the Mesolithic it would not be progress." Such a paradoxical mutual exclusion of valuations could of course confirm that the main thing is not in the terms but rather in the very essence, in the specific picture of the development of culture in each of the regions. But cultures exactly identical in their indigenous technological essence might be interpreted in equal measure as being Mesolithic, and, in our view, only the lack of definite criteria for setting off the Mesolithic is the cause of such a paradox. But how is it possible to speak of the Mesolithic, whenever one attempts to isolate it, if there are no common criteria for its isolation? And especially if at times there is not even clarity in what distinguishes it from the Neolithic?

For Medvedev the basic criteria of isolation of the Mesolithic, as a transitional period from the Paleolithic to the Neolithic, are the appearance in the cultural complex of Neolithic stone and bone tools and more complicated forms of economy in connection with the extinction of herd animals and a transition to fishing (Medvedev 1968, 1971). We will turn our attention to that favorite argument of many: the increased complexity of forms of economy. Many archaeologists use it not only for characterization of the Mesolithic but for the Neolithic as well.[19] As an example, the recent attempt by L. P. Khlobystin to separate the Epipaleolithic and the pre-ceramic Neolithic on the basis of economic characteristics of the cultural deposits of Ulan-Khada can be noted, an attempt that turned out to be unsuccessful since the economic base of each of the named periods (hunting and fishing) could not be qualitatively distinguished by anyone (Khlobystin 1965).

According to Mochanov, there is no Mesolithic on the Aldan: after the late Holocene Paleolithic the Neolithic immediately began. We do not object to his conviction of the lack of a Mesolithic on the Aldan, though we are interested in which feature he uses to develop the boundary between the Holocene Paleolithic and the Neolithic on the Aldan. It turns out that the deciding criteria for it is the indispensable presence of ceramics in the Neolithic. Mochanov confirms that in Siberia there are no Neolithic sites without ceramics. Polemicizing with Khlobystin he writes: "To any specialist it is well known that in Siberia there are no such sites" (Mochanov 1969b). Khlobystin himself, supposing like Okladnikov the presence of an Epipaleolithic in Siberia, postulates a pre-ceramic Neolithic in Ulan-Khada following it (Khlobystin 1965:276).

We stress: there is no Mesolithic, but rather a pre-ceramic Neolithic. However, it does not stop Khlobystin from writing in the same place about a period transitional from the Epipaleolithic to the New Stone Age, that is, in other words, about the Mesolithic (Khlobystin 1965:262). Anticipating the ideas that we set forth below, we note that in Khlobystin's models there is nevertheless a "grain of truth"—the recognition of a pre-ceramic Neolithic in principle. In spite of this we cannot agree with the basic (in Khlobystin's opinion) economic criteria of

[19]For example, Merpert. See his criticism concerning V. S. Titov's report (Titov 1962).

isolation of all these periods: the Epipaleolithic, pre-ceramic Neolithic, and the Neolithic itself (Khlobystin 1965:278).

Beginning in the 1950s we have repeatedly expressed our opinion that the single basis of archaeological periodization can be only on the development of technology and not on the economy or social structure, for which a special periodization is necessary. In May 1970 the basic positions of this section of the book were discussed as part of a dissertation (Dikov 1971b), in particular the principle of having a single aspect of archaeological periodization, in a session of the branch of archaeology at the Institute of History, Philosophy, and Philology of the SO AN USSR. The positions were then reflected in a special article by the author on the three principles of archaeological periodization (Dikov 1976c).

G. P. Grigor'ev came to a similar conclusion independently of us, having noted that underlying archaeological periodization is the development of technology, and not production, and that the "development of tools goes according to its own norms and laws" (Grigor'ev 1970:62). He correctly does justice to the formation of a concept similar to A. N. Rogachev's, who explained the transition from one step of the Upper Paleolithic to another not by a change in economy, but by a change in the archaeological culture itself (Grigor'ev 1970:43; Rogachev 1966). A. A. Formozov also came to a similar conclusion, who before had adhered to a cultural-historical criterion, having compared the Mesolithic ultimately to the highest degree of savagery (Formozov 1959b:67). Having categorically come out in favor of preservation of the term "Mesolithic" and against all of its equivalents, including "pre-ceramic Neolithic" (he suggests "ceramic-less" as better), Formozov proclaimed himself against the introduction of sociological characteristics as a basic element in archaeological periodization, correctly giving reasons for this by pointing out that there is not complete conformity of typological and sociological changes, but a somewhat oversimplified cause for this very discrepancy, which in his opinion is supposedly that "material culture reflects the evolution of the economy and society with some delay" (Formozov 1970:10).

At a conference on the problems of the Mesolithic, which took place at the Leningrad branch of the Institute of Archaeology AN USSR in December 1974, no unified opinion could be reached on the criteria for distinguishing the Mesolithic, but nevertheless the predominating significance of typology in this respect was pointed out (Gurina 1977:6, 21, 22; Telegin 1977:33). Again views were expressed on the deciding role of ecological and economic changes (in particular, of the appearance in post-glacial times of forest animals instead of herd animals, of increasing complexity in hunting, and of the development of fishing) in the rise of Mesolithic technology, the idea itself of the "Mesolithic" being closely connected with these changes (Dolukhanov 1977; Ermolova 1977:19). However, the critique of Formozov by P. M. Dolukhanov, the creator of the Mesolithic eco-social system—a critique that points out that at the base of Formozov's archaeological periodization are physical objects and not a type of economy or social structure and that takes Formozov to task for his refusal to see the connection between the change of appearance in the stone inventory and changes in the natural environment (Dolukhanov 1977:13)—is not convincing and proves only that the argument really proceeds at different levels of investigation. The problem of archaeological periodization is source work, the study of types (A. A. Formozov), and the problem of the connection and the correlation of this or another period with the ecology and type of economy in archaeological periodization (P. M. Dolukhanov) is an entirely different level—that of interpretation. And finally, there is no need to combine these levels of investigation in the fashion Dolukhanov does (Dolukhanov 1977:13). Formozov's position seems to me more correct, though

unfortunately he is not sufficiently consistent, since for his typological argument he still sometimes seeks confirmation in the development of the economy (Formozov 1970:8–10). And he is still so vague that he is ready to recognize Verkholenskaia Gora as Mesolithic, following Medvedev, inasmuch as at this site traces of fishing are seen, as well as the Bel'kachi I site, in spite of Mochanov, since fishing was also noted there (Formozov 1970:8–10).

The negative position in respect to the idea of a direct connection of typology with ecological changes is also held by N. N. Gurina, who correctly turned her attention to indications that several elements of Mesolithic technical development arose in the early phases of the Paleolithic (Gurina 1977:22.).

Finally, a specialist on the Mesolithic, G. N. Matiushin, came to the conclusion that the most characteristic features of the Mesolithic are standardized lamellar technology and settled living (Matiushin 1976.). V. P. Stepanov, it seems, is not fully in agreement with that, but rather understands the Mesolithic as a multiple aspect idea to which typological, cultural, and economic criteria are applicable (Stepanov 1976:301).

From what has been said it is obvious that at the present time in archaeological science there is a lack of generally accepted periodization of the last stages of the Stone Age based on united principles, and that various attempts to surmount this intolerable position can be seen. Rogachev sees the course of resolution of this problem in the elimination of the idea of a Mesolithic as an independent, middle period of the Stone Age, changing it to late Holocene Paleolithic (Rogachev 1966:13). Bader, Formozov, Gurina, and others consider its preservation necessary, however, with some substantial reservations to its only chronological approach (Bader 1966:196–205; Formozov 1970; Gurina 1977). Okladnikov suggests using the term "Mesolithic" only for the western part of the Old World, and for the eastern, including Siberia, suggests use of the term "Epipaleolithic" (Okladnikov 1966b:213, 214). For the Far East he uses in practice the new term "Pre-ceramic Epoch" (Okladnikov 1977). L. P. Khlobystin constructs a new stage, the "Pre-ceramic Neolithic," transitional from the Epipaleolithic to the Ceramic Neolithic (Khlobystin 1965:277–279). As a result, three basic approaches to the distinction of all these stages are noted: (1) with indispensable consideration above all of a socioeconomic base (M. V. Voevodskii, Yu. A. Mochanov); (2) on an economic (G. A. Medvedev) or a generally ecological-social base (P. M. Dolukhanov); (3) only on a historical-cultural or historical-technical base (A. P. Okladnikov, O. N. Bader, G. P. Grigor'ev, A. A. Formozov, N. N. Gurina, G. N. Matiushin, and others).

It seems to me that the last of the three approaches is the most justified since it corresponds more to the essence of archaeological periodization based on the change of the fundamental technological materials and on the development of a technology for the preparation of tools[20] (and in general not the historical-cultural, the economic, and especially not the socioeconomic). However, even in this, in my view, most reasonable approach there is at times an insufficiently clearly determined object and criterion for periodization, such that its followers often use criteria that clearly pertain to economic development and not to the technology of manufactured tools.

I am convinced that a satisfactory resolution to the problem of periodization of the Stone Age is possible only under the condition that one does not require from it multiple aspects. Its object

[20]It is noteworthy that the term "Mesolithic," introduced, as G. N. Matiushin (1976) recently reminded us, in 1894 by Hansen, had a purely technological significance at the beginning and only later (with V. G. Childe and T. Clark) began to acquire a historical-economic implication.

is the history of the material culture, and more precisely the history of technology, namely the technology of the manufacture of the basic tools of work.

This principle, the same as "*principium divisionis*,"[21] is quite necessary, since the idea of the "Stone Age" in opposition to the Bronze and Iron Age signifies only the fact that in this period stone tools were in use. With regard to the economy and social structure, by virtue of inequality of development, tools are extremely different among different ethnic communities in one and the same stage of archaeological periodization, especially at the end of the Stone Age. Both the social structure and the economy, of course, should be considered by archaeologists as basic factors, but special parallels of periodization should be worked out for them, since Marxist socioeconomic periodization always remains the defining and leading system of socioeconomic forms and their stages that supersede each other. All the other periodizations reflecting some aspect of the development of culture, technology, economy, etc., should permanently correlate with it, and finally, depend on it.

The non-observance of this principle or any attempts at synthesizing, or more precisely, mixing in a single common archaeological periodization all the eclectic aspects of historical development will inevitably destroy it and add confusion, since the other aspects, while they do develop in parallel and coincide with it in general in the direction of development, they do not coincide chronologically in their level at critical moments and at critical boundaries as a result of inequality of specific historic development. As a result, attempts to create a single complex periodization of different historical processes are futile and inevitably lead down a blind alley, which ultimately might happen with archaeological periodization if it is built on the principle of an eclectic union of various aspects.

Issuing from what has been said and considering our article on the principles of periodizaton (Dikov 1976b), the Mesolithic has to be examined not as a universal and general intermediate period between the Paleolithic and the Neolithic, but rather as a indigenous variant of one of the stages of the transition period at the end of the Stone Age. The most common technological feature uniting the Mesolithic with other stages of this general revolutionary period is the imminently emerging industry of knife-like blades and the technique of insetting. The most characteristic and almost exclusive feature of the developmental stage of the revolutionary period, the Neolithic, is the mass grinding of some stone tools, predominantly axes and adzes. Ceramics, in spite of their great significance in the development of the material culture, are not an exclusive and compulsory sign of the Neolithic (here we agree with Khlobystin) (Khlobystin 1965:278, 279). Sometimes they are absent in the Developed Neolithic, for example, at Ierikhon (Kenyon 1957; Masson 1958) or at Zabaikal'e (Grishin 1977; Khlobystin 1965:279), on Kamchatka and Chukotka, and at times they even occur in the Mesolithic. Ceramics of great antiquity, bordering on the Pleistocene, appear for a long time in Japan in cultures that by all other technological features are Mesolithic (Chard 1964). If ceramics are considered, as before, compulsory for all regions of the land as a criterion for separation of the Neolithic, and their absence is a feature of the Mesolithic, then the ceramic Neolithic in Japan begins in the ninth millennium B.C., whereas in the valley of the Kamchatka River and in some inner-continental regions of Chukotka, the ceramic-less Mesolithic with ground axes and a complete tool kit of other typically Neolithic items as it were continues up to the seventeenth

[21]With regard to the third principle of periodization, which we proposed, and the periodization's dialectical nature (Dikov, N. N. 1976b:218–224), the introduction of the principle would require essential restructuring of the whole concept of periodization, which is not undertaken here in full measure.

century A.D. It is consequently more correct to speak of a "Ceramic Mesolithic" of Japan and a "Ceramic-less Neolithic" of Kamchatka and Chukotka.

Further, the definitions of the Neolithic and Mesolithic that we have accepted do not take into consideration the historical-economic aspect. Attempts to see in some forms of economy a universal feature of the Mesolithic or Neolithic are in many cases doomed to failure since these periods are combined in different territories with different types of economy. In the Near East it was farming and livestock breeding that began with the Mesolithic, on the sea coasts of northern Scandinavia it was Mesolithic sea mammal hunting (the Komsa culture), and in many areas of the Old and New World up to the end of the Neolithic the economy never passed from the stage of hunting and fishing, though in a purely technological respect the economy went through the Neolithic period. We are not of course denying that a progressive development in the economy occurred in the Mesolithic and Neolithic, but are rather only stress that this development took place in the most different, incomparable forms (individualization of hunting or the transition to fishing or to farming and livestock breeding, etc.). This phenomenon does not allow the possibility of establishing a general direct link between the examined periods of archaeological periodization and a certain type of economy.

This is also related to attempts to establish a simple universal association between the level of development of Mesolithic technology and an economic base. The increased inequality of historical development in the Mesolithic resulted in the most varied combination of household economies and in technology and the economic base (Matiushin 1976:26).[22] The chief determining factor in the general development of technology in the Mesolithic and Neolithic is not the level of stone-working technology by itself, but rather the number of surplus products, the latter determined not so much by the level of the stone-working technology of the Mesolithic and Neolithic as by the character and condition of leading branches of the economy, that is, the general level of development of the production forces. By the end of the Neolithic the development of livestock breeding and farming led to the formation of a class society in the Near East, while in Siberia even in the early Iron Age the original social structure was still preserved.

This line of thought prompts one more conclusion. It is with regard to the "Neolithic revolution," about which many people write and speak, following Childe (Childe 1952; Masson 1969). By "Neolithic revolution," they mean the transition in the Neolithic, beginning with its pre-ceramic phase, that is, essentially in the Mesolithic, to production types of economy (farming and livestock breeding) and ultimately to the working of metal, trades, and urban culture. What Childe had in mind took place not so much in technological as in household economic and socioeconomic periodization under the more optimal natural conditions of a comparatively restricted region. The Neolithic (and Mesolithic) period during the development of technology in the Stone Age, which caused the transition to metal in a broader territory, including northern Siberia, has a completely defined but narrower, purely technological content. At the same time it is universal since it reflects the most general regularity in the development of culture that is caused in significantly less degree by the natural environment. All the ethnic groups of the world, including Northeast Asia, completely or partially passed through the Neolithic period of archaeological periodization. Only some of them experienced the "Neolithic revolution" in the narrow meaning of the word

[22]Following Matiushin, Yu. A. Mochanov (1977:253) wrote on the most clearly manifested inequality of historical development of society, which began with the early Holocene.

(according to Childe). Those were the ones in favorable conditions for development of the most highly productive types of economy—livestock breeding and farming.

With regard to the specific criteria for distinguishing the Mesolithic period of technical development from the preceding Paleolithic in the area of Northeast Asia that we are examining, the border between the Paleolithic and Mesolithic ought to pass between the cultures with wedge-shaped cores (Paleolithic) and the superseding cultures without these cores. We are prompted by the fact that wedge-shaped (end) cores are peculiar to cultures of very early Sartan age and are also encountered in such undoubtedly Paleolithic sites as Afontova Gora, the Kokorevskie sites, Diuktai Cave, and others. It is possible that these sites mark the beginning of the revolutionary period of the Stone Age, the beginning of the use of inset technology on a base of mass standardization of knife-like blades. Another important element arises: these sites mark a special stage in the development of Paleolithic technology, which culminates at the end of the Pleistocene or in other places in the early Holocene, that is qualitatively distinct from the subsequent one when wedge-shaped cores everywhere are superseded by pencil-shaped, conical, thin, and regular prismatic cores.

Adhering to such criteria we are inclined to assign the Verkholenskaia Gora site, the lower levels of Ust'-Belaia site, and other so-called Mesolithic sites of Pribaikal'e (Uliakha and Kamenka I–III) (Medvedev 1971) with wedge-shaped cores, as well as the Ustinovka "pre-ceramic" site in Primor'e (Okladnikov 1966c), to the final or late Paleolithic, and the so-called Sumnagin culture of the "Holocene Paleolithic" (Mochanov 1969b) basically to the Mesolithic. The advantage of such attribution of the named sites is evident: the technological principle, the only one being used for archaeological periodization, will be maintained the most consistently; the border between the Paleolithic and the Neolithic will become clearer and more objective; it defines the single technological criterion in the whole vast expanse from the Pamir to Japan, from Central Asia to Alaska; and owing to this, cultures will be objectively compared by the level of their technology within the framework of generally accepted archaeological (that is, historical-technological) periodization. The inequality of technological and cultural-economic development becomes even more obvious.

The problems of our investigation prompt us to dwell in more detail on the question of the so-called Sumnagin culture.

Based on his schema of two traditions, Yu. A. Mochanov assigned Sumnagin to a unifacial tradition and defined it as a culture of the Holocene Paleolithic (Mochanov 1969, 1977). One cannot completely agree with either of Mochanov's positions.

The erroneousness of assigning the Sumnagin culture to the Holocene Paleolithic has already been noted by Formozov, who quite correctly interpreting it as being largely a fishing culture, assigned it to the late Mesolithic (Formozov 1970). Mochanov's (1977) subsequent explanation was not sufficiently convincing: actually, signs of fishing among the Sumnagin people (sinkers, fish bones, lack of arrow points) are irrefutable. Laying aside the question of the an economic criterion, it should be recognized that the Sumnagin culture is not Paleolithic, based on our technical-typological indicators: microlithic tools predominate among its artifact complexes, with characteristic Mesolithic "parallelograms" repeatedly found among them (Mochanov 1977:Pl. 85) and wedge-shaped cores are completely lacking (in all layers of the Sumnagin site). The latter are found only in the lowest layers of the Ust'-Timpton site (in VI, V–b, and degenerate ones or blanks

in Layer IV–b) and Bel'kachi I (Layers XVIII–XIX) (Mochanov 1977:Pls. 48:4; 66:3; 67:26).[23] In our opinion only the Holocene Paleolithic of the Aldan is bracketed in these layers. But the culture, represented by these very deep, recently found layers dating by radiocarbon to between 8060 ± 70 and 10,650 ± 80 B.P. (Mochanov 1977:103, 149, 191) can be correctly evaluated and called not the Sumnagin culture, but rather the Ust'-Timpton, since in the later Sumnagin site no traces of the Sumnagin culture were preserved in any of the cultural layers. In addition to wedge-shaped cores and unifacial stone tools, bifacial technology, contrary to Mochanov, is characteristic of the knife-like blades of the Ust'-Timpton culture as well (Mochanov 1977:190, Pl. 69).[24] "Parallelograms" are completely lacking in the material complex of this culture.

All above-lying cultural layers of the Ust'-Timpton and Bel'kachi I sites, as well as a whole suite of cultural layers of the Sumnagin I site, have no basis for being assigned to the Holocene Paleolithic, and the culture uniting them should be considered Mesolithic, keeping its previous name—Sumnagin. Inasmuch bifacial technology is not completely foreign to it (having in mind stone chisel-like tools: an axe and an adze from Layers IV–b and IV of the Ust'-Timpton site worked by complete flat bifacial retouch) (Mochanov 1977:Pls. 56:5; 57:5, 7; 63:3), we are right in not agreeing with Mochanov's view of a migration of a Sumnagin unifacial tradition to the Aldan from somewhere outside, for example, from the Yenisei, as he suggests (Mochanov 1977:Pls. 56:5; 57:5, 7; 63:3). It is also possible to start from the opposite concept of autochthonous origin of the Mesolithic from the Paleolithic, which is more justified in our view, and, in particular, autochthonous growth of the Sumnagin Mesolithic unifacial tradition in the indigenous Ust'-Timpton Holocene Paleolithic on a base of late Paleolithic Diuktai culture. Genetic connections can be distinctly observed between all these cultures (Diuktai, Ust'-Timpton, and Sumnagin) even in the position of the cultural layers in one and the same sites, in the technology of knife-like blades and in bifacial technology in general. The lack of biface knives and points in particular in the Ust'-Timpton and Sumnagin cultures can be easily explained by the use of inset tools instead and by the general rationalization of secondary work of stone artifacts under the conditions of transition from Paleolithic to Mesolithic technology, and does not need the far-fetched explanation of migration. However, we leave the final decision of this question to the acquisition of new materials from the territory of Yakutia, still very poorly studied archaeologically.

Keeping in mind the above-stated concept of the Mesolithic and Neolithic and the criteria of the difference between themselves and between them and the preceding Paleolithic in Northeast Asia, we proceed now to the specific examination of the available archaeological data on the post Paleolithic cultures of the Kolyma, Kamchatka, and then Chukotka.

[23]Blanks or unclearly expressed wedge-shaped cores (Mochanov 1977:Pls. 54:24; 56:2).

[24]See the axe, bifacially worked by flat retouch, from Layer VI of the Ust'-Timpton site.

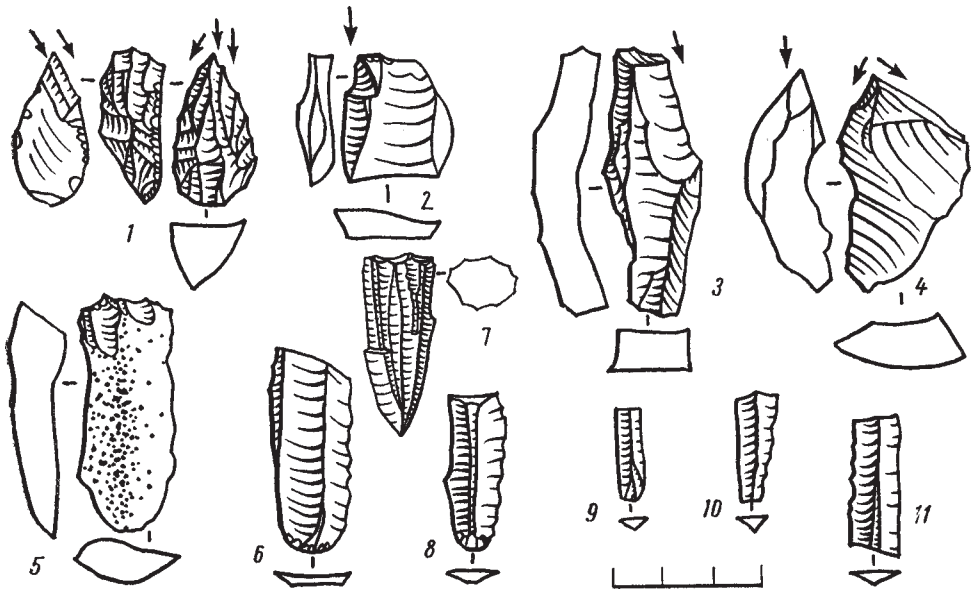

Figure 27. Stone artifacts from the lower layer of the Kongo site (early stage of the Siberdik culture) (1–11).

The Siberdik Culture

Owing to investigations in recent years,[25] the transitional period of the Paleolithic to the Neolithic is represented more fully and convincingly on the upper Kolyma than in Kamchatka and Chukotka. It is filled with cultural remains at the well-stratified sites of Kongo, Siberdik, and Maltan, the cultural layers of which gave a well-dated succession of cultural development from the final Paleolithic to the Early Neolithic. The beginning stage of the Siberdik culture is the earliest in this succession, coming directly from the Paleolithic and in some measure still being in it. A later stage is characterized by the Maltan cultural complex.

The concept of the "Siberdik culture" began to emerge as early as following the first excavations of the Siberdik site (168), when along with small flint knife-like blades, large cobble tools—uniface choppers—were found. Afterward the earliest stage of this culture was discovered in the bottom layer of the Kongo site (169), dating to 1,000 years earlier than the bottom layer of the Siberdik site. The latter, together with the upper layer of the Kongo site, is now assigned to the second period of the Siberdik culture, in essence still Paleolithic.

The earliest stage of the Siberdik culture, represented by the remains from the bottom layer of the Kongo site, is dated by C-14 at 9470 ± 530 B.P. (Kril–314). It is characterized by a combination of small blade tools (Fig. 27) and large cobble tools (Fig. 28) (Dikov 1977b:Pl. 192).

[25]The reference here is to five years of investigations primarily in the pool area of Kolymsk hydroelectric reservoir, where in 1971 an expedition of SVKNII DVNTs AN SSSR found the multi-component Kongo and Siberdik sites. Archaeological testing, which was conducted there before this (in 1970) by Yu. A. Mochanov and S. A. Fedoseeva (from the Institute of Language, Literature, and History of the Yakutia branch of SO AN SSSR), made no finds within the boundaries of the area of the pool. Only insignificant late Paleolithic material was collected beyond its boundaries—in the dispersed Maiorych site (Mochanov 1972).

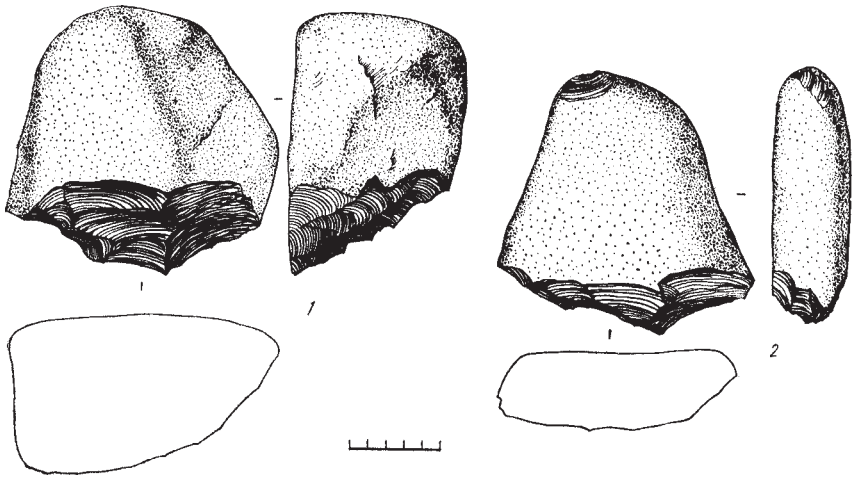

Figure 28. Uniface choppers from the early stage of the Siberdik culture (lower layer of the Kongo site) (1–2).

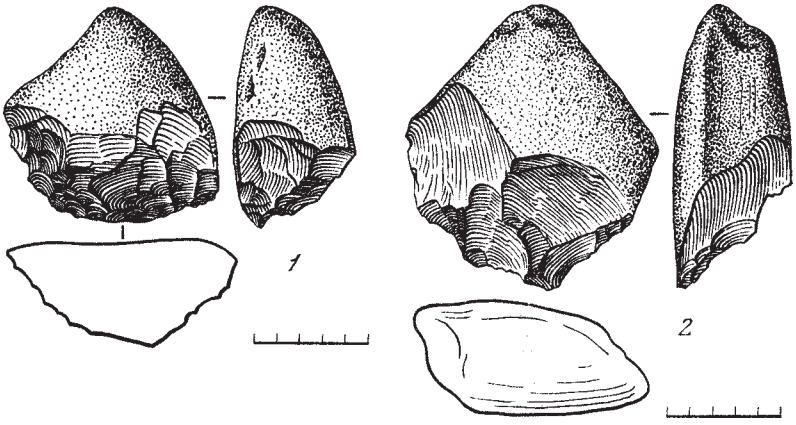

Figure 29. Uniface choppers from the late stage of the Siberdik culture (1–2).

Figure 30. Uniface choppers from the late stage of the Siberdik culture (1–2).

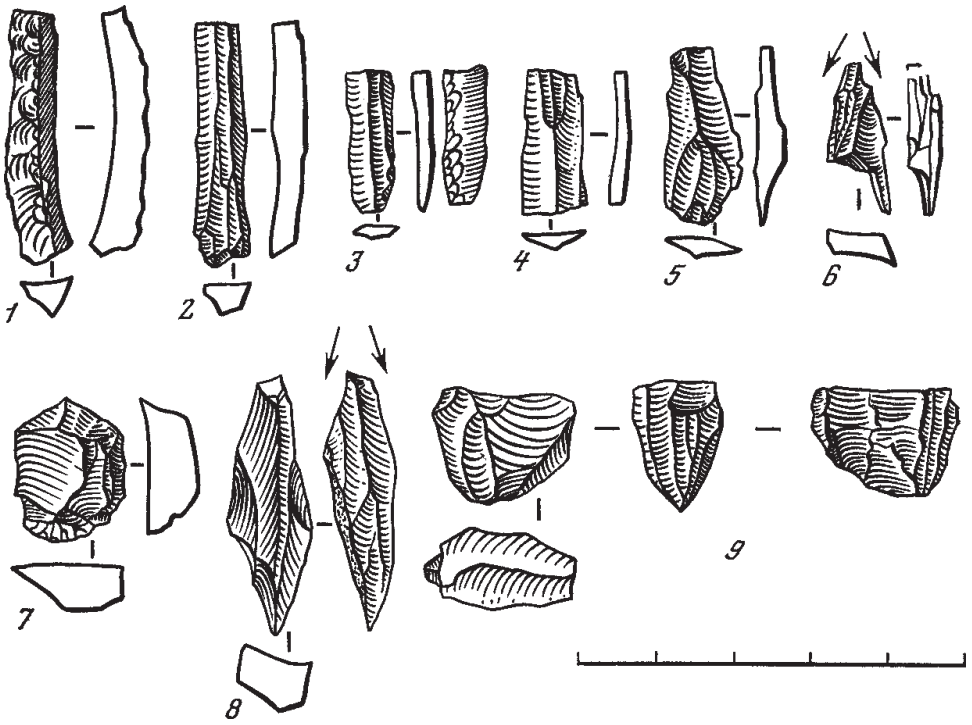

Figure 31. Stone artifacts from the late stage of the Siberdik culture of the Remnant Paleolithic (lower layer of the Siberdik site).

Cobble tools in the rather primitive form of uniface choppers make up a group of traditional Paleolithic artifacts consisting of large heavy pebbles trimmed on only one side along one edge or small cobbles of keratinized slate.

Among the small tools, flint knife-like blades predominate, sometimes retouched along the edge (Fig. 27:5, 6, 8–11), and lateral burins on rather massive lamellar flakes are also in evidence (Fig. 27:2–4). A conical core (Fig. 27:7) and a very distinctive micro-artifact of boat-like form (Fig. 27:1) were encountered as well. If the knife-like blades and core are not considered, then all these artifacts have a very archaic appearance, especially the burins.

For the subsequent, later stage of the Siberdik culture, judging by the finds in Layer III (the bottom) of the Siberdik site and in Layer II of the Kongo site, the combination of knife-like blades with cobble tools—uniface choppers—is also characteristic. The latter is represented here by more elaborate and more carefully formed specimens (Figs. 29, 30). The knife-like blades are also small, many of them retouched along the edges (Fig. 31:1–5). Some of them were evidently split off wedge-shaped cores—a very small one of "Gobi" form was in a work area in Layer III of the Siberdik site (Fig. 31:9). The burins here are entirely different. They are not on large lamellar flakes as in the early stage of this culture, but rather on thin knife-like blades (Dikov 1977b:Pl. 192:4). Of course, there is also among them a small polyhedral burin (Fig. 31:8). Blades with a beveled transverse edge blunted by retouch (Dikov 1977b:Pl. 192:5) and a lateral notch (Dikov 1977b:Pl. 192:7) are also characteristic items of the complex.

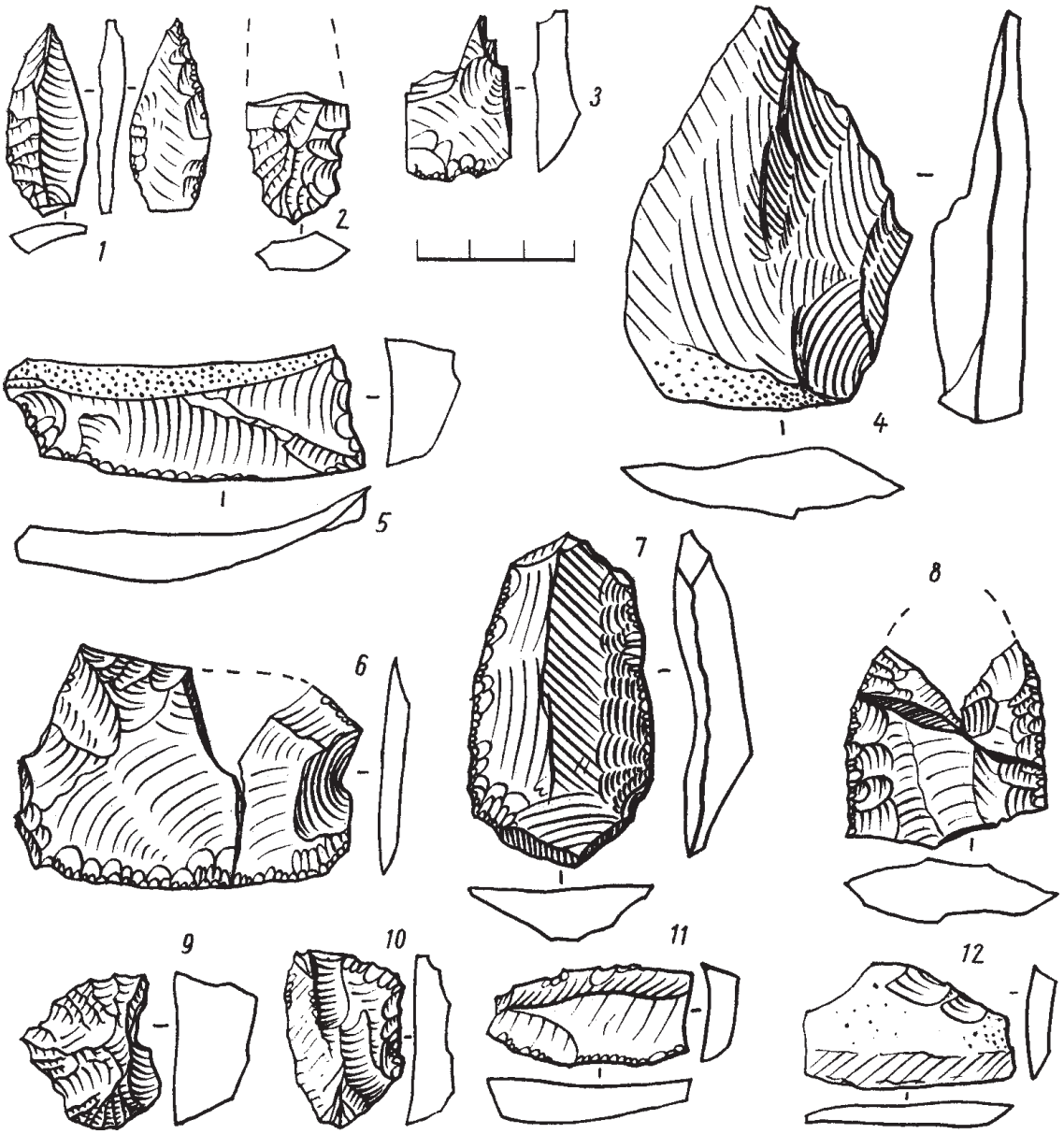

Figure 32. Projectile points, scrapers, and knives from the late stage of the Siberdik culture of the Remnant Paleolithic (1–12).

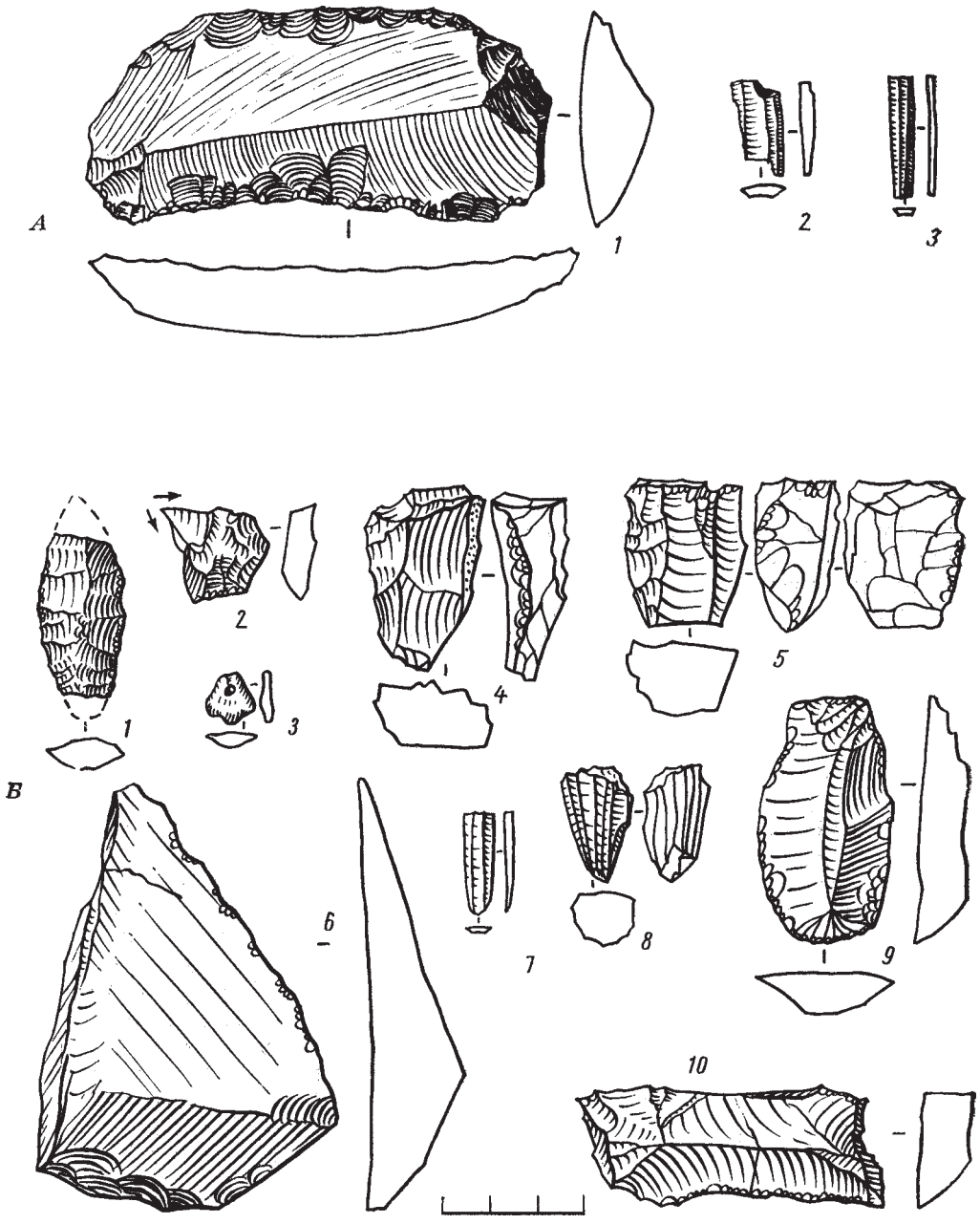

Figure 33. Artifacts from Neolithic Layers I (A:1–3) and II (B:1–10) of the Siberdik site.

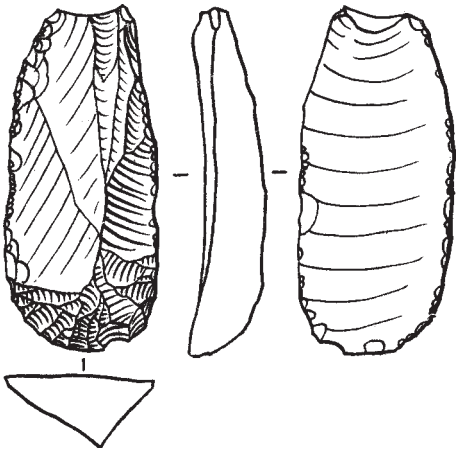

Figure 34. Flint scraper (presumably Paleolithic) from Shilo Creek on the upper reaches of the Kolyma River (4/7 natural size).

Arrow points are all elongate/leaf-shaped, retouched on both sides (Fig. 32:1, 2). They are similar to those from Ushki Cultural Layers V and VI. Biface knives and unifaces, partially retouched along the edges, as well as various skreblos and scrapers, among which are also end scrapers (Fig. 32:9, 10), are less significant and diagnostic, but there are also some among them generally like Ushki types (Fig. 32:8, 9, 10). Large end scrapers on massive lamellar flakes are very characteristic (Fig. 32:7), such as were found on Shilo Creek in 1970 (Fig. 34).[26] Knives made from large oblong lamellar flakes retouched along one side, forming a working edge (Fig. 32:5); large massive skreblos, in some cases with a "beak" on the working edge (Fig. 32:10); and pick-shaped gigantoliths of the Novgorod-Seversk type should be assigned to other distinctive Siberdik forms. Finally, large and quite distinctive subtriangular flake-points (Fig. 32:4) are very characteristic for this stage, just as for the previous one (Dikov 1977b:Pl. 193:2).

From the enumerated artifacts some may well serve for dating, specifically wedge-shaped cores and leaf-shaped arrow points of the Ushki final Paleolithic type. They permit assigning a final Paleolithic age (on the scale of Kamchatka archaeology) to the second stage of the Siberdik culture, which agrees well with the radiocarbon dates of 8655 ± 220 B.P. (MAG–196) on charcoal from the upper layer of the Kongo site and 8480 ± 200 B.P. (Kril–249) and 8020 ± 80 B.P. (Kril–250) on charcoal from a fire pit in the bottom layer of the Siberdik site. The presence in its Cultural Layer III of subaerial pseudomorph-frost cracks from the thawing of ice veins also confirms a similar date, since it permits assigning this layer to a period preceding the beginning of warming in the early Holocene, probably to the very end of the Sartan glaciation or to the very beginning of the Holocene.

Judging by the character of the material remains at the Kongo and Siberdik sites, the inhabitants of the upper Kolyma were occupied predominantly by hunting at this time of intensive retreat of the glaciers and, more probably, no longer hunting mammoths, but rather primarily reindeer and horse, the bones of which were found repeatedly in the lower layer of the Siberdik site. These aboriginal hunters meanwhile left their traces only in campsites with surface dwellings of hut or tent type, where abundant remains of stone working activity were preserved, especially at the Siberdik site with its large and very significant work areas. The remains of horses' teeth together with red ocher possibly indicate the existence of a cult of this animal among the Siberdik people.

[26]We interpret this end scraper as the first late Paleolithic find in the basin of the Kolyma, in particular comparing it with analogous scrapers from Cultural Layer V of the Ushki sites (Dikov 1971:186, 1974b:23). Yu. A. Mochanov called into question the final Paleolithic age of this scraper (Mochanov, Yu. A. 1977:94), though in the same work (Mochanov, Yu. A. 1977:205) he unconditionally considers similar end scrapers on massive flakes that he found in mixed lower Kolyma sites as one of the clearest indicators of the Sumnagin culture, which he assigns to the Holocene Paleolithic.

Later development of the Siberdik culture, as it is coming to an end, probably runs to the threshold of the Early Neolithic. This can be confirmed by the radiocarbon date of 6300 ± 170 B.P. (Kril–248), which represents this stage of Cultural Layer II of the Siberdik site.

Characteristic for this stage is an industry of knife-like blades and small tools combined with large cobble tools-uniface choppers. The distinctive artifacts of flattened-conical cores transformed into tools become widespread (Dikov 1977b:Pl. 189:1, 2). Often only the spalls from their working edges are encountered (Fig. 33B:4, 5) (Dikov 1977b:Pl. 190:1, 3). The remaining stone artifacts basically continue the tradition of the previous stage: elongate/leaf-shaped arrow points (Fig. 33B:1) (Dikov 1977b:Pl. 190:4, 5), oblong lamellar knives retouched along the edge (Fig. 33B:10), end scrapers on massive lamellar flakes, and other less significant forms of scrapers (Fig. 33B:9). Burins look somewhat different now—lateral and dihedral on flakes (Fig. 33B:2). Uniface choppers remain the same in principle. Decorations meanwhile consist of only one pyrophyllite bead (Fig. 33B:3).

Thus, no sharp change can be observed in stone working technology during the course of development of the Siberdik culture. This succession can be seen in several elements of the technology even in the later Neolithic stage, judging by the finds of oblong lamellar knives in the upper-most layer of the Siberdik site (Fig. 33A:1).

Nevertheless, the wedge-shaped core from Cultural Layer III of the Siberdik site (Fig. 31:9) adds a definitely Paleolithic character to the first two stages of the Siberdik culture, though at present nothing can be said with confidence about its last stage. Considering the early Holocene (absolute) date of these first two stages, it is entirely possible to assign them to the relict (Holocene) Paleolithic, which changes along with the dying technology of wedge-shaped cores of the late, third stage of the Siberdik culture into a very weakly reflected Mesolithic, and perhaps even immediately into the Neolithic (depending on later finds in the upper layers).

Discoveries of the Siberdik culture in the upper Kolyma basin fills the existing gap in the Paleolithic map of the Northeast and forces a reconsideration of Mochanov's incorrect ideas about the spread of the Diuktai culture (Mochanov 1977:236), and then even the Sumnagin (Mochanov 1977:241) culture, to the coast of the Sea of Okhotsk and Bering Strait, not to mention Kamchatka. In fact, although there are a few similarities with the earlier Diuktai culture (bifacial leaf-shaped projectile points, wedge-shaped cores), the Siberdik culture remains sharply different from it in everything else. It has somewhat different burins, different and more massive skreblos, and no bifacial knives at all. But above all, in the Siberdik complex are many quite specific triangular flakes (points, large skreblo-like instruments, and uniface choppers), and the latter, as Mochanov recognizes, are completely uncharacteristic for the Pleistocene and early Holocene sites of the Aldan (Mochanov 1977:223).

The Sumnagin culture, including the final Paleolithic Ust'-Timpton stage as well, almost completely coincides in time with the Siberdik culture, but it differs from it even more sharply than the Diuktai. The difference here is not only in the weak development of the cobble industry (uniface choppers) among the Sumnagin people, but in the complete lack among them of bifacial arrow points, which are very typical for the Siberdik culture, as well as in a somewhat different economic base: the Sumnagin people occupied themselves with fishing and hunted reindeer and moose, while the Siberdik hunted reindeer and horse, being not at all occupied with fishing, judging by presently available data.

For a reconstruction of the cultural connections of the Siberdik people, the most notable tools are, of course, their uniface choppers and large—sometimes weighing several kilograms—stone cleavers made from large pebbles and small cobbles trimmed along one edge of one side. These coarse cobble tools immediately bring to memory the famous—earliest on the planet—and, of course, even more primitive choppers of South and East Africa, and South and Southeast Asia (Boriskovskii 1971). It is true, these tools are many hundreds of thousands of years old there, while the Siberdik are hardly more than 10,000 and are assigned, judging by the stratigraphy and radiocarbon dates, to the very end of the glacial period or to the very beginning of post-glacial times. They are most similar to cobble tools of Priamur'e, where they were used for a long time, from the very earliest stages of the Paleolithic known there, and of America, especially in the Northwest where they are most often encountered in British Columbia. And if the age of the latter, for example in the purest Nesikep complex (about 12,000 years) (Borden 1970:331–337), is compared to the one in Priamur'e at Kumary III (25,000 to 30,000 years) (Derevianko 1971), then it can be demonstrated that the choppers found on the Kolyma are precisely the missing link between Asian and American tools of such kind, which for so long no one was able find in extreme Northeast Asia.

This technological tradition was able to penetrate into America, in particular into British Columbia, from the Kolyma only up to when the route was covered by Canadian ice sheet, that is, no later than 20,000 to 23,000 years ago.

Therefore, the choppers found at the Siberdik site are a comparatively late relic of the Kolyma chopper industry (just as in British Columbia) and attest to the unusual stability of this earliest technological tradition of cobble tool manufacture in the far eastern region of northern Asia, and about the important role this region played in its spread to America.

Thus, it can be said now with confidence that on the Kolyma, as a result of investigations by the Northeastern Archaeological Expedition in 1971–1973, the original early Siberdik culture of the relict Paleolithic was discovered. It is essentially different from the Diuktai and Sumnagin cultures, and, like Kumary III in Priamur'e, it unites the early cobble industry of choppers with the young industry of knife-like blades, bifacially worked stone knives, and leaf-shaped projectile points. This culture of distinctive, previously unknown appearance, represented on the Kolyma already by two sites—the bottom layer of the Siberdik site and the site on Kongo Creek—occupies an intermediate position between the Paleolithic cultures of the southern Far East and America and therefore is very significant for solving the problem of the settlement of America.

The Maltan Complex

At the Maltan site (170) two cultural layers were found that reflect a very distinctive technological evolution, beginning without ceramics somewhat earlier than the second period of the Siberdik culture (7490 ± 70 B.P., MAG–183) and terminating in the ceramic Neolithic (4450 ± 50 B.P., Kril–247; 3690 ± 50 B.P., Kril–246). The distinctiveness of this cultural evolution consists of the many special features in the stone inventory when compared with that from Siberdik, which developed right beside it, and above all in the complete absence of cobble tools (uniface choppers) so characteristic for the Kongo and Siberdik sites. It might even be possible to speak of a separate Maltan culture, but rather than do that, we will just evaluate the uniqueness of the Maltan site. It is

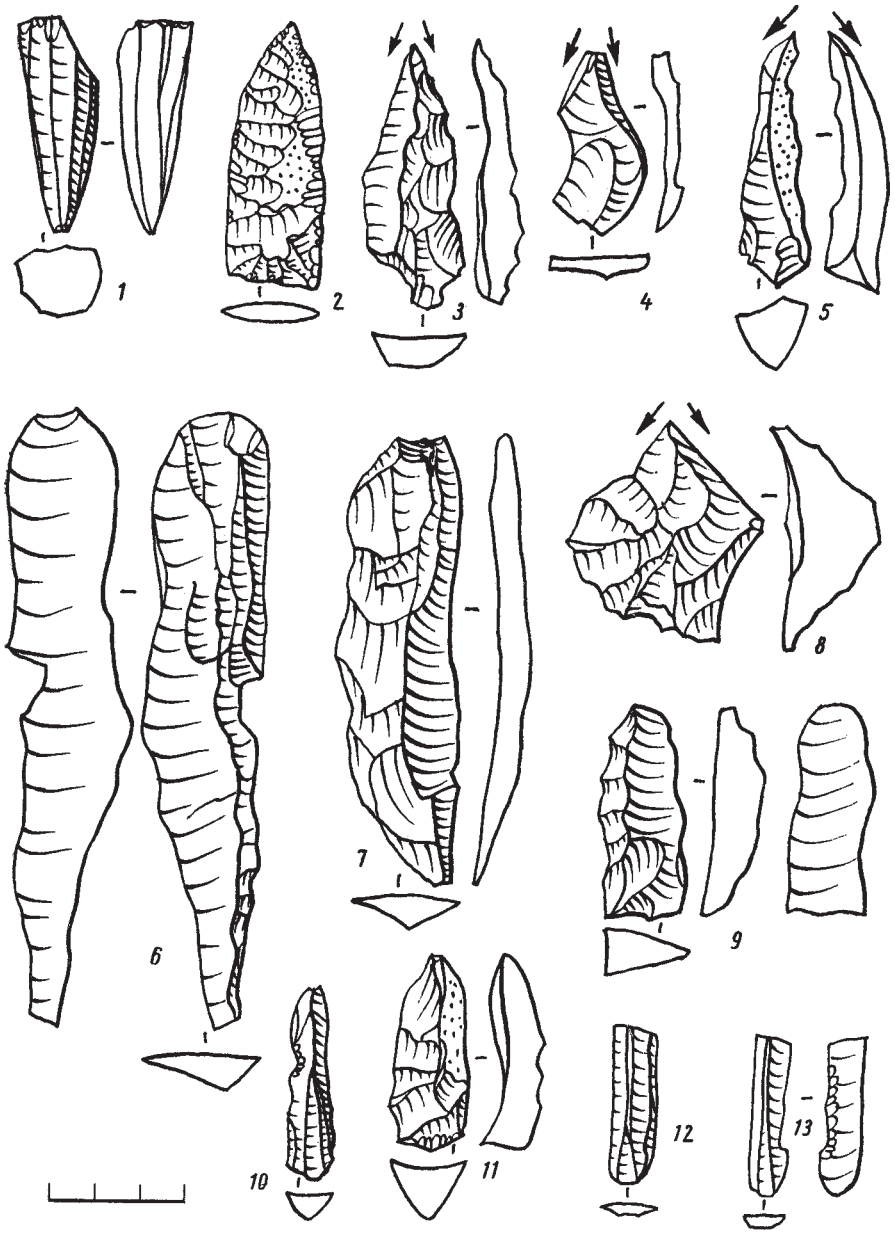

Figure 35. Core, arrow point, burins, knife-like blades, and blade flakes from the early Maltan cultural complex (1–13).

more expedient at present to examine the material collected there only as an unusual cultural complex in its development from the lower to the upper layer.

In its early stage it is typically pre-Neolithic, without ceramics and ground tools. A large part of the tools were made from silicified ashy tuff, but artifacts of both gray and black siliceous slate are found, as well as very rarely of yellow flint and chalcedony. Cores at this stage are conical and prismatic with two platforms (Dikov 1977b:Pl. 194:1–4). Some of them, chalcedony, are very broad and preserve cobble cortex on one of their platforms (Dikov 1977b:Pl. 194:3). Knife-like blades have more or less regular geometric outlines and vary from small to sometimes very large: some of them are retouched along the edges (Fig. 35:10, 12, 13) (Dikov 1977b:Pl. 194:5–14). One

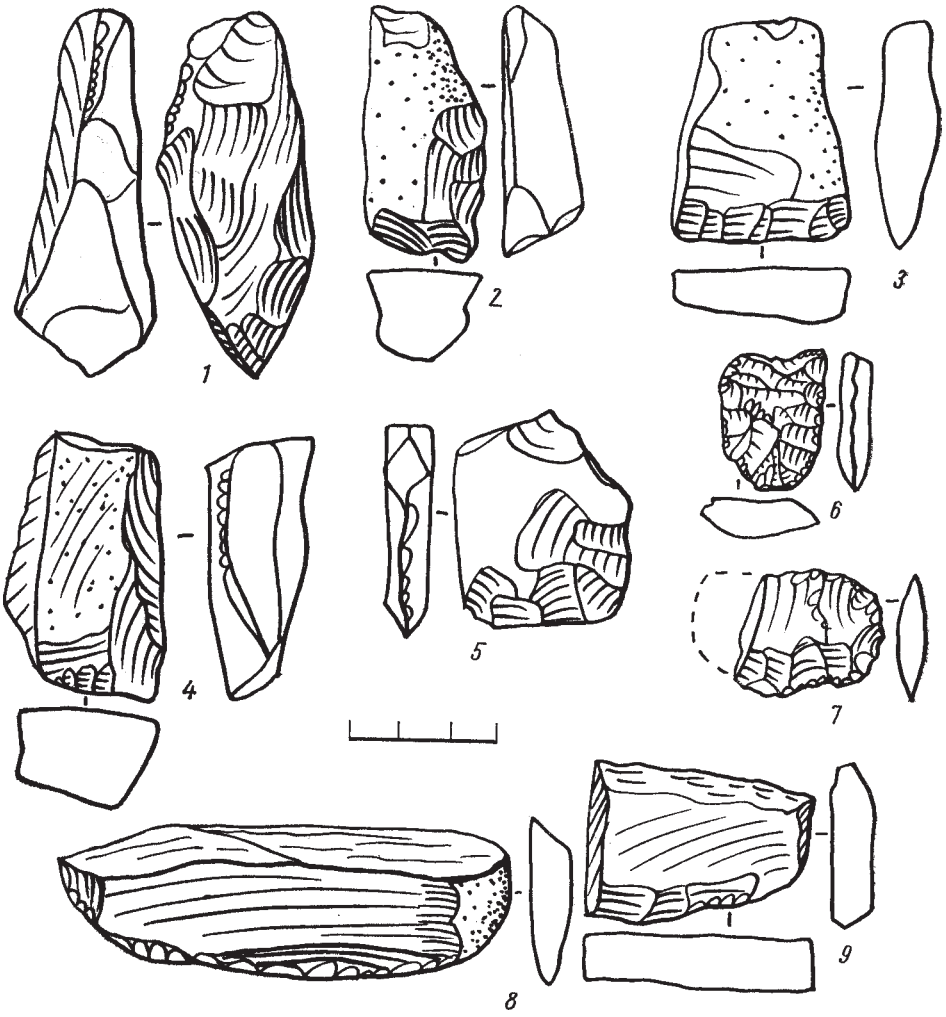

Figure 36. Stone skreblo-like/adze-like tools and knives from the early Maltan cultural complex (1–9).

large knife-like blade has a sharpened end and is modified on the back by flat retouch so that it might serve as a knife (Fig. 35:6). Arrow points are all of gray siliceous slate, very thin and flat in cross section, extended triangular in form, with a straight truncated base (Fig. 35:2). Dihedral burins are on flakes (Fig. 35:4, 8), many of them having the appearance of gravers retouched on the dorsal side (Fig. 35:3, 5). Knives are represented by leaf-shaped bifaces, a large part having irregular form and coarse trimming by heavy retouch predominantly only along the edges (Fig. 36:7) (Dikov 1977b:Pl. 195). One handaxe-like tool of yellow flint was found. The most characteristic artifacts are combination tools in the form of skreblo-like adzes, completely unground, rather coarsely flaked, often partially retaining the cobble cortex (Fig. 36:1–5). They are rather massive and could have easily served as the equivalent of earlier Neolithic adzes, which in this Late Neolithic stage are entirely absent.

At present ground tools are still unknown for the later facies of the Maltan complex and skreblo-like flaked adzes are still characteristic (Fig. 37:6, 7). But now ceramics appear—a single fragment that was found in the upper layer at the Maltan site. It is burned inside and decorated along the rim by a ribbed ridge (Fig. 38:12).

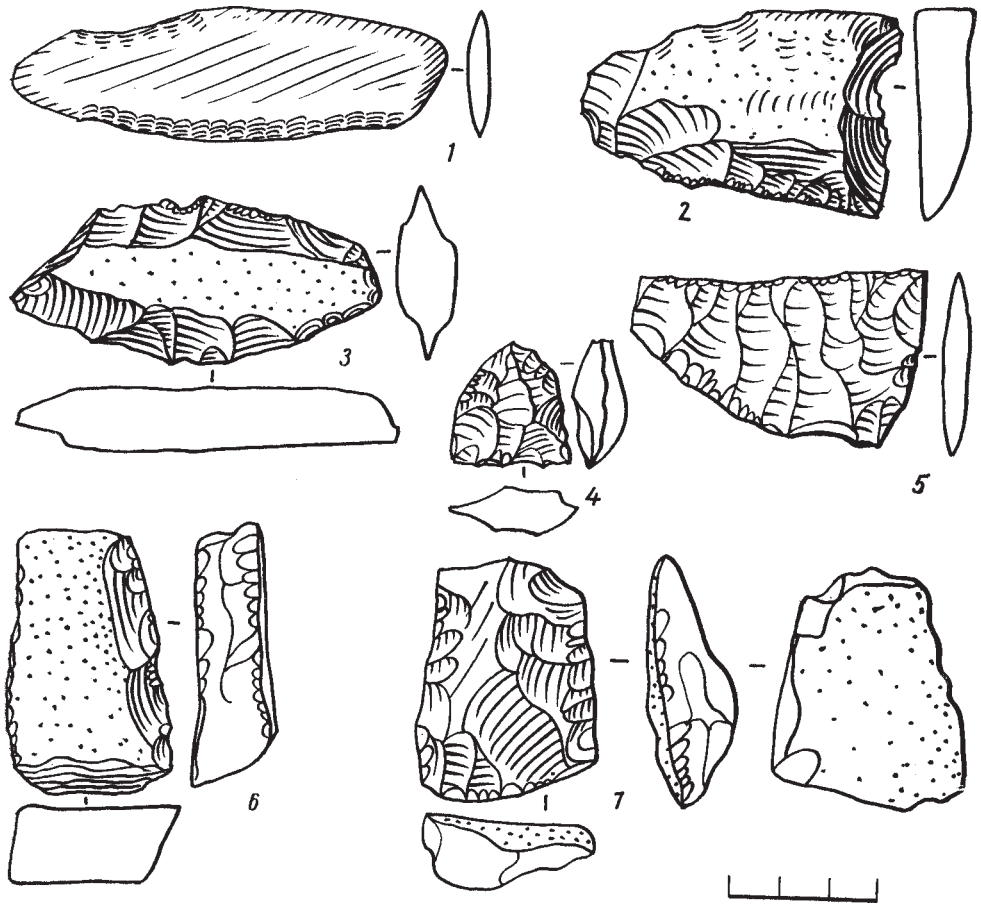

Figure 37. Knives and skreblo-like/adze-like tools from the ashy tuff of the late Maltan cultural complex (1–7).

For this late Maltan stage chalcedony artifacts, flakes, and spalls typically predominate. Cores are now more amorphous, though a tendency for them to be prismatic is still preserved (Fig. 38:1). Knife-like blades become smaller (Fig. 38:7–9). Points of arrows now acquire an indented base (Fig. 38:2, 3). Burins, as before, remain dihedral (Fig. 38:4, 5) and, as before, gravers are retouched (Fig. 38:10, 11). Also, knives preserve their previous form of more or less crudely worked, leaf-shaped bifaces and more indefinite forms (Fig. 37:1–3, 5). Scrapers, made from chalcedony, are meanwhile end types, rather insignificant in form and finish.

Thus, in the development of the Maltan complex a notable coarsening in the technology of finishing tools can be observed, but the types of tools remain basically the same as before. The transition to Maltan's evidently late Neolithic phase occurs here without notable technological shift, if we don't consider the appearance of clay vessels and the remains of some surface dwellings (part of the foundation of one was found in the upper layer of the Maltan site in 1975). By now the important historic place of the Maltan complex among the other sites of Northeast Asia can be seen.

Above all, its connection with the complex of stone artifacts from the lower layer of the Kukhtui III site, near the city of Okhotsk, can be clearly identified. Similar are biface leaf-shaped

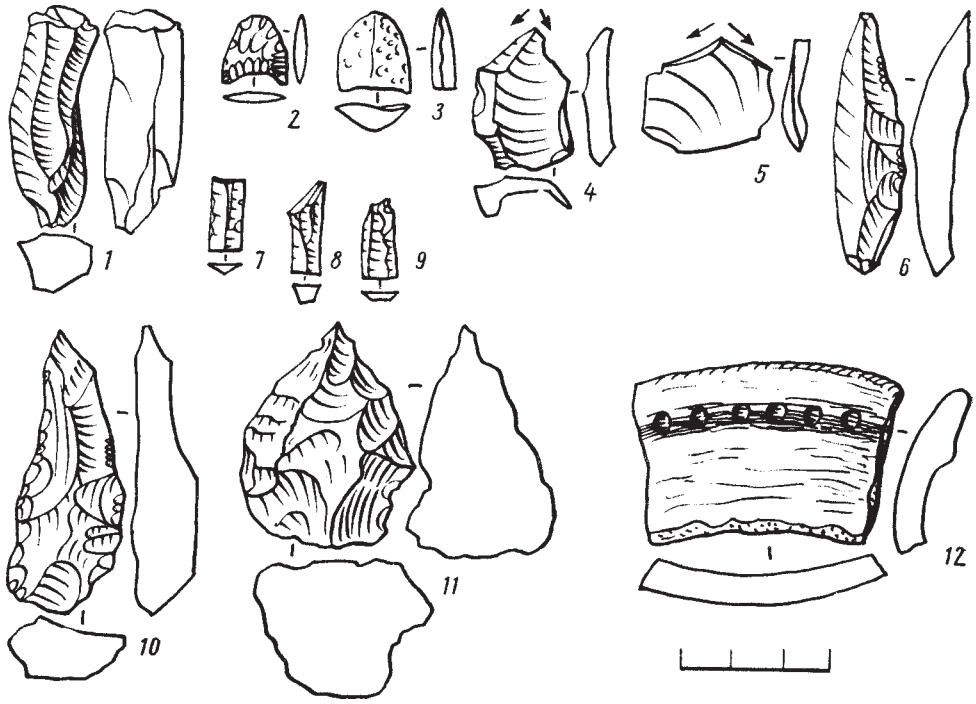

Figure 38. Stone artifacts and a fragment of ceramics from the late Maltan cultural complex (1–12).

knives (Figs. 36:7; 37:5) (Dikov 1977b:Pl. 195:4, 5, 8; Mochanov 1977:Pl. 28:8, 10, 11), subtriangular biface arrow points (Fig. 35:2) (Mochanov 1977:Pl. 28:5), and massive three-sided blades, retouched like knives (or, as Mochanov suggests, spear points) in the Kukhtui complex (Mochanov 1977:Pl. 28:9), while in the Maltan complex such blades did not undergo such treatment and probably served only as blanks for analogous tools (Fig. 35:6, 7). Skreblo-like/adze-like tools similar to those of the Maltan complex (Fig. 36:3–5) are seen in the Kukhtui artifact that Mochanov presumably considers a knife blank (Mochanov 1977:Pl. 28:12). Only the absence of knife-like blades and prismatic and conical cores at the Maltan site, which are very characteristic for the lower layer (Fig. 35:1, 12, 13) (Dikov 1977b:Pl. 194), prevents complete similarity between the Maltan and Kukhtui complexes. However, the presence in Kukhtui of the mentioned knives on blades (Mochanov 1977:Pl. 28:9) permits suggesting sufficient development there of the technology of removing blades from prismatic cores, and their absence in the Kukhtui complex can meanwhile be explained by the fact that it has still been only very superficially studied by Mochanov.

It goes without saying that the Maltan complex has almost nothing in common, in technical-typological regard, with the synchronic Sumnagin culture. The Maltan's clearly reflected bifacial nature is not comparable to the predominantly unifacial nature of the Sumnagin stone artifacts. The subtriangular arrow (or dart) points, similar to those of Kukhtui, have nothing at all in common with the incompletely retouched, lamellar stemmed points (Mochanov 1977:Pl. 86) that Mochanov prefers to ascribe to the Sumnagin culture, which so far completely lacks any kind of reliable projectile points. Thus, it becomes evident that in post Paleolithic times, on the threshold of the Neolithic on the upper Kolyma, another Mesolithic culture developed, in addition to the Siberdik culture, that was also sharply different from the inner-continental Sumnagin culture in Yakutia.

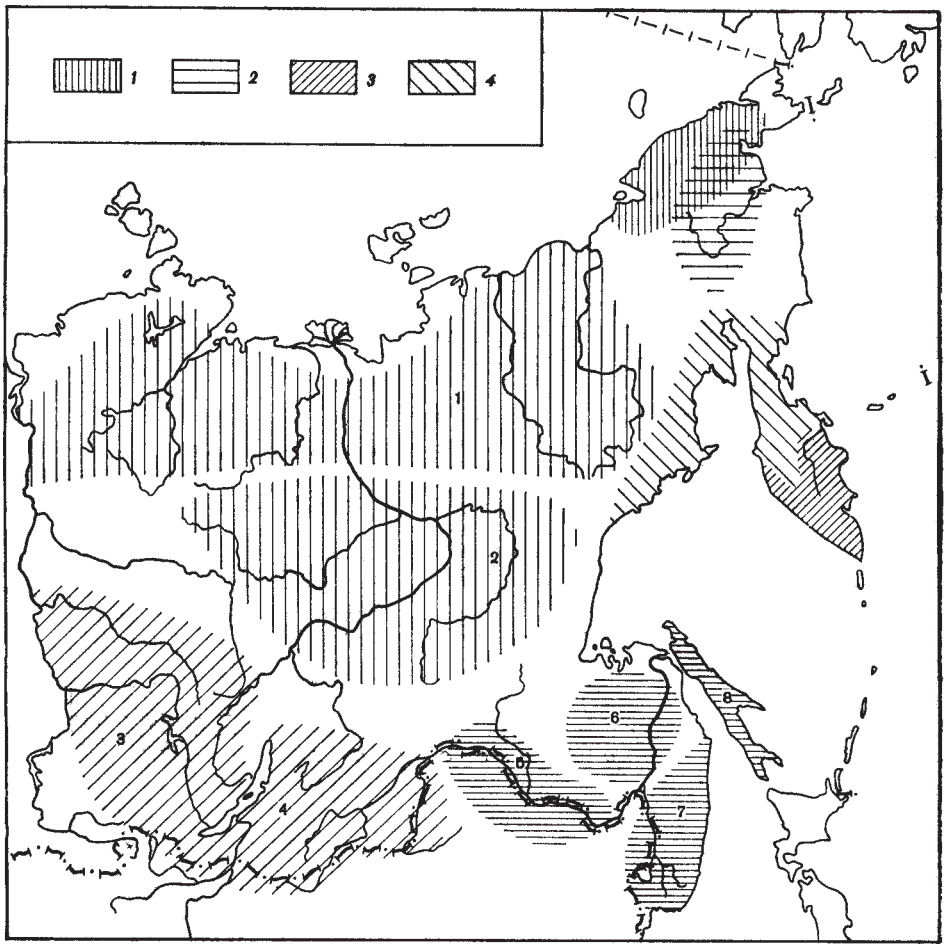

Figure 39. Neolithic cultures of eastern Siberia and the Far East. 1—Lower Lena; 2—Middle Lena; 3—Angara; 4—Zabaikal'e; 5—Middle Amur; 6—Lower Amur; 7—Primor'e; 8—Sakhalin. I—North Chukotka; II—Ust'-Belaia; III—Tar'ia; IV—North Okhotsk (Cultures 1–8, according to A. P. Okladnikov).

Thus, Mochanov's (1977:Pl. 86) scheme—that the so-called Sumnagin unifacial culture, like the Diuktai, spread to the Pacific Ocean, reaching northern Priokhot'e—cannot be confirmed by the facts. R. Powers turned out to be correct, having suggested that the Sumnagin culture had not spread so far into the Northeast (Powers 1973).

At the same time, available materials on the archaeology of post Paleolithic Chukotka, especially the Osinov-Krasinsk complex, have something principally in common with the Maltan complex in the technique of manufacture of crudely worked skreblos and bifacial leaf-shaped knives that are found together with knife-like blades (Dikov 1977b:Pls. 86–88). With regard to the several sites on the lower reaches of the Kolyma that are assigned to the Sumnagin culture (Panteleikha I–VIII, Pirs), their being dated to pre-Neolithic times by Mochanov is based on such "clear" indicators as the lack of ceramics among the finds and in the similarity of end scrapers on massive lamellar flakes with ones of Sumnagin (Mochanov 1977:203–206, Pl. 75:11–18, 22) One is not instilled with much confidence in this date if one recalls Mochanov's observation (in connection with an analogous scraper from the Shilo River) that such scrapers were used "in the early Iron Age as

well" (Mochanov 1977:94). (We can add to this that such scrapers, even with sharpened "ears," were found in such comparatively late sites as the Chini cemetery, Cape Sivuiskii in Kuril'skoe Lake, Kavran, and others [Dikov 1974]).

Finally, connections are now noted between the Maltan complex and the Kamchatka post-Paleolithic culture—with such recently found sites as Kisun I and Lopatka IV—the similarity being in the bifacial working of knives and in types of distinctive gravers and middle burins (Dikova 1973:198, 1978; Ruban 1978).

Thus, the very definite impression is formed that the early Maltan complex of the upper Kolyma area, just as the Siberdik culture, is part of the North Pacific Ocean (Far Eastern) sphere of basic technological traditions, and not that of the Yakutian Sumnagin. In contrast to the predominantly unifacial Sumnagin, the Maltan complex is bifacial. It is completely Mesolithic in technical-typological regard also and can be placed entirely within the interval between the final Paleolithic Cultural Layer V of the Ushki sites on Kamchatka and their late Mesolithic or Early Neolithic Cultural Layer IV. The following discussion is devoted to examining Cultural Layer IV.

The Neolithic of Kamchatka

The First Ushki "Mesolithic" or Early Neolithic Culture

The end of post-glacial warming (the so-called climatic optimum) coincides in Kamchatka with the spread there of the Early Neolithic hunting-fishing culture represented by archaeological remains in the form of traces of burials and hearths in Level IV of the Ushki sites (1, 2, and 4) (Dikov 1977b:60, 61, 69, 70). and at present some finds on the western coast of Kamchatka (Fig. 40) (Ruban 1977:238, 1978).

According to the palynological data of Level IV of the Ushki sites, this period corresponds to significantly greater afforestation than in Levels V–VII lying below (Shilo, Dikov, and Lozhkin 1967:38).

This evidently partially accounts for the reduction of areas of sites beginning with Level IV and above at Cape Kamen' (Ushki I) in comparison with Levels V–VII.

From the local Paleolithic culture the extremely weak tradition of use of prismatic cores is retained in the culture being examined in Cultural Layer IV, in particular unifacial cores (Fig. 41:3). Also in evidence are more or less regular knife-like blades of various sizes, apparently used chiefly without reworking. The manufacture of leaf-shaped bifaces that reached large dimensions at times was continued (Fig. 41:24). As before, bifacially retouched, oblong arrow points, which became broader (Fig. 41:10, 11), were still occasionally used, while their narrow prototypes completely fell from use. The use of scrapers on broad blades was still preserved, reworked on all sides by edge retouch (Fig. 41:32), as well as end scrapers on flakes (Fig. 41:29). On the whole, very little of the Paleolithic traditions remained in the industry of the early Neolithic culture. Most noticeable was the complete loss of technical skill in the manufacture of wedge-shaped cores.

Instead of wedge-shaped cores, prismatic and conical cores and the forms derived from them attained widespread development (Fig. 41:1–9). Knife-like blades in forms often larger than before become strictly geometrical, and the edges in many cases are retouched all around (Fig. 41:22). Large and medium size blades now predominate quantitatively over microblades. Dihedral and lateral burins on blades appeared (Fig. 41:16). A lateral burin on a large blade retouched along the edge (Fig. 41:17) and a blade with lateral concavity (Fig. 41:23) were found as well. Scrapers were developed and differentiated (Figs. 41:28, 30, 33). Completely flaked skreblo-like adzes (Fig. 41:18) and stemmed projectile points made from large blades only partially retouched along the edges (Fig. 41:14) were used. A series of arrow points, rhomboid in cross section, with a more or less clearly distinguished triangular stem, worked by oblique retouch, can also be assigned to innovations as well (Fig. 41:12, 13).

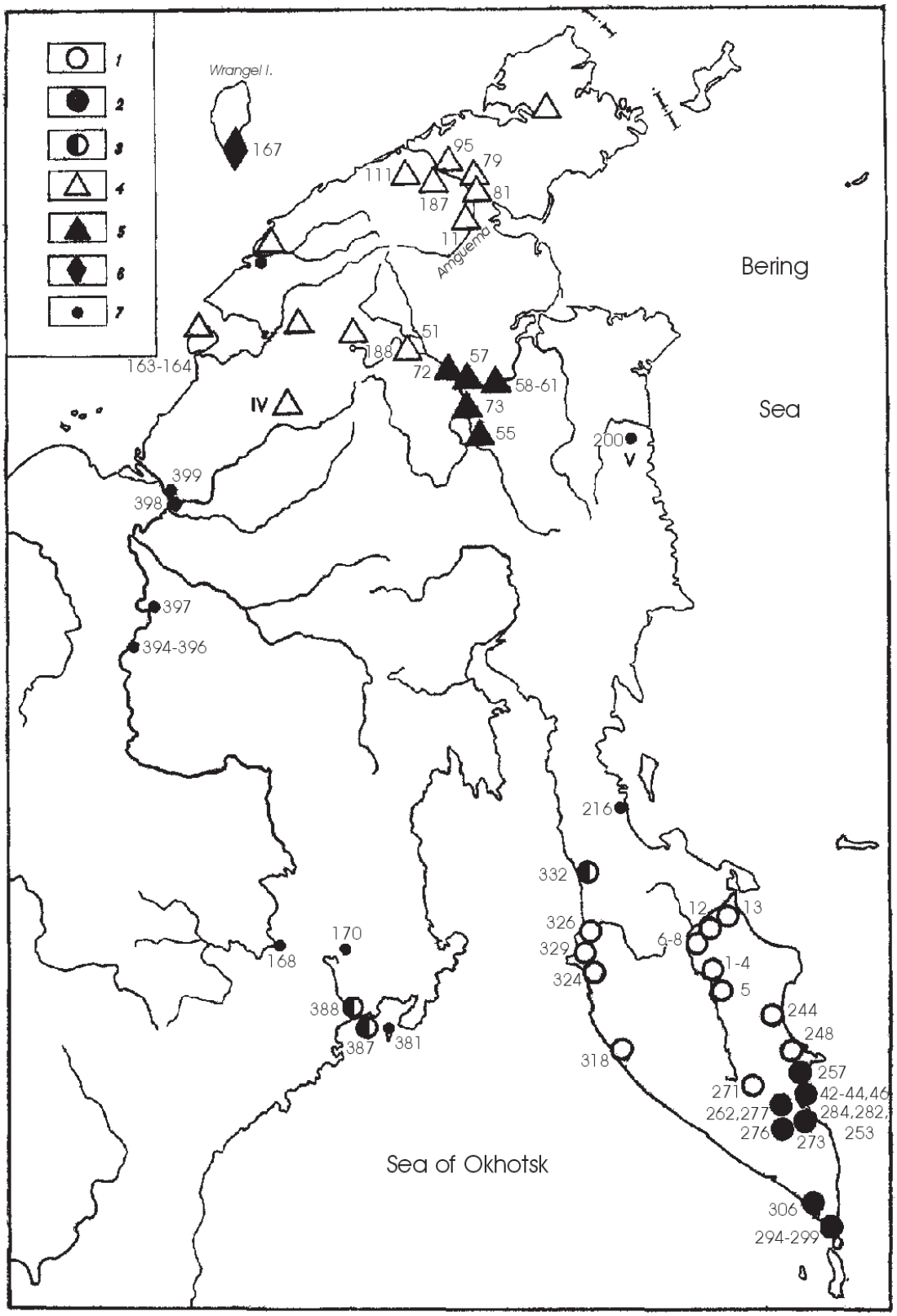

Figure 40. Neolithic sites of Kamchatka, the Kolyma, and Chukotka. 1—Tar'in culture; 2—southern variant of the Tar'in culture; 3—Pre-Koryak culture; 4—North Chukotkan culture; 5—Ust'-Belaia culture; 6—Paleo-Eskimo culture; 7—other Neolithic sites: I—Ioniveem; II—Matachen (187); III—Ekityki (185); IV—Tytyl'; V—Rytkyl'veem (200).

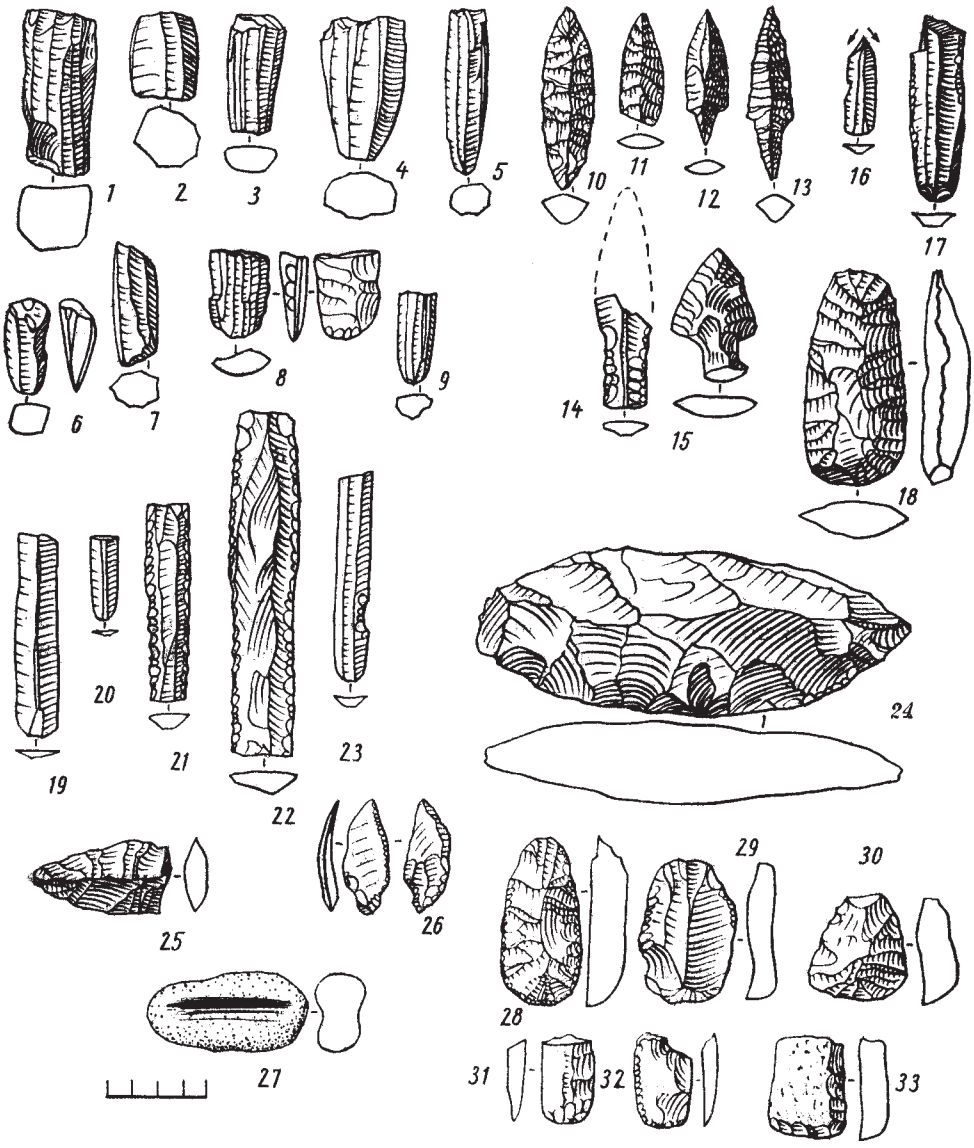

Figure 41. Stone artifacts of the first Ushki Early Neolithic culture (1–33). 1, 6, 19—Ushki I (1); the remaining—Ushki II (2).

Judging by the materials from other territories, there are no complexes completely identical to the one described. Its individual elements were spread almost throughout all northern Asia, including Chukotka, in the European north, and to a lesser degree in Arctic North America. They attained their largest concentration in the Lena River basin, in the Angara-Yenisei region, in Kazakhstan, in Zabaikal'e, and in the Japanese Islands, where their age fluctuates from the eighth to the third and sometimes second millennium B.C. The earliest elements were concentrated on the Aldan, in Pribaikal'e and Zabaikal'e, and in the Japanese Islands.

The closest analogies are encountered in Chukotka on the Amguema River (at 102 km) at the Third site (80). Conical flint cores and arrow points of rhomboidal section were found there (Dikov 1977b:Pl. 111:8). Unfortunately, only fragments of them were found, but nevertheless they can be

compared with Ushki finds from Cultural Layer IV. The Third site, being sharply distinct from other Amguema sites by its lack of ceramics and distinctive points, can be considered without doubt the earliest in the Amguema Valley. The similarity of this non-ceramic complex with that of Kamchatka is so close that it could be assigned along with the complex of Cultural Layer IV of the Ushki sites (1, 2, 4) to one and the same culture, which we would call the Kamchatka-Amguema culture. If, however, we do not do this it is only because the Amguema complex unfortunately is a surface collection and therefore has no stratigraphic association. Although the collection contains very diagnostic artifacts, their numbers are too small.

On the Aldan, the Sumnagin Mesolithic culture of the eighth to fifth millennia B.C. is characterized by entirely non-ground, flaked skreblo-like adzes from Cultural Layer VIII of the Bel'kachi I site (sixth and fifth millennia B.C.), similar to those of Ushki from Cultural Layer IV of the Ushki II site, the same kind of prismatic cores, and a whole series of similar conical cores reworked on all sides (including pencil-like) or unifacial, as well as knife-like blades with and without retouch along the edges (Mochanov 1969b:Pls. 10, 6, 12, 2, 15; 1, 6; 3, 9; 12). All these analogies might be viewed as evidence of a definite role of the Sumnagin culture in the origin of the Ushki complex being examined, and we have already turned our attention to this (Dikov 1971, 1977b:123). However, Mochanov's conclusion, based on this, about the spread into Kamchatka of the Sumnagin culture itself (Mochanov 1977), is entirely unjustified in light of the available data. In distinction from the Sumnagin culture, both bifacial knives and bifacial arrow points are found in the Ushki culture, and these elements of it are better portrayed by the recently discovered Maltan complex than by the Sumnagin culture. Mochanov's conclusion becomes all the more suspect, if one considers the comparatively late date of the Ushki culture under examination, which is closer in time to the Maltan complex than to the Sumnagin.

We must remember that on the basis of comparison with surrounding cultures that the culture of Ushki Cultural Layer IV is dated to the fourth and third millennia B.C. (Dikov 1971; 1977c:123, 124). Subsequent radiocarbon determinations have corroborated and made this date more exact. The absolute date obtained was 4200 ± 100 B.P. (MAG–132).

Judging by everything, the presently known Kamchatka "late Mesolithic" or Early Neolithic culture emerged as a result of divergence of the broader post-Paleolithic "Mesolithic" cultural community, in which the Maltan people appeared during the eighth to fifth millennia B.C. In this Early Neolithic Kamchatkan culture some indigenous elements still held on, which can be traced back to early post-Paleolithic times.

Its connections with the south through the Kurile Islands were probably extremely limited. An entirely different culture with insignificant use of knife-like blades developed there at that time (Vasil'evskii 1975b). Kamchatkan cultural connections were carried out at that time primarily through Chukotka. The whole exogenous part of the innovations of Kamchatkan culture that are being reviewed could have spread there only from Chukotka. Therefore, the great significance in the early history of the Northeast of the Amguema non-ceramic complex (80) is quite clear, having a common origin with the Kamchatkan culture and located at the crossroads of Asia and America.

Cultural contacts of the Amguema-Kamchatka Early Neolithic or late Mesolithic at this time, however, are very undeveloped. They are illustrated only by the elements of culture (especially bifacial leaf-shaped points and knives) adopted by the Kamchatka (Cultural Layer IV of the Ushki sites) and Amguema complexes from the Ushki final Paleolithic and spread to America in the early

and middle Holocene. The overwhelming number of analogies with cultures of northwestern America are dated to the sixth and fifth millennia B.C. (the Cordilleran culture and complexes DiRi-3, Kaiyuk, and Flint Creek), some to the fourth and third millennia B.C. (the complexes of Denby and Pointed Mountain, a site on Takli Island, and Lochnor Nesikep), and Anangula, to the eighth millennium B.C.

There are prismatic and conical cores with two platforms on Anangula; conical cores as well at Lochnor Nesikep (Beregovaia 1957:Fig. 4:3; Laughlin 1963:Fig. I:1; Sanger 1966:Pl. VII:C); knife-like blades retouched on both edges in the Denby complex (Giddings 1964:Fig. 47, Fig. 53:5); end scrapers (Fig. 41:29) in the Flint Creek complex, the Denby complex, and at Pointed Mountain (Beregovaia 1967:Fig. 2:12, 13; Giddings 1964:Fig. 70:B, 2, 3, 10, 11; McNeish 1959); symmetrical leaf-shaped biface-knives in the complexes of Pointed Mountain and Kaiyuk I and in the Cordilleran culture (Beregovaia 1967:Fig. 5:18; Butler 1961:Fig. 4:K; Campbell 1962:Pl. 2:13); asymmetrical biface-knives on Takli Island, in the Cordilleran culture, and in particular at the DiRi-3 (in British Columbia), as well as in the Kaiyuk complex (Borden 1962:Pl. I:e; Butler 1961:Fig. 4:a, c, k; Campbell 1962:Pl. 2:13, 14; Dumond 1969:Pl. VII:g); and elongated leaf-shaped arrow points in the Cordilleran culture (Butler 1961:Fig. 3:B, f).

Such things as arrow points of rhomboid cross section, typical for the Ushki and Amguema complexes at the end of the third and second millennia B.C., are encountered in similar forms in the Neolithic of Zabaikal'e (the so-called awl from Shilkin Cave) (Okladnikov 1970:Fig. 12:12), on the Aldan (in the Syalakh culture) (Mochanov 1969:Pl. 24:8), and on Hokkaido (in the pre-ceramic site of Magarikawa) (Morlan 1967:Fig. 20:3), and not at all in America. This is the clearest evidence of emerging isolation at the end of the second millennium B.C. between inner-continental cultures of Northeast Asia and America. Playing the role of barrier, of course, was Bering Strait, on the shores of which a specialized sea mammal hunting culture had probably settled even at that time, preventing entry of influences into America from inner-continental cultures of Northeast Asia oriented toward land hunting and river and lake fishing.

The problem of ethnic membership of the Ushki culture we are examining has attracted the attention of anthropologists and ethnographers. It is possible that the ethnicity derived from ancestors common to several peoples of the Northeast, most probably the Itel'men, a people whose ancestors, judging by all the data, settled in Kamchatka earlier than the Koryak and certainly earlier than the Ainu.

The idea of a definite role of the Ushki "Mesolithic" or Early Neolithic culture in the formation of the Itel'men seems extremely probable to us in light of recent ethnographic-linguistic investigations by Vdovin, which convincingly indicate the isolation of this people in language and culture from northeastern Paleo-Asiatics—the Chukchi and Koryak (Vdovin 1970).[27]

Essential in this connection, first of all, is the fact that this Ushki fishing culture, and along with it probably the very early ancestors of the Itel'men, was able to come into Kamchatka during the middle of the Holocene, that is, at the end of the climatic optimum, by a continental route from more southern regions of eastern Siberia and the Far East, probably from Zabaikal'e or the more eastern regions of southern Siberia. This is indicated by some essential features of similarity of our

[27]P. Ya. Skorik also suggested that the Itel'men language was isolated earlier from the Chukchi language and has had more intensive influence from a different language.

Ushki culture with the Gromatukha culture (blade technology, bifaces, and adze-like/skreblo-like tools) (Okladnikov and Derevianko 1977), with the Novopetrovsk culture (knife-like blades) (Derevianko 1977), and with the Ononsk Neolithic culture (in particular, prismatic and conical cores and knife-like blades retouched along the edges from Lake Irgen') (Larichev and Rizhskii 1966:Figs. 6:5, 7; 8:12, 14; 14:1, 2). The presence in the named cultures of ceramics is not in accord with this idea. However, the spread of southern ancestors into the north could have begun in pre-ceramic times. From the left bank in the Amur region and eastern Zabaikal'e through Chukotka when the climate was warmer than now and the landscape more abundant with vegetation, they were able to bring into Kamchatka the many skills of experts and collectors of grasses very characteristic for the Itel'men, not losing them along the way. Under the conditions of central Kamchatka, with its climate more favorable than in Chukotka, these skills of collectors of vegetable foods were preserved. During the period of subsequent cooling, when conditions in Chukotka and northern Kamchatka did not favor this much, they stabilized and were passed through inheritance to the "historic" Itel'men, who found themselves for a long time afterward isolated, surrounded by tundra and sea on their part of the peninsula flourishing in wild vegetation.

Being isolated they preserved their archaic technology longer than their neighbors in Chukotka and Yakutia, in particular, the custom of getting by without clay vessels, evidently employing an early method of boiling water with heated stones.

Thus, the Kamchatka Peninsula remained a region of remnant post Paleolithic ("Mesolithic") traditions for a long time during the Neolithic period, similar to what it had been earlier, at the beginning of the Holocene. It was the region of a distinctive relict Paleolithic culture.

The Second Ushki "Late Mesolithic" or Neolithic Culture

To "late Mesolithic" we assign the complex of the stone artifacts found near the hearths in Cultural Layer III of the first and second Ushki sites (I and II). Taking into account the significant similarity of this complex with the previous one from Cultural Layer III, we are only tentatively able to interpret its membership to a particular culture. It is possible that both these complexes belong to different stages of one and the same culture. With this condition understood, we set about analyzing the complex of artifacts from Cultural Layer III.

This complex (Dikov 1977b:Pl. 9:17, 18) consists primarily of knife-like blades of different sizes, but predominantly longer ones of often exceptionally regular forms without retouch (Fig. 42:1–3), with edge retouch (Fig. 42:6), and insets with both sides completely retouched (Fig. 42:15). In this complex is included a fragment of a stemmed arrow point made on a blade (Fig. 42:7), very distinctive three-edged file-like points without a stem (Fig. 42:8) and with a stem (Fig. 42:9–12), fragments of leaf-shaped biface-knives (Fig. 42:16), unifacially retouched knives with blades with a pointed end (Fig. 42:17), scrapers with a convex edge (Fig. 42:18), a coarsely flaked unifacially convex adze or skreblo (Fig. 42:19), punches (Fig. 42:5), and a lateral burin on a knife-like blade (Fig. 42:14). Cores are absent, possibly by chance, from this complex, though prismatic blades flaked from them form its characteristic feature. Also absent are ceramics and ground tools, owing to which we are not justified in assigning it to the Developed Neolithic in the usual understanding

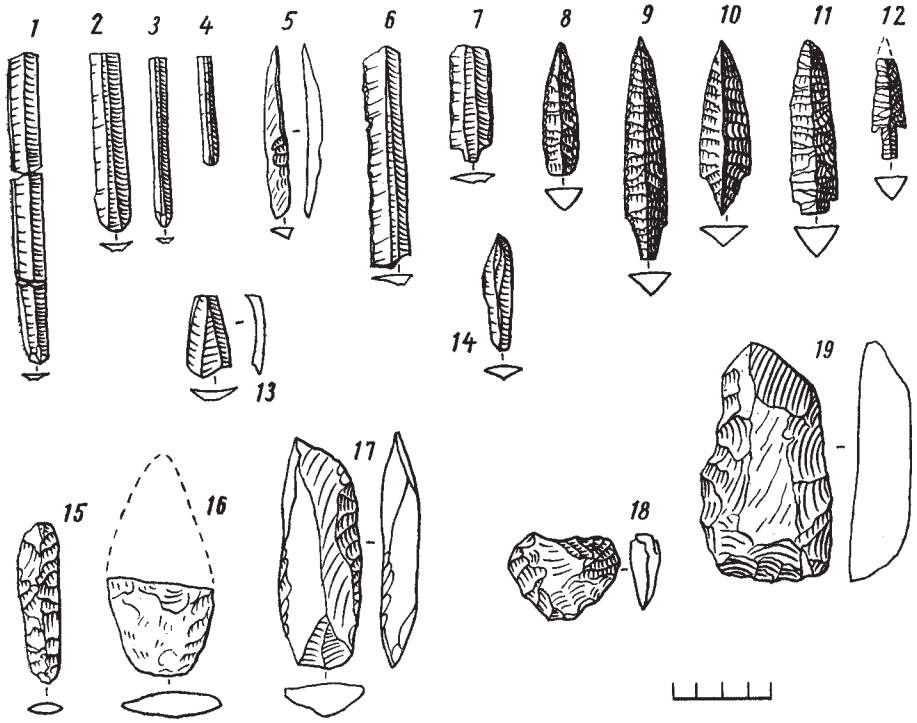

Figure 42. Stone artifacts of the second Ushki Neolithic culture. 1, 10, 12—Ushki I (1); the remaining—Ushki II (2).

of this term, though, judging by the character of the arrow points, as will be shown below, it is most similar to sites of the Developed Neolithic.

To the earlier first Ushki Mesolithic or Early Neolithic culture this complex is genetically connected by the presence of small and larger knife-like blades, which at times are very long and, additionally, retouched along the edges; leaf-shaped biface-knives; and burins on knife-like blades.

Its remaining components should be viewed as innovation of possibly partially endogenous character but also exogenous in significant measure.

Determining the endogeny of the new creations in this complex, as of many of our other complexes, is substantially more difficult than exogeny.

A large portion of the new objects of this complex are very uncharacteristic and not very diagnostic, making it difficult to judge with confidence the complex's exogenic or exclusively indigenous origin. Parallels to these uncharacteristic artifacts, as we see below, can be found in very different cultures, so to connect them with some of the cultures, not to mention all of them, would be incorrect. On the other hand, these insignificant innovations might even be endogenous.

Completely original artifacts are unknown at present in the second Ushki Neolithic culture. Its knife-like blades are widespread. Scrapers and knives are also very common in different cultures. More diagnostic are its adze-like skreblos, though they are encountered in many cultures from the late Paleolithic to the Neolithic (Medvedev 1966b:Figs. 8:14; 10:12; 1967:Fig. 2). Bifacially retouched insets are perhaps more unique and can be assigned to a narrower chronological range—the fourth to first millennia B.C. (Korobkova 1965:Fig. 3:a; Larsen and Rainey 1948:Pl. 13:3–5; Okladnikov 1946:Pl. XX:5).

Perhaps only stemmed points on blades (Fig. 42:7) can be considered an element of endogenous innovation of the second Ushki Neolithic culture. In the near vicinity are no analogies to this type.

With regard to three-sided file-shaped points, the stemless type (Fig. 42:18) is clearly an exogenous form, while the unique stemmed type (Fig. 42:9, 10) is evidently an indigenous transformation of it, a hybrid of stemmed points with rhomboid cross section (Fig. 41:8, 9), which preceded the first Ushki Neolithic culture, and imported stemless ones.

For this reason three-sided points are the most interesting as a dating element for the culture we are examining.

First to turn attention to their significance for dating northern cultures of Siberia, particularly the Late Neolithic of the lower Lena, was Okladnikov, who found them in the lower basal level of the Uolba settlement and near Cape Obukh. He compared them with similar points from Scandinavia, where they had been widely spread, in his opinion, from northern Siberia around 1500 B.C., during the period of single burials in stone boxes (Okladnikov 1946:Fig. 3:2; Pls. V:6, 7; XII:1; 1955:131). This made it possible for him to speak of the origin of a non-Europoid component in northern Scandinavia, one coming from northern Yakutia during the second millennium B.C., and to determine this time as the upper limit of the earliest complexes of finds in the lower Lena connected, in his opinion, with the lower level of the settlement and the burial at the Uolba *kyrdal*.

Later, Mochanov also writes about three-sided file-like points in the Yakutian Neolithic but assigns them to the Syalakh culture of the fourth millennium B.C. He connects them with complexes that contained net-impressed pottery (Mochanov 1969b:Pl. 15:2, 5). It must be noted, however, that the points found by Mochanov in Level VII of the main Bel'kachi I site are somewhat different from the lower Lena three-sided points found by Okladnikov in Uolba and on Cape Obykh. The Bel'kachi points might be more correctly called unifacially convex with leaf-shaped form. This was possibly a more archaic variety of the future three-sided point of northern and northeastern Siberia, which would have a cross section like an equilateral triangular. However, if this is so, comparing them with our Kamchatka point would hardly be correct. The latter belong to the Uolba type, which, judging by excavations in the north in recent years, belongs not to the fourth millennium B.C., but rather more likely to the second, and in some cases even to the third, millennium B.C. In the Buolkalaakh site on the Olenek River they were found in a complex of second to beginning of the first millennium B.C. (Glushinskii and Khlobystin 1966:Fig. 3:4, 2; Konstantinov 1969:222). Fedoseeva (1969:223, 224), who excavated the Chuchur-Muransk cemetery near Yakutsk, assigns them to the second millennium, to the Ymyiakhtakh culture. They were also found in Tuoi-Khai on the upper Viliui, where excavations are dated to the third millennium B.C. (Fedoseeva 1969:15).

Three-sided points are known also in Chukotka. One of them, completely whole, stemless, worked by the finest flattening retouch on all three sides, was found in the 1930s by A. K. Sed'ko on the Velikaia River, but unfortunately without clear association to a cultural level. A fragment of a second was extracted, along with check-stamped pottery, from the cultural level of a Late Neolithic site on Chirovoe Lake (51),[28] probably belonging to the second millennium B.C. More than

[28]Dikov numbers the sites of extreme Northeast Asia (pp. 249–257) in *Arkheologicheskie pamiatniki Kamchatki, Chukotki i Verkhnei Kolymy. Aziia na styke s Amerikoi v drevnosti*, Nauka, Moscow, 1977 (published in translation as *Archaeological Sites of Kamchatka, Chukotka, and the Upper Kolyma* by the Beringian Shared Heritage Program of the National Park Service, Anchorage AK 2003).—*Trans.*

ten three-sided points were collected by M. A. Kiriyak on the Tytyl' V site in the upper Aniui basin in northwestern Chukotka in 1977. These, as far as we know, exhaust northern parallels to Kamchatka three-sided points.

At the present time, three-sided points are known in Japan in early Neolithic complexes. Some of them, in the form of pyramidal awls, were found on northeastern Honshu Island in Khimuka Cave together with ceramics of early Jomon (5000–3000 B.C.) (Yamanouchi Sugao and Sato Tatsuo 1962:Fig. 5–1). Others, in the form of rods sharpened on both ends, were found in the probably even earlier pre-ceramic complex of Sunagawa (Tozawa 1968:Fig. 4–5) and at Kosegosawa (8000–7000 B.C.) (Ikawa 1964:Fig. 4–6). In the opinion of the Japanese archaeologists, all these points and "three-sided awls" were imported into Japan. And this apparently is the case since comparatively few of them are found in the Japanese Islands, in spite of the exceptional study of the Japanese region in archaeological regard.

The unexpected and substantially greater antiquity of three-sided points in Japan than in Siberia makes one take notice. The difference is at least 1,000 years. The problem that emerges: is it possible to consider northern Yakutia as the region of their origin or is it in more southern regions?

It can be proposed that the three-sided points of Kamchatka are somewhat earlier than those on the lower Lena and the Olenek, and that in the complex with early Jomon ceramics on Honshu Island such points appeared at the very end of the fourth millennium B.C., coming from Kamchatka. However, if this is the case we would be forced to depart entirely from the questionable postulate of the possibility of these things penetrating from Kamchatka into Japan by the shortest route—through the Kurile Islands. The invalidated find by Jochelson of a three-sided stemmed point (preserved in Government Historical Museum in collection No. 96, in the third section of depository)—if it actually originated in southern Kamchatka—might serve as evidence, though very weak, for the spread of three-sided points from the valley of the Kamchatka River south toward the Kurile Islands. However, the proposal of their farthest advance through the Kurile Islands is not confirmed at present by comparison of the antiquity of those from the islands with the Kamchatkan ones for the time period we are examining. We do not find there one analogy, for the period being compared, to the second Ushki Neolithic complex, and this circumstance does not make it proper to speak of a connection between Kamchatka and Japan in the fourth and third millennia through the Kurile Islands. Subsequently, even the need for an increase in the age of this Kamchatkan complex, up to the end of the fourth millennium, no longer arises. Being dated on the basis of the presence of three-sided points and taking into account all that has been said, this complex should have been tentatively assigned to the beginning of the second millennium B.C. Until new archaeological materials are gathered regarding connections in other directions, the second Ushki Neolithic complex is closest stylistically to the complex of finds at Osinovskaia Spit (63) in Chukotka, where there are biface-knives and knife-like blades, and among the three-sided blanks of cores is even one that by its thin rod-like form, pointed at both ends, is almost exactly identical to the three-sided stemless points (Dikov 1977b:Pl. 84:4). Connections with other Neolithic sites of the Anadyr' River basin in Chukotka are documented by a fragment (already mentioned) of a three-sided point from the site at Chirovoe Lake (51), where there are, in addition, similar knife-like blades, as well as a large quantity of similar types of knife-like blades, burins on blades, and insets from the early Ust'-Belaia complex (72).

Analogies with the Yakutian Neolithic are very extensive. To the above-mentioned three-sided points, it is possible to add here Uolba lateral burins on blades (Okladnikov 1946:Pl. IV:11), insets

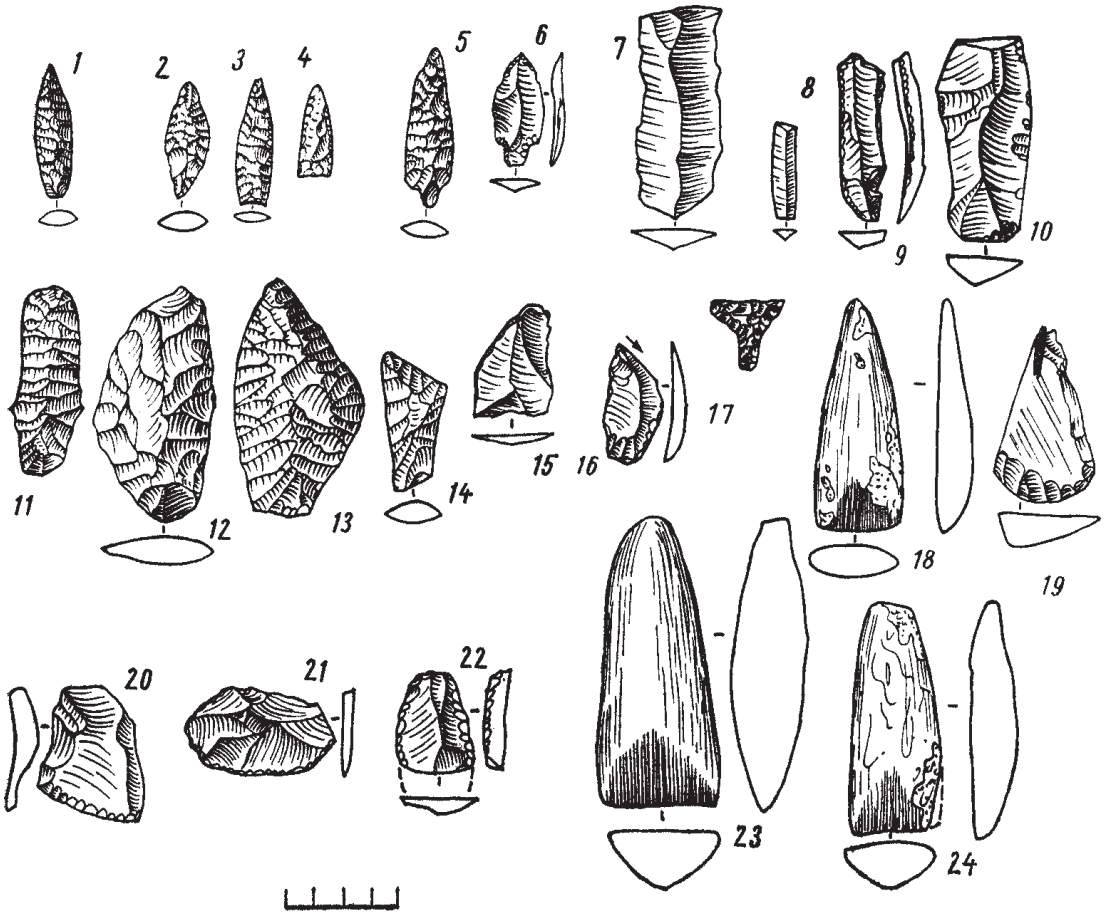

Figure 43. Complex of stone artifacts common for the northern and southern Tar'in cultures. 1, 5, 15, 19, 21—Domashnee Lake (7); 24—Kozyrevskii Sovkhoz (9); 18—Ushki II, Cultural Layer II; 14—Kultuk (5); 7, 11, 13—Tar'ia (284); 2, 4, 6, 17—Kirpichnaia (44); 9, 20, 23—Mishennaia Sopka (43), Cultural Layer 2; 3—Elizovo 1 (42); 8, 10, 12, 16, 22—Elizovo II (42).

from Chokurovka that are retouched all around (Okladnikov 1946:Pl. XX:5), knife-like blades retouched along the edges from Levels VI–VII of the Bel'kachi I site (Mochanov 1969b:Pls. 14:19, 22; 22:26), and leaf-shaped biface-knives from Cape Obukh. All these analogies are assigned to the fourth and third millennia B.C.

Judging by the analogies cited above, there were direct contacts between this Kamchatkan culture and Chukotka and Yakutia adjoining on the north. Through these territories contacts were carried out even with the more distant polar regions of Eurasia. If one considers the archaeological analogies in Pechora[29] as well, this northern zone of the Old World becomes a field of very active movement of people, ideas, and things. At the same time connections with the south begin to weaken somewhat, though complete isolation of the north from the south did not occur, and here and there—from Kazakhstan to the Japanese Islands—many (apparently initial) elements of culture similar to Kamchatkan continued to be preserved: the blade technology, in particular lateral burins on blades (Formozov 1959b:No. 2:Fig. 2:3—referring to the collections

[29]We mean a blade technology similar to the Kamchatkan, in particular, blades from the Pechora site (second millennium B.C.) retouched along the edges (Gurina 1957:No. 2:Fig. 2:4).

of G. F. Debets at Ust'-Kiakhta), leaf-like biface-knives (Korobkova 1965:Fig. 4:2—bifaces from Ust'-Narym in Kazakhstan; Viazovskaia 1968:Fig. 2:6—bifaces from the Sakhalin Neolithic with knife-like blades), completely retouched insets (Korobkova 1965:Fig. 3:a; Okladnikov 1946:Pl. XX:5—biface from Chokurovka), rod-like punches (Korobkova 1965:Fig. 2:l, n), blades retouched along the edge (Larichev and Rizhskii 1968:Fig. 8:12, 14—Lake Irgent in Zabaikal'e; Vasil'evskii 1968:116, Fig. 2:3), and blade technology in general in its less specific manifestations (Derevianko 1970; Larichev 1960:Figs. 11–14; Vasil'evskii 1975b:62–68).

Northern activity was also reflected in the spread of similar elements into Alaska: lateral burins on knife-like blades (Bandi 1969:Fig. 64; Giddings 1967:Fig. 107) and blades retouched along the edges (Giddings 1964:Figs. 47; 53:5) into the Denby Flint complex (3000 B.C.), and microblades still farther across Arctic North America—all the way to Greenland, where they are known in the cultural complex of Independence I at the end of the third millennium B.C. (Bandi 1969:Fig. 64; Giddings 1967:Fig. 107).

The examined culture, similar to the preceding, still bears an archaic character. In time it conforms to the Neolithic cultures surrounding it, but its representatives, fishermen and hunters at Ushki Lake, still do not use ceramics or grind their tools. This is the same population whose traces were left in the lower-lying level of the Ushki sites and who in a subsequent stage became one of the ancestors of the early Itel'men.

The Tar'in Culture of the Late Neolithic

At the end of the warming period, approximately in the second millennium B.C., the Neolithic culture of Kamchatka had acquired a well-developed form. The first clay vessels appear, as well as ground axes and a varied assortment of diverse, finely worked (by overall retouch) stone knives, scrapers, and points of arrows and spears.

Sites of the Developed Neolithic of Kamchatka consist of two basic groups: the South Kamchatkan and the Middle Kamchatkan (Figs. 39, 40).[30]

The sites near Petropavlovsk-Kamchatski are assigned to the first, earlier group: on the shore of Tar'ia Bay (282–285), near Seroglazka Village (262), on the southwest slope of Mishennaia Mountain (43), on Kirpichnaia Street (44), opposite Elizovo Village (42), on the left of the mouth of the Avacha River (46), on the shore of Avacha Bay—Bol'shoi Kamen' (277), and others (257, 271, 273, 276, 294–299, 306) (Antropova 1949; Dikov 1977b; Dikova 1976:235; Jochelson 1928; Ponomarenko 1976:183–193; Rudenko 1948).

In the second group are sites in the Kamchatka River valley: near Kliuchi Village (12, 13), on Domashnee Lake (7), in Zastoichik (6), and in Kultuk on the shore of Ushki Lake (5).

The material complexes of these sites are basically similar, in consequence of which they can be assigned to one culture that we will call Tar'in after the name of the first site, which has been known for a long time on the shore of Tar'ia Bay near Petropavlovsk-Kamchatski.

[30]A western Kamchatkan group of sites of the Tar'in culture was also outlined. This research was conducted by V. I. Ruban (1977).

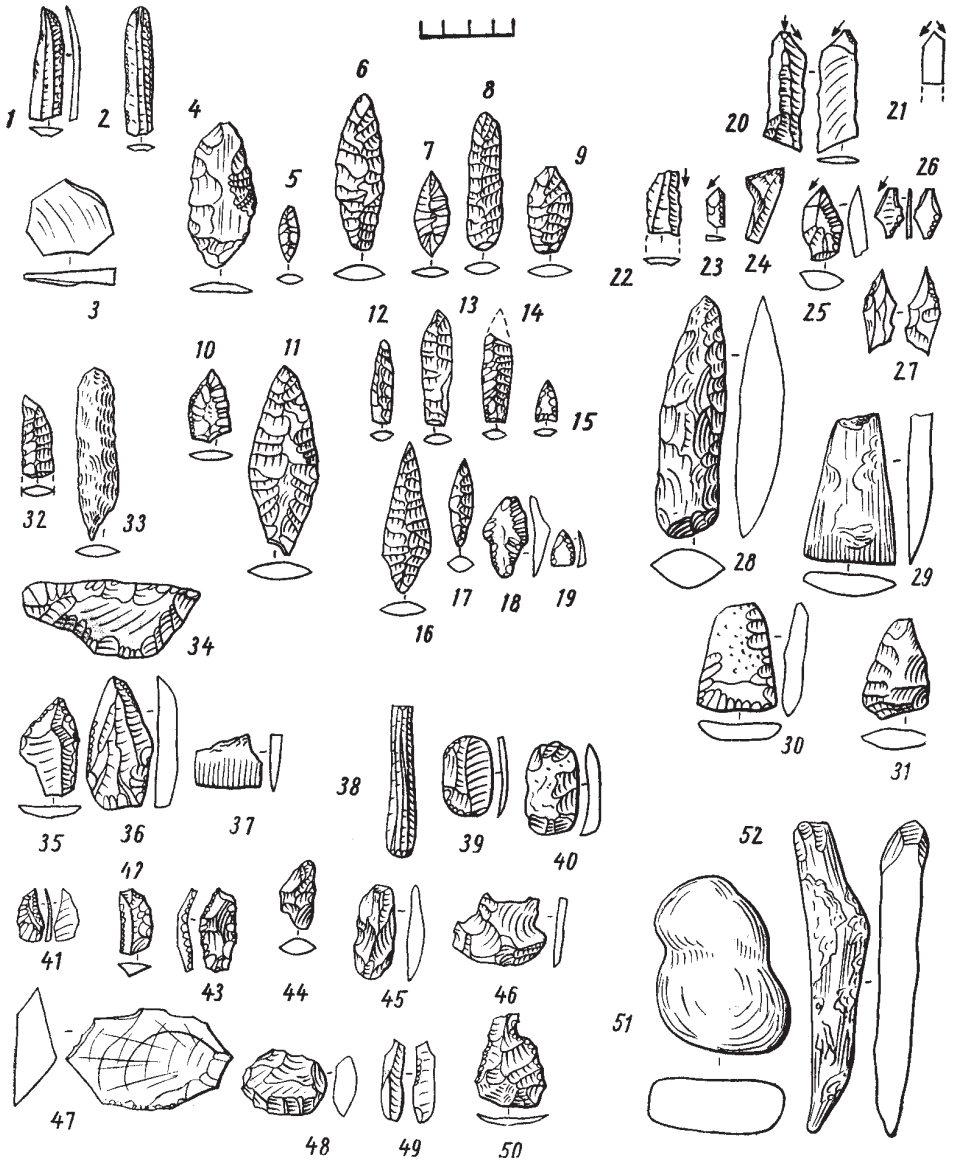

Figure 44. Complex of stone artifacts from the northern zone of the Tar'in culture. 1, 24, 44, 48, 52—Kultuk (5); 2, 4, 7, 13, 16, 18, 36, 37, 40—Ushki II (2), Cultural Layer 2; 3, 6, 8, 9, 10, 12, 14, 15, 17, 19–22, 27, 28, 31–33, 35, 39, 42, 45, 46, 49–51—Domashnee Lake; 18—Ushki I, Cultural Layer 2; 5—Kozyrevsk (8), surface; 23–25, 26, 29, 34, 41, 43, 47—Zastoichik (6); 11, 30—Elizovo (42), excavations of W. I. Jochelson (2168 and 2165).

The artifacts represented in Figure 43 are assigned to the common elements of the Tar'in culture, which are spread throughout its whole area. Local differences peculiar to its northern and southern areas can be seen by comparing Figures 44 and 45.

If the stone artifacts of the Tar'in culture are examined as a whole, then this is one of the most representative cultures of Kamchatka. The total number of different types of tools here is rather large. They form two genetically unequal groups:

1. a group of artifacts reminiscent of earlier indigenous Neolithic types;

2. a group of artifacts appearing in Kamchatka for the first time.

Figure 45. Complex of stone artifacts from the southern zone of the Tar'in culture. 1, 3, 5, 15, 19, 26–29, 35, 40, 42—Elizovo (42); 6—Elizovo (42), excavations of W. I. Jochelson (2166); 16, 22, 41—Elizovo (42), excavations of O. F. Gerts (MAE, 566—14, 7, 15); 2, 10, 11, 21, 24, 30, 31, 33, 34, 39—Kirpichnaia (44); 7, 18, 23, 33, 38—Mishennaia Sopka (43); 4, 17, 25—Mishennaia Sopka, excavations of E. P. Orlova (Hermitage, 3956—7, 11, 29); 8, 9, 13, 14, 32, 36, 37—Tar'ia (after S. I. Rudenko); 12—Bol'shoi Kamen' (277), after A. K. Ponomarenko; 20—South Kamchatka (after Shnell).

Into the first group of artifacts, inherited from the indigenous Neolithic and probably of autochthonous origin, fall: knife-like blades, unretouched (I–1, 2, 4) and retouched (I–6, 7); lateral burins (I–3) and angle burins (I–5) on blades, from the site at Domashnee Lake (7); stemmed arrow points of rhomboid section (P XI–1) and oblong leaf-shaped points (I–2c) from the same site (7), as well as from the site on Kirpichnaia Street (44); and, finally, end scrapers (I–17) and end scrapers on blades (II–1)—from Elizovo (42), Kultuk (5), and Domashnee Lake (7).

The enumerated artifacts may have an autochthonous origin, attesting to the preservation of progressive technical traditions, in particular, industries of knife-like blades. The latter, however, is developed relatively weaker than in the previous culture. It must be noted that used prismatic or

conical cores are not encountered at all, though fragments of three-sided blanks were found twice at the Elizovo site (42).

The overwhelming majority of the artifacts can be assigned to the second group in the Tar'in culture.

Most numerous in this collection are retouched segmented insets (I–11) and sometimes only partially retouched triangular ones (I–13); biface knives with a straight axis (II–4, 8; III–4, 5); various asymmetrical stemless biface knives (IV–1, 2, 3, 5, 6, 8) and stemmed ones (V–6, 8, 10, 14, 17, 18); oblong ones with a trimmed back (VI–5); knives made from incompletely retouched flakes (VII–2, 3, 4, 5, 6, 9, 10); as well as ground knives of argillaceous slate: leaf-shaped double-edged with straight axis (III–38) and single-edged (III–23).

The new types of scrapers and skreblos, which fall into this second group, are varied. To this group belong end scrapers on concave blades (I–1, 5, 6, 11, 12, 16, 23), stemless (II–7, 12, 15, 18, 20, 23) and stemmed (II–26) ones on straight blades, varied combination scrapers-gravers (III–1, 3, 4, 15, 17; IV–2, 7, 23), scrapers-punches (III–18, 27), pear-shaped biface scrapers (V–1) and trapeziform scrapers (VI–3), side scrapers on flakes (VII–3, 7, 10, 12, 15), massive skreblos (VIII–24, IX–7, X–5), grooved spokeshaves on knife-like blades (XII–1) and more massive ones (XII–3, 4), and a skreblo-like polisher (XIII–3).

The new types of projectile points are extraordinarily abundant and varied in form. Among them are bifacially retouched arrow, dart, and spear points that are leaf-shaped (I–1b, 2b, 3b, 5b, 6aK, 9a, 9b; II–1b, 2b), stemmed (VII–2; VIII–9, 12; X–2, 5, 14M), and triangular with a straight base (II–4b; V–a, b; VI–b) and with a concave base (V–bx), as well as only partially retouched stemmed ones on flakes (O–5). The latter are very few.

New types of burins are represented by angled specimens on blades (I–1, 2), on flakes (IV–3), dihedral (IV–5), core-like (II–1), and lateral with retouched tang (III–1). Punches have similar retouched tangs (I–4, 6). But there are entirely different punches, probably small labrets (type II–7).

All types of adzes are entirely new in the Tar'in culture. The most characteristic are unifacially ground concave stone adzes of elongate-triangular form with a subtriangular cross section (III–3, 5), the same but relatively shorter and wider (III–8), and those less regular in outline (III–7). Incompletely ground adzes are often found, which are the same in general as the triangular ones, but with a lenticular, bi-convex cross section (IV–3, 2, 4). Among them is one that is not ground at all (IV–8). It was found on Mishennaia Mountain (43).

Also, completely or partially ground adzes with geometrically irregular cross section, of various dimensions, and having a more or less narrowing butt (V–9) should be noted, as well possibly as an extremely rare type of adze with rectangular cross section (II–4)—if only the location (Staryi Ostrog) where Gerts found it could be identified with the site we excavated in Elizovo (42) (this adze is preserved in the MAE, collection 566–7, 8). Also, oblong unifacially convex chisel-like tools (VII–2) belong to this same category of tools.

Finally, extremely important innovations are ceramics (though they are found in the sites of the Tar'in culture in very small quantities and are indeterminate in appearance) and stone lamps (Dikov 1977b:Pl. 49:8).

To arrive at the estimation of age, we rely on the main complex from Cultural Layer II of the Ushki site and on the statistical calculation of the dating analogies that we have drawn. We note that the wealth of analogies to the rich artifact assemblage in the Tar'in culture makes statistical calculations possible, but hardly makes a concrete and full enumeration of the analogies expedient. We name only the basic and most characteristic of these dating analogies.

Subtriangular arrow points with indented bases (V–bx) are one of the characteristic types in the Ust'-Belaia Neolithic culture in Chukotka. Occasionally they are encountered on Sakhalin (in the Starodubskoe II site during the end of the second–beginning of the first millennium B.C.) (Kozyreva 1967:Fig. 4:12) and in the Kurile Islands, in particular on Shumshu Island: a collection, acquired there in 1949–1952 by B. A. Podkovyrkin (Museum of Anthropology MGU, depository of the department of archaeology, collection 503–79), is still unpublished. Truncated leaf-shaped, subtriangular, and triangular arrow points with a straight base (II–4b; V–a; V–b) are also encountered on Sakhalin Island, as well as in the second millennium B.C. cultural level on Nedorazumeniia Island (Vasil'evskii 1965:Figs. 3:4; 4:1, 4). Stemmed arrow points have an even broader distribution. They are found in all the above-noted Neolithic sites—on Zav'ialova Island they were found in the Late Neolithic site, which is dated to the end of the first millennium B.C. (Vasil'evskii 1965:Fig. 1:26). The mentioned types of points have an integral membership in Neolithic cultures of Pribaikal'e, beginning with the Isakov stage (Okladnikov 1950c). The remaining points have a leaf-shaped and rhomboid form, characteristic for many points of Neolithic sites of the second and first millennia B.C. on Sakhalin Island, in the Kurile Islands, and in Chukotka, where very many of them are in the Ust'-Belaia cemetery.

The leading form in the Developed Neolithic culture of Kamchatka is the humpbacked knife, which is more or less broad and finely reworked by pressure retouch on both sides (IV–2, 3; V–14; V–17, 18). Such knives are known on Sakhalin Island (Starodubskoe II) (Kozyreva 1967:Fig. 4:1, 2, 4), in the Kurile Islands (Chubarova 1960b:No. 2:Fig. 1:1), and in the Neolithic site of Nedorazumeniia Island (Vasil'evskii 1965:Fig. 6:1). An especially strongly pronounced kind is found in southern Kamchatka. This specific form of knife with ears (III–5) is encountered on Nedorazumeniia Island among cultural remains belonging to the end of the second millennium B.C. (Vasil'evskii 1968:Fig. 1:11).

The predominant type of scraper is the trapeziform, which is carefully worked by pressure retouch (I–12, 17; II–18), and is known in the Ust'-Belaia Developed Neolithic of Chukotka (if one uses for comparison sites from nearby territories); scrapers of pear-shaped form (I–11)—in Late Neolithic sites of the northern part of the Okhostsk coast (on the islands of Zav'ialova and Nedorazumeniia) (collection of the Museum of Anthropology MGU, No. 475–66, 67) and in Level III of the Bel'kachi I site (Mochanov 1969b:Pl. 44:26); and bifacially retouched pear-shaped scrapers (V–1)—on Shumshu Island (Museum of Anthropology MGU, No. 475–66, 67) and in the Norton culture in Alaska (Giddings 1964:Pl. 57:17), as well as in Primor'e in Zaisanovka I (sixteenth–twelfth centuries B.C.) (Andreev 1957:Fig. 4:12). At the Pkhusun site in Primor'e (approximately third millennium B.C.) scrapers with ears are also found that are close to the variety IV–2 (Okladnikov 1964:Fig. 7:3), and the latter at the same time were also found in Level V of the Bel'kachi I site (Mochanov 1969b:Pl. 33:7). Finally, on Sakhalin Island in the Nogliki I site (second millennium B.C.) are stemmed scrapers very similar to the Kamchatkan (II–26) (Chubarova 1960a:Fig. 6:6). Also among the early artifacts of the second millennium B.C. from the northwestern part of Sakhalin are miniature rounded scrapers (I–23) (Chubarova 1960a:Fig. 1:10), which are

found as well in the Ust'-Belaia culture in Chukotka. On Sakhalin (in the Starodubskoe II site) and in Chukotka we find the greatest quantity of analogies to adzes (IV–4) (Kozyreva 1967:Fig. 5:36). They are also known on Cape Peschanyi (ninth–eleventh centuries B.C.) (Okladnikov 1963:Pl. 3:2). There we also find an analogy to adzes with a rectangular cross section (*Ibid.*:Pl. 80:6).

Very notable are finds of retouched stone figurines. The majority of them were found in the cultural level of the Tar'ia site. They are small blades of obsidian reworked by pressure retouch as stylized or primitively realistic figurines of a man or animal. It is known that similar figured stones are rather widely distributed in primitive societies during the period of change from the Neolithic to the age of metal (Formozov 1959b:102, 103, Fig. 20; Zamiatnin 1948:85, 123).

Examining all the material from the sites of the Kamchatkan Developed Neolithic as a whole, we are convinced that the noted analogies belong in large part to the second and first millennia B.C. Thus, it can be acknowledged that the duration of this culture is determined by those chronological limits, and the radiocarbon date of 3900 ± 100 B.P. (GIN–183) on charcoal from the cultural layer at the Elizovo site (42) and a later date from Kultuk (5) of 2440 ± 290 B.P. do not contradict this. Judging by these data, the southern Kamchatkan group of sites of the Tar'in culture is earlier than the Middle Kamchatkan, from which it follows that the first group coexisted at first with the cultures of Cultural Layers IV and III of the Ushki sites, and then replaced them, becoming spread from the southern Kamchatka Peninsula into the Kamchatka River valley.

The most significant site of this second period of the Tar'in culture is on the shore of Ushki Lake, at Kultuk (5). Here, on a shore overgrown by forest, a large, rounded hole had been excavated 80 cm deep and more than 10 m in diameter—the remains of an early pit house. The ruins of this dwelling were buried beneath several layers of ash. Owing to this, beams and poles of the covering of this pit house that had fallen down during a fire were spared. They were almost all charred throughout—only the ends of logs buried by the earthen roof were not charred, but still they were no less well preserved. In this huge pit house (see its reconstruction in Fig. 46) was a central hearth, around which were six small hearths in a ring. Under each of the latter was a sub-hearth of burned orange-colored soil (Dikov 1977b:Fig. 33).

Excavations at Kultuk cast light on the economic and social ways of the inhabitants of Kamchatka during the Developed Neolithic. The large size of the Kultuk pit house itself (about 100 m^2) and the presence in it of several hearths indicate that a large related group consisting of several, though not completely separated families lived in this dwelling.

The abundance of fish bone and finds of bone harpoon heads (Fig. 46:20) (Dikova 1976b:235; Shnell 1932:Pl. XVII:7) and stone arrow points indicate fishing and hunting as the primary direction of the early economy. By several peculiarities in its construction, the Kultuk pit house reminds one of an Itel'men dwelling of the eighteenth to nineteenth centuries. We see in them the same support posts buttressing the roof and the same smoke hole above, serving as an entrance.

The Old Itel'men indigenous cultures—Middle Kamchatkan and South Kamchatkan (Nalychevo)—as we will see below, are closely connected by social traditions with the Tar'in culture. Therefore, the Tar'in culture has a direct relationship to the ancestors of the Itel'men. Both the northern and southern Tar'in were distinctive in the use of, later lost, unusual decoration in the form of labrets (Ponomarenko 1976:Pl. I:17; Dikova 1978; Shnell 1932:Pl. XVII:2). This feature attests to the strong Eskoaleut traditions of the Tar'in culture, which can be traced back in all probability

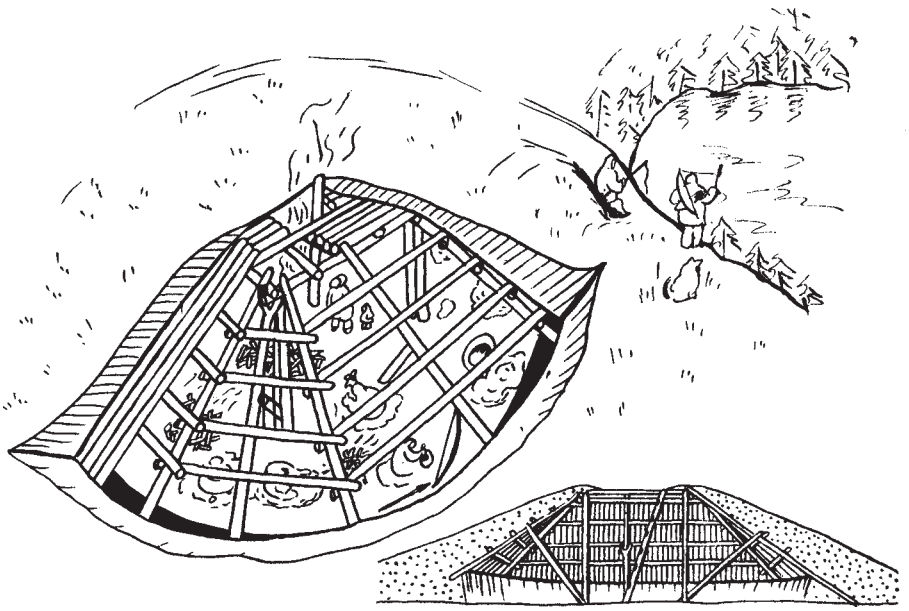

Figure 46. Reconstruction of a dwelling of the Tar'in culture (Kultuk).

to the late Paleolithic culture of Cultural Layer VI of the Ushki sites, for which labrets were very characteristic (in addition to a previously discovered blank, three completely finished labrets were found there in 1978).

In this connection, Vdovin's opinion appears quite correct, that the Itel'men neither in language nor in cultural relations were related to the ethnogenesis of the Chukchi or Koryak, who were later arrivals in the territory of the northern Far East (Vdovin 1969:153, 154). Local genetic sources of the Itel'men thus appear in Kamchatka very early and can be traced back to the end of the Paleolithic.

The ethnic community corresponding to the Tar'in culture was not a community isolated from others, but rather developed under conditions of broad cultural connections. We are convinced of this through the examination above of the analogies of some of their characteristic artifacts. Connections were made both with northern territories (Chukotka, the Okhotsk coast, and eastern Siberia) and southern (the Kurile Islands, Sakhalin, and apparently Japan), where in the Jomon the same arrow points are known as in the Tar'in culture: subtriangular with straight base (Va, Vb) and subtriangular with pointed stem (X–2) (Sugihara 1968:16, Figs. 1:2; 3). What is more, the Kamchatkan culture of this period was probably the result of a cross between the northern and southern cultural traditions, with northern influences prevailing.

The presence of elements similar to Tar'in, especially knives (II–8, 17; IV–1, 6; V–6, 8, 17, 18) and arrow points (I–2b, 2c, 19b; II–4b; VI–b), in Onkoromanai on northern Hokkaido (at the beginning of the first millennium A.D) (Okada 1967:Figs. 9:8, 9, 23; 8:20, 22; 9:10; 10:12; 9:11–16; 13:5; 7:1, 23, 29; 8:35; 8:10–16; 7:6; 8:36) attests to probable connections of the Tar'in culture with the later so-called Okhotsk culture. It is possible as well that beyond all these analogies stands a common initial historical background, as Vasil'evskii (1975b:75) is inclined to think.

The spread of many artifacts of Tar'in appearance extended to northwestern North America, including the Aleutian Islands. As far back as the Dorset culture we see humpbacked

knives of V–6 and 8 types (Bandi 1969:Fig. 57), scrapers with ears of IV–2 type (Harp 1964:Pl. XII:5, 6, 8), pear-shaped scrapers-bifaces in the Norton culture (Giddings 1964:Pl. 57:17), triangular insets (I–13) (*Ibid.*:Pl. 46:11, 12, 16), and truncated leaf-shaped arrow points (II–4b) (*Ibid.*:Pl. 47:12, 14, 15, 21, 23, 24). The presence of labret-like punches (II–7) in the Choris and Kachemak I cultures (end of the second and beginning of the first millennium B.C.) (Bandi 1969:Fig. 22:3, 31) and later labrets in the Aleutian Islands (Jochelson 1925) permits posing the question of their spread to America from the Tar'in culture. There is a greater number of analogies with later sites in Alaska, in particular with the complex at the Ipiutak cemetery. These analogies permit the supposition of their Kamchatkan origin, inasmuch as they are unknown in Chukotka, from where they would have gone into Alaska. Artifacts that are similar to Ipiutak are subtriangular points (II–4b) (Larsen and Rainey 1948:Pls. 2:1–4; 35:2–6, 9–12), stemmed scrapers (II–26) (*Ibid.*:Pls. 2:1–4; 35:2–6, 9–12), and oblong scrapers (XII–3–a) (*Ibid.*:Pl. 24:f).

It would be possible to name still more, different similarities between American and Tar'in artifacts, for example, segmented insets (I–11), various kinds of arrow points (Va, Vb, Vbx, VIb), burins (V–5), and knife-like blades (I–6), but they are equally similar to those in Neolithic Chukotka and therefore could have penetrated into North America directly from Chukotka, and thus the Kamchatkan culture might have had nothing to do with it.

The influence of the Chukotkan Neolithic on early cultures in Alaska was, of course, stronger.

The Stone and Undeveloped Bronze Ages of Chukotka

The Earliest Late Paleolithic Traces of People in Chukotka

The earliest known traces of late Paleolithic man in Chukotka, just as in Kamchatka, are assigned to the Mesolithic or early Neolithic and coincide with the period of post-glacial warming. However, the earliest traces have been found in Chukotka's interior regions.

The peculiarity of the historical development of these regions during the Holocene, caused by partial preservation of the ecology of the Pleistocene, is the continuation here, as in other regions of the Arctic, of Paleolithic hunting of herd animals. Of course, they did not hunt mammoths, which died out here at the beginning of the Holocene, but they did hunt the herds of reindeer, also a Pleistocene animal, by round-up [drive] hunting, which was characteristic for the Upper Paleolithic. Round-up hunting, typically Paleolithic, in the form of spearing in the shallows, that is, at streams where deer crossed, has been preserved in Chukotka until recent times. This type of hunting coexisted with fishing, which was developing during the Holocene, and then with sea mammal hunting as well.

Therefore, the arguments seem to us erroneous regarding some kind of critical change in the ecological conditions of the north, of the dying out of herd animals, which brought on a transition from collective to individual hunting and even supposedly determined new principles of technology—a transition to Mesolithic techniques (Ermolova 1977:18). Similar explanations of tool change resulting from changes of land animals do not withstand criticism when examined in the light of concrete ecological and archaeological factors in Chukotka and in the Arctic in general. Most likely the sudden change of stone-working technology that is observed in the Holocene both in Alaska (West 1976) and in Northeast Asia (including Yakutia) (Khlobystin and Levkovskaia 1973:91–94)—the use of microliths and the appearance of inset tools—is eminent progress of technology and not directly connected with ecology. This can especially be seen in the example of the Ust'-Belaia site (72), the inhabitants of which continued Paleolithic hunting proper, while the techniques they had were not at all Paleolithic.

Nor can one agree with the existing opinion that the Eurasian Arctic was first settled by man only in the Mesolithic or even in the Early Neolithic (Simchenko 1977:279).

One should keep in mind that traces of the late Paleolithic have been found in very few places in Chukotka at present—on the Inas'kvaam River (Dikov and Koliasnikov 1978) and possibly at Chikaevo. Also, it is important to have in mind that, judging by the presence of late Paleolithic sites

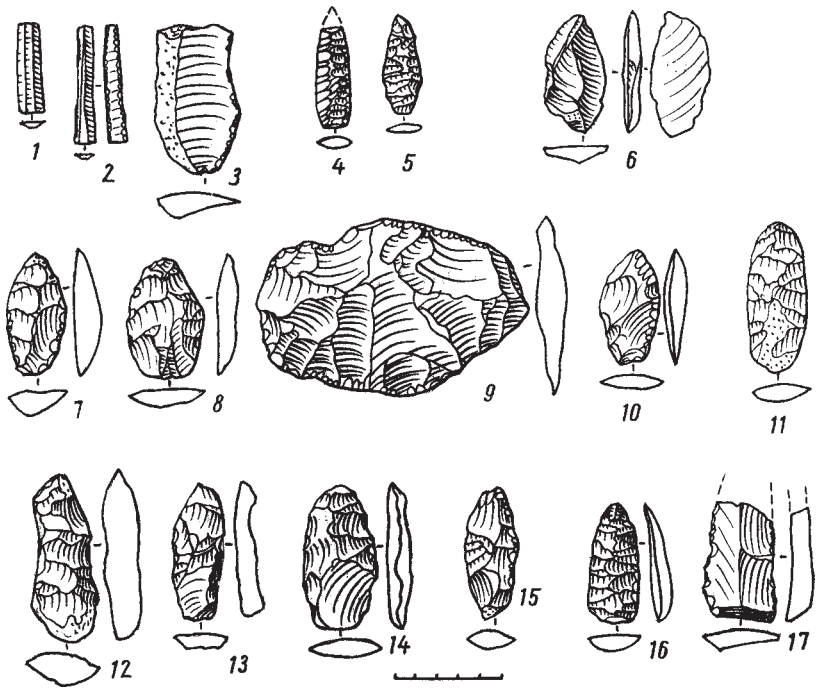

Figure 47. Post-Paleolithic complex of stone tools from the lower Anadyr' (1–17).

in Alaska, the Paleolithic culture should have been spread still earlier in Chukotka and in northern Yakutia, which we have never doubted (Dikov 1958b; 1969a:114, Map; 1969b) and which was then spectacularly confirmed by N. K. Vereshchagin's remarkable discovery on the Berelekh River of the northernmost Paleolithic site (Vereshchagin and Mochanov 1972). There is every reason to expect more finds of this kind in northern Chukotka and Yakutia, especially, near mammoth bones: for example, in Oiagosskii Ravine between the Yana and Indigirka or in the basin of the Malyi and Bol'shoi Aniui, Omolon, Chaun, Amguema, and Anadyr'.

Possibly the earliest post-Paleolithic (probably early Holocene) finds are known on the lower Anadyr' River at Krasnenskaia and Osinovskaia Spits (63, 68–70), apparently on the shore of Tygyl' Lake on the upper Malyi Aniui River, and possibly on the mountain near Ust'-Belaia (72). They are all surface finds and may be determined as Mesolithic only on the basis of their technical-typological characteristics and comparative data.

Extremely archaic stone artifacts from Krasnenskaia Spit (Dikov 1958b:Fig. 25) and Lake El'gygytgyn (Saiapin and Dikov 1958) prompted the American archaeologist McNeish to assign them to the late Paleolithic, specifically to the Cordilleran Tradition (McNeish 1959). He had in mind broad blades (bifaces); broad, crudely made skreblos and burins; semiconical multifaceted cores; and flat and rhomboid points of the Lerma type. However, he did not consider the essential chronological limitation of the Krasnenskaia finds with regard to the age of the Krasnenskaia Spit itself, which was formed no earlier than the early Holocene (Tomirdiaro 1969). In addition, only a few stone artifacts from Krasnenskaia Spit may be assigned to early post-Paleolithic times, such as some of the diachronic finds from Osinovskaia Spit: broad, leaf-shaped bifaces (Fig. 47:9) (Dikov 1977b:Pl. 84:10; 86:5), which can be traced back to late Paleolithic Akmak prototypes (McNeish 1970:Fig. 4), leaf-shaped points, crudely worked broad skreblos, and knife-like blades (Figs. 47, 48)

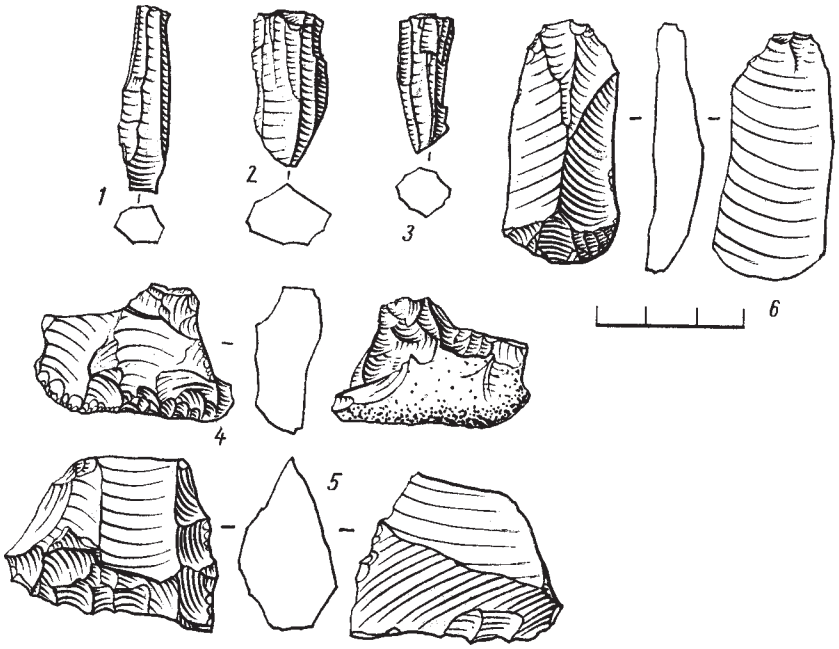

Figure 48. Stone artifacts from early sites on the shore of Tytyl' Lake. 1–5—Tytyl' I; 6—Tytyl' II (found by M. A. Kiriyak).

(Dikov 1977b:Pls. 84, 86). The El'gygytgyn finds also have a non-Paleolithic age, rather Neolithic, though probably not so late (Ymyiakhtakh) as Fedoseeva (1975:94) suggests, inasmuch as this is still a non-ceramic complex with burins that are entirely different from those at Ymyiakhtakh.

With regard to recent finds by Kiriyak on the shore of Lake Tytyl', some of them (conical and prismatic cores and broad scrapers in the Tytyl' I site; Fig. 48:1–5) (Dikov and Kiriyak 1979:Fig. 2:1–5) are found to be similar to Maltan Mesolithic artifacts, while an end scraper on a broad, blade-like flake from the Tytyl' II site (Fig. 48:6) (Dikov and Kiriyak 1979:Fig. 2:6; Mochanov 1977) is analogous to the Sumnagin Mesolithic. Similar to the Sumnagin are some—apparently the earliest—of the Ust'-Belaia (72) arrow points (blade-like, partially retouched), which Mochanov (1977:246–248, Pl. 86:1) first noticed.

Traces of non-ceramic culture, probably Early Neolithic or even Mesolithic, were found by A. E. Katenin in 1977 at one of the sites he discovered near Lake Ionigytkhyn (Dikov and Katenin 1979). This consisted of a flattened conical core, knife-like blades, and two burins: one almost diagonal on a long, regular, knife-like blade (Figs. 49, 60), the other—a dihedral burin (Figs. 49, 60). All these artifacts were made from light-gray siliceous slate and were recovered from an eroded area of the sod layer on the 4–5 m terrace on the left bank of a creek that flows from Lake Ionigytkhyn and falls into the Ioniveem River from the right bank. These notable finds very obviously indicate how mistaken Sergeev's assertion was regarding the lack of settlement until the middle of the first millennium A.D. in the inner regions of the Chukotka Peninsula east of Krest Bay and the Amguema River (Arutiunov and Sergeev 1975:195).

We have spoken above about traces of Neolithic culture in the Third site at Kilometer 102 on the Amguema Road (80). They are similar to the non-ceramic culture of Cultural Layer IV of the

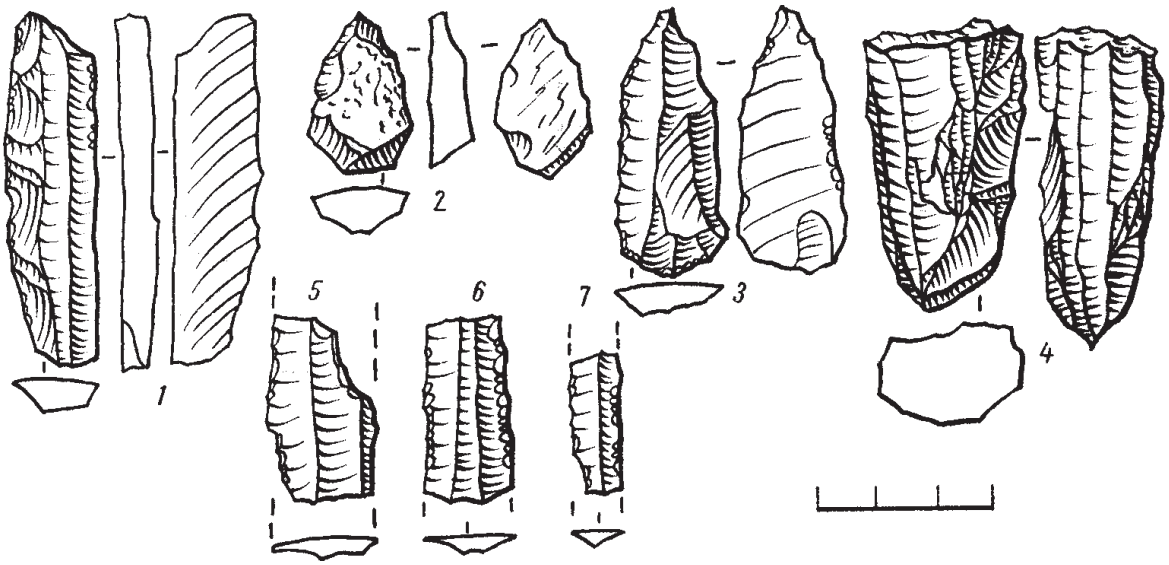

Figure 49. Flint artifacts from the site on Ioni Lake (Locus 2) (1–7) (found by A. E. Katenin).

Uskhi site and are probably related to a single non-ceramic Chukotka-Kamchatkan Neolithic cultural region, which is distinguished by its highly developed blade-like stone industry and arrow points that are rhomboid in cross section. An idea about the age of this Amguema Neolithic complex is given by the radiocarbon date of Cultural Layer IV of the Ushki V site: 4200 ± 100 B.P. (MAG–132).

Close in age, perhaps even somewhat later (Fedoseeva 1975), is the complex of stone artifacts from a hidden place and site on the shore of Lake El'gygytgyn, also non-ceramic and characterized by flint biface blades, knife-like blades, and burins. This find attests to the view that deer hunters and fishermen repeatedly stopped in this place of difficult access during their expeditions (Okladnikov and Nekrasov 1957; Saiapin and Dikov 1958).

Keeping in mind these discoveries in the Anadyr' and Amguema River valleys, on Lakes Tytyl' and El'gygytgyn, and near Lake Ioni, as well as in other regions of the Russian Arctic, in Alaska, and in Greenland, where the so-called Paleo-Eskimo or, more correctly, Pre-Eskimo Sarkak culture can be traced, it can be suggested that about the fourth–third millennia B.C. early hunters, part of whom possibly did not use clay vessels, also lived in Chukotka. Much of the technique of working stone among them was still Mesolithic, especially the skill of splitting off small, thin, knife-like blades.

At the same time there are sufficient grounds to suggest that probably by the third millennium B.C. in Chukotka the ceramic technique began to penetrate as well. Evidence of this is presented by a few fragments of net-marked thin-walled ceramics among the earliest remains of the Ust'-Belaia site at Burial Mound 14 and outside the burial complexes of Burial Mound 15. Distribution in the Anadyr' River basin of cord-wrapped ceramics is indicated by fragments of them in the Kameshki site (58), where they were found together with an obsidian dihedral burin and knife-like blades retouched along the edges.

Considering recent investigations in Yakutia, for which net-marked ceramics are dated on the Aldan to the fourth millennium B.C. and cord-wrapped ceramics to the third millennium B.C. (Mochanov et al. 1970), it might be possible to accept these dates for the named types of ceramics of Chukotka as well. But the question of their dating is complicated by the distance of Chukotka from the Aldan and by the known facts of a later date for net-marked ceramics in Pribaikal'e, for which the date extends up to Serov times, that is, until the third millennium B.C. (Okladnikov 1970). Therefore we consider it more correct to refrain from maximum dating of net-marked and cord-wrapped ceramics in Chukotka, limiting the lower boundary of the age for net-marked ceramics to the third millennium, and for cord-marked to the first millennium B.C. For this period we should recognize the definite influence of Neolithic Yakutia on the Neolithic culture of Chukotka, which is expressed in the spread there not only of the named ceramics, but also of some characteristic types of stone artifacts (three-sided points, stepped adzes, etc.), which in significant measure determined the character of subsequent cultures in Chukotka. These cultures developed there in the second and beginning of the first millennia B.C.—at the time of the Late Neolithic and Bronze Age of Yakutia. On the whole, the North Chukotka and Ust'-Belaia cultures were rather similar in their economic base.

The Late Neolithic North Chukotkan Culture

This early hunting-fishing culture was first discovered in the tundras of northern Chukotka adjoining the Arctic Ocean (Figs. 39, 40).

The sites we assigned to this culture were found on Chirovoe Lake (51), Yakitikieveem River (186), Aion Island (160–164), in the basin of the Amguema River (79, 81) (Dikov 1961b, 1977b; Dikov and Smirnov 1977; Levoshin 1950:193–195; Okladnikov 1953a:405–412, 1950), and on Lake Ekityki (185). In addition, in 1977 the West Chukotka Detachment of the Northeastern Asiatic Expedition (M. A. Kiriyak) discovered two sites of this culture on the shore of Lake Tytyl' on the upper reaches of the Malyi Aniui River (Tytyl' IV and V) (Dikov and Kiriyak 1979). All these sites are united by a very characteristic peculiarity: the arrow points found there frequently have the appearance of massive and long bifacially worked points (Dikov 1961b) and are often unifacially convex or three-sided, with especially many of the latter being found in the Tytyl' V site. Flat points with peculiarly rounded working end and stemmed points are found as well (Dikov 1961b).

Ceramics are encountered rather seldom. Only on the shore of Chirovoe Lake (51), on Aion Island (160–164), and on the Amguema (79, 81) are there more. Everywhere they are either smooth-walled with a temper of reindeer hair or covered by check-stamped impressions (Fig. 50), similar to Late Neolithic ceramics of Yakutia.

Campsites have been discovered along the migration routes of the reindeer, as for example on Aion Island, where the deer go to enjoy the salty sea water or to escape mosquitoes, or in the mountains on the Yakitikiveem River, where the deer could also easily escape insects in summer.

The burial places of the people who lived at these sites were placed on the stony summits of mountains, in crevices, covered by stone fragments and flagstones, near outlying cliffs. Human bones are, as a rule, not preserved under such conditions. The majority of stemmed arrow points, finely reworked by delicate retouch, were found in one such burial in 1963 at the confluence of the Ekiatap River with the Amguema (95).

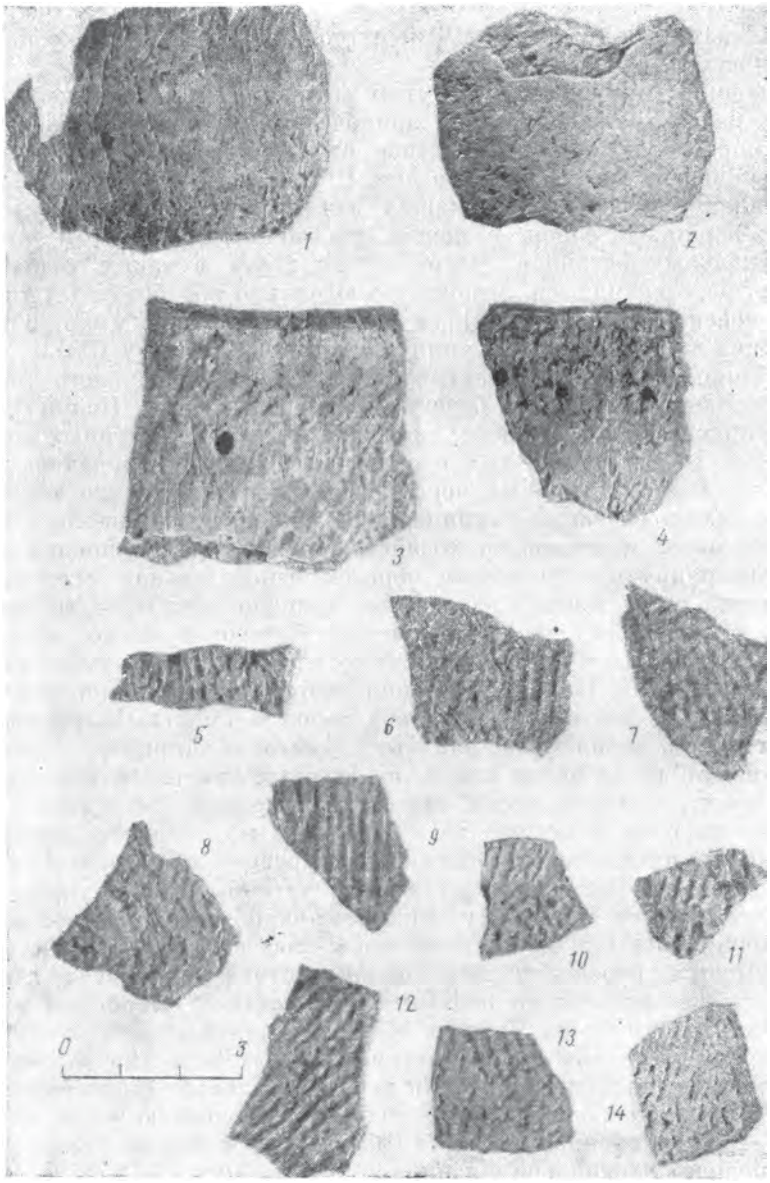

Figure 50. Ceramics from the Neolithic North Chukotkan culture.

The site on the shore of Lake Chirovoe (51) gives an especially graphic picture of the way of life of the continental population of Chukotka. Besides stone arrow points, axes, scrapers, flakes, and bone barbs of leisters for taking fish, as well as split deer bones, an accumulation of thin clay vessel fragments was also discovered. Also found in a rather thick layer of the site was a clay oven of a rather stationary type for smoking fish, as well as some cache pits for preserving meat.

The relatively sedentary way of life reconstructed from such artifacts was brought about by the lack of necessary means of transport and the impossibility under the conditions of a cold tundra to quickly and accurately provide oneself with a dwelling. In Chukotka, sleds and the harnessing of deer and dogs appeared comparatively recently. And if hunting and fishing resources suddenly became exhausted, it often entailed hunger and death. At times whole tribes seem to have become extinct, as happened for example with the Yukagir on the Omolon River when reindeer, which they hunted, unexpectedly changed the route of their seasonal migrations. It was not possible for the Yukagir to go in pursuit of herds of animals wandering about the tundra, just as the early inhabitants of Chukotka did not have this option until the appearance among them of reindeer herding or at least of harnessed dog driving, as among the Cariboo Eskimo of Arctic North America.

The presence of more or less permanent settlements does not exclude, of course, the movement of some lightly equipped hunters (without families) with hunting-trapping goals or in search of raw materials for making tools. Along these lines, one commonly finds sites in Chukotka that have an insignificant quantity of manufacturing and everyday remains, as well as work areas of that type. The earliest inhabitants of continental Chukotka apparently combined such movements with a semi-settled life in places favorable for this—a temporary settlement, thus, was part of a wandering hunting life.

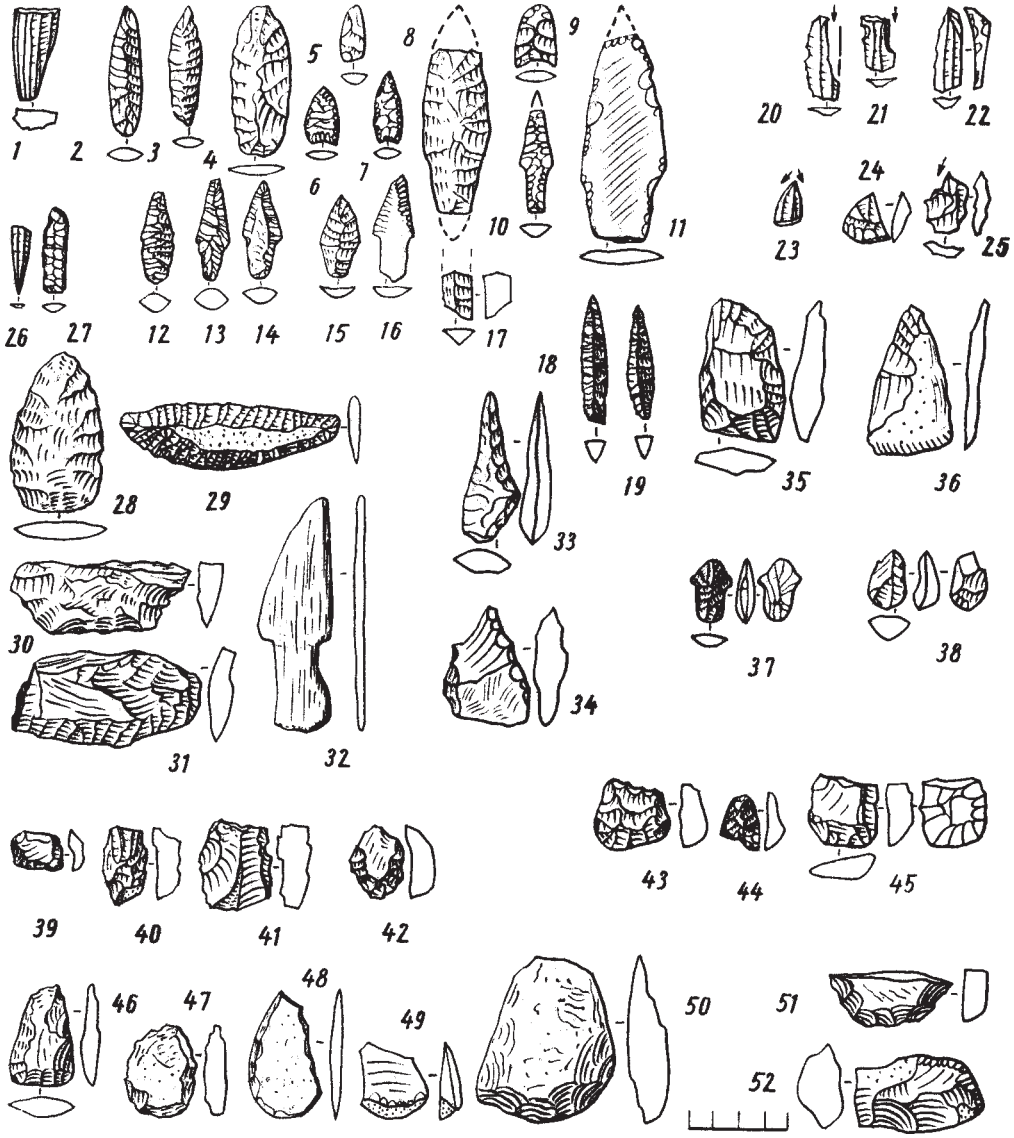

Figure 51. Stone artifacts of the North Chukotkan culture (not found in the Ust'-Belaia culture). 1, 4, 8, 26, 31, 32, 52—Amguema, Fourth site (81); 2, 9, 10, 23, 39—Aion (163); 3, 15—Amguema, Second site (79); 5—Amguema, Third site (88); 17, 22, 24, 25, 28, 30, 33–37, 40, 41, 42, 46–51—Chirovaia (51); 18, 19—Tytyl' Lake (M. A. Kiriyak 1977); 6, 7, 12–14, 16—Aion (1972); 20–22, 29—Ekityki (V. Smirnov).

For the North Chukotkan culture a variety of stone artifacts were characteristic (Figs. 51, 52). Here are encountered prismatic cores (I–1, 2), conical flattened cores (II–3) and conically unifacial ones (III–5), cone-like cores (II–4, 5), cores similar to the Gobi type (IV–6); retouched and plain knife-like blades (I–1, 2, 3, 6, 7); three-sided arrow points (TI–1c) from the Tytyl' V site (Fig. 51:18, 19) and a fragment from the Chirovoe site with indented base (V–aMx) and with an asymmetrical base (V–by); stemless biface-knives (II–1, 4, 7), stemmed ones (V–2), with flattened straight back (VI–3, 4, 5), triangular with pointed ends on flakes (VII–5), and ground knives (III–3, 41, 43); end scrapers (I–1, 19, 20, 23); combination gravers, including those with "ears" (III–10, IV–1); triangular scraper-knives (IV–9); bifacially worked end scrapers (V–7, VI–3), lateral and rounded types on flakes (VII–3, 4, 5, 8, 10, 11, 12), those in the form of cobble spalls flaked along the edge (VIII–4, 5, 13, 30), and unifacially convex with no remaining cobble cortex (IX–1, 17);

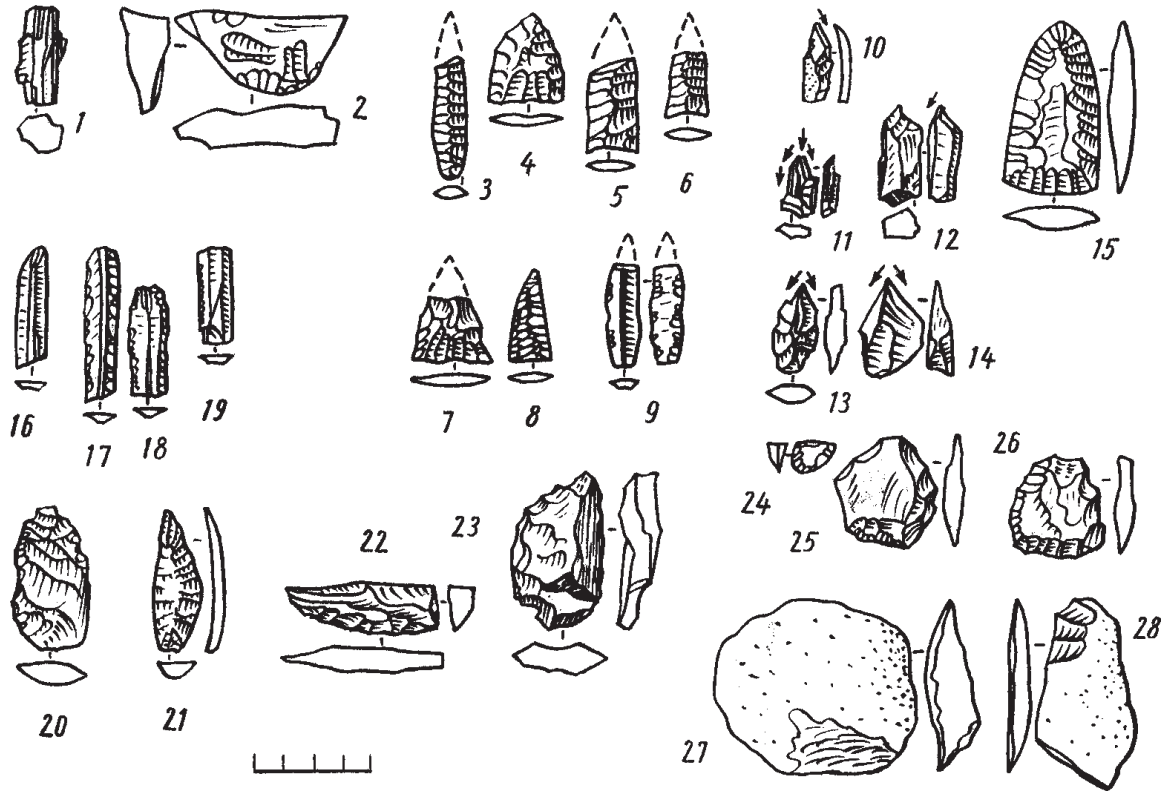

Figure 52. Stone artifacts from the North Chukotkan culture (in common with artifacts of the Ust'-Belaia culture). 1, 9, 10, 16, 19, 21—Amguema, Fourth site (81); 2, 4, 7, 8, 11–15, 17, 18, 20, 22, 23, 25–28—Chirovaia (51); 3, 5, 6, 24—Aion (163 and others).

scraper-bifaces (X–8, 10); scrapers on knife-like blades indented laterally (XII–1); spokeshaves (XI–7); lateral burins on knife-like blades (I–2), dihedral burins (I–5), graver-burins (I–6, 8), polyhedral burins with retouched (II–3, 5) and with unretouched (II–4) hafts, angle and dihedral burins with flattened bifacially retouched haft (III–1, 2, 4), burins on flakes (IV–3, 4, 5, 6), and a multifaceted crystal quartz burin (V–9); punches with retouched hafts (I–4, 6); a small adze, subtriangular with a convex blade, entirely retouched on both sides and lenticular in cross section (IV–8); unground elongatedly trapeziform axes (I–5); and subtrapeziform ground adzes (V–8).

The date of the leading site of the North Chukotkan culture, as is known, was first determined as the time of Late Neolithic and early Bronze Age in Yakutia, that is, the end of the second–beginning of the first millennium B.C. (Okladnikov 1953a).

There is principally no basis for changing this date for the Chirovoe site. Abundant new material allows making it more precise. Ceramics with check-stamped ("waffle-like") impressions (see Fig. 50), in combination with three-sided arrow points and triangular knife-scrapers (IV–9), support the possibility of moving the lower boundary of this date to the beginning of the second millennium B.C. This applies even more to the Amguema sites (79, 81),

for one of which (81), also with check-stamped ceramics, a radiocarbon date of 6665 ± 110 B.P. (GIN) was obtained that, of course, is significantly high. The absolute date for the Chirovoe Lake site (51) is 2800 ± 100 B.P. (GIN) and corresponds completely with its formerly set age—end of the second–beginning of the first millennium B.C., to which the upper boundary of the date of the North Chukotkan culture is assigned.

Okladnikov has expressed the opinion that the Chirovoe site indicates the spread into interior Chukotka of the Lower Lena culture of hunters and fishermen of the Late Neolithic and early Bronze Age (Okladnikov 1953). Later, Mochanov assigned the site on Chirovoe Lake to the Bel'kachi culture of the third millennium B.C. Now, examining more significant material, one cannot but agree with Okladnikov's hypothesis about the connection of the North Chukotka Late Neolithic with the Lower Lena. At the same time, the distinctiveness of the interior Chukotka Neolithic became more remarkable, in particular late North Chukotka. This distinctiveness is essentially expressed by its ceramics. The ceramics are similar to Prilensk check-stamped in the technique of fashioning the surface of vessels. In form, Late Neolithic North Chukotka vessels, though also bottom-rounded, are nevertheless different: in contrast to straight Ymyiakhtakh vessels that slope at the throat, the edge of the rim always turns out (Fig. 50). Adzes of this culture are also different and not of such a developed form as the rectangular Ymyiakhtakh ones. Also, some arrow points—oblong and massive—are entirely not of the Prilensk type. All these peculiarities permit the separation of this North Chukotkan culture into an apparently distinct indigenous variant of the Late Neolithic Lower Lena or considering it even as an independent culture, composing with the Lower Lena a single cultural region.

In Levels IV and V of the Bel'kachi I site, assigned by Mochanov to a separate Bel'kachi culture, unifacial conical cores (III–5) (Mochanov 1969b:99) and core-like burins (II–4) have been encountered (Mochanov 1969b:Pl. 29:1, 6, 8, 9). They were found at the Staryi Siktiakh site by Okladnikov (Okladnikov 1946:Pl. XIV:1, 2, 5), as well as combination scraper-gravers (IV–9, 10, 11) and trapezoidal scrapers with a narrow working end (II–19) (Mochanov 1969b:Pl. 33:9; 30:1; 38:13). In spite of all these rather abundant analogies between the North Chukotkan and the so-called Bel'kachi culture, the Bel'kachi is essentially distinct from the North Chukotkan culture: the primary attribute of the Bel'kachi culture, according to Mochanov, is cord-wrapped ceramics. For the North Chukotkan culture, and particularly for the site at Chirovoe Lake, which Mochanov assigns to the Bel'kachi culture, vessels with check-stamp imprint are characteristic. Therefore, it is out of the question to assign the named site to the Bel'kachi culture; rather, analogies noted with the Aldan Neolithic should be interpreted as a manifestation not of genetic, but purely of cultural connections.

In the Neolithic of the north Okhotsk Islands we still find only two types of North Chukotka arrow points: stemmed (VIII–5), from Nedorazumeniia Island (Vasil'evskii 1971:Pl. I:21) and from the Upper site on Zav'ialova Island (Vasil'evskii 1965b:Fig. 1:26), and triangular with an asymmetrically concave base (V–cy) at the same place (Vasil'evskii 1965b:Fig. 1:1; 1968b:314, Fig. 1:1).

To the analogies with Alaskan cultures can be added the similarity to stemmed ground knives (III–43) found on Takli Island on the Pacific Coast of Alaska in a complex of the second–first millennia B.C. (Dumond 1969:Pl. IV:f); to scrapers with ears (IV–1) from Taye Lake (mid-first millennium B.C.–beginning of first millennium A.D.) (McNeish 1964:Fig. 90:2); to biface scrapers (V–7), punches (I–6), and adzes (V–8) in the Norton culture (Giddings 1964:Pls. 57:11, 12; 53:13;

59:2; 44:1, 6, 7; 10:2; 46:24; 52:5, 8); and to leaf-shaped biface knives (II–1) in the Norton (mid-second millennium B.C.), Pointed Mountain (beginning of third millennium B.C.), and Tuktu (mid-second millennium B.C.) complexes (Beregovaia 1957, 1967:Figs. 3–9), and one has to think these do not exhaust the North American analogies.

Parallels noted in the synchronic Norton complex are especially interesting to us since they are strengthened by the ceramics, which are also characterized by a check-stamped imprint. On the north coast of the Sea of Okhotsk this type of ceramics appears somewhat later—in the Zav'ialova stage of the Old Koryak culture, 500–800 A.D. (Vasil'evskii 1966)—which is also very important for a reconstruction of genetic cultural and ethnic connections between Chukotka and northern Priokhot'e. It is possible, though not proven, that beyond this similarity of ceramics, which is supported by the aforementioned similarity of some utilitarian artifacts, are hidden early sources of the Chukotka-Koryak commonality.

The Ust'-Belaia Culture

The Ust'-Belaia culture was formed and spread throughout the forest-tundras of Chukotka. To this culture should be assigned sites of the middle Anadyr': Uvesnovaniia (57), Utesiki (61), Vilka (59–60), and Chikaevo in part (74), as well as the Omrynskii (73) and Ust'-Belaia (72) cemeteries (Figs. 39, 40) (Dikov 1958c, 1959, 1960b, 1961c, 1961d, 1964b). The latter is the most significant site of this culture, and its clearly unmixed burial complexes that we isolated serve to support this (Dikov 1977b:239, 240).

Sites of the Ust'-Belaia culture were located at seasonal spring or fall river crossings of wild reindeer. The materials of the settlements, as well as their topography, quite definitely sketch the character of life of the inhabitants: the subsistence base of these tribes was, as before, hunting wild reindeer, which was probably supplemented by fishing and collecting vegetable foods.

The vast complex of stone artifacts of the Ust'-Belaia culture consists of a variety of cores, flakes, knife-like blades, projectile points, knives, scrapers, burins, punches, axes, and adzes.

We will examine them according to the two chronological groups of the Ust'-Belaia culture that we identified previously (Dikov 1977b:239, 240).

To the first, earliest group of finds (Fig. 54), that is, to the burials of Burial Mounds 4, 11, 14, and 18—in the first of which no ceramics were found, and in the last two of which ceramics with ribbed paddle impressions were discovered (Fig. 53)—belong narrow, thin, excellently retouched on both sides, leaf-shaped knives pointed on both ends (I–1c) and broad leaf-shaped ones (I–8a); bifacially retouched subpentangular arrow points (II–2b), as well as rhomboid (III–3b), subtriangular and triangular (V–a, b, bx, VI–a, c), and very oblong elongated subtriangular with indented base and rounded tip (II–4cM); small oval side-blades (I–14); leaf-shaped biface knives (IV–1), formless knives with straight flattened butt (IV–4), and knives on flakes (VII–3); trapezoidal end scrapers (I–12, I–13) and thumbnail scrapers (II–12, 18); biface scrapers on the end of a long blade (I–1, II–1), as well as beak-shaped (III–14) and elliptical (V–12), scrapers on flakes (VII–7, 10), including flakes with cobble cortex (VIII–3, 4, 12, 14), a scraper on a knife-like blade indented laterally (XII–1), and a massive indented spokeshave (XII–7); lateral and angle burins on knife-like blades (I–2, 3; IV–3, 4, 6), a diagonal burin on a knife-like blade (I–3); an almond-shaped bifacially

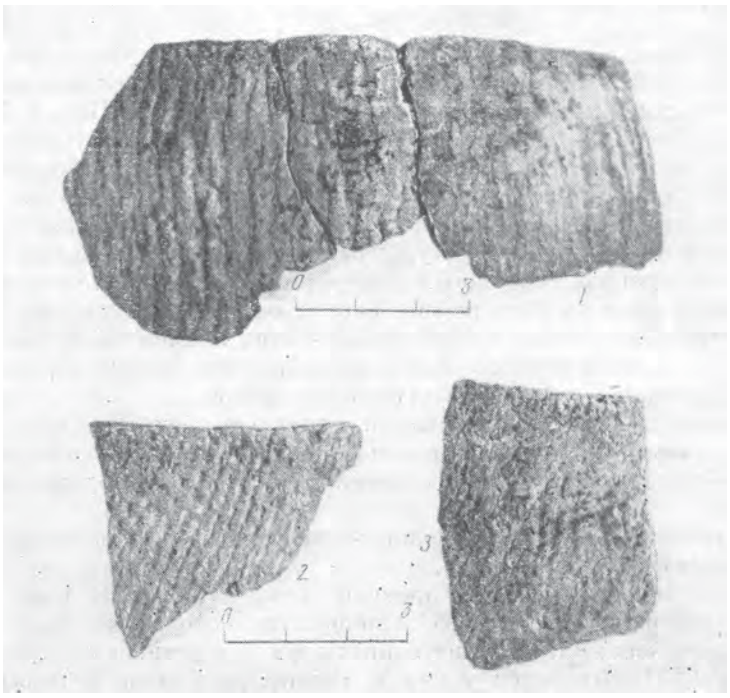

Figure 53. Ceramics of the Ust'-Belaia culture.

flaked adze (III–10) and massive triangular adzes with sloping butt, so-called "stepped" (II–5, 6), which, together with oblong arrow points (VI–c, II–4cM), are characteristic tools for this earliest group of finds of the Ust'-Belaia cemetery.

To the later complex of the Ust'-Belaia culture (Fig. 56), that is, to the burials of Burial Mounds 8 and 9 of the Ust'-Belaia cemetery—whose remains preserved bronze burins (Fig. 55:1, 2), a four-sided awl, smooth-walled ceramics, and ceramics marked with a ribbed paddle (Fig. 53)—belong the stone artifacts illustrated in Figure 56. Cores are primarily prismatic here, often unifacial and flattened (III–2, 3). Points of arrows, darts, and spears are represented by leaf-shaped forms (I–1b, 2b), triangular with symmetrically concave haft (V–ay, V–bx), as well as distinct types incompletely (often on only one side) retouched arrow points on knife-like blades and flakes (O–3; 01–bK). Knives and knife-like tools include side-blades (I–8), formless biface knives (II–4, 6, 7), curved stemmed knives (V–1), and unifaces on flakes (VII–5), as well as bifacial knife-scrapers (VI–2). Among the scrapers and skreblos can be distinguished concave end scrapers (I–11, 17, 24, 25), straight end scrapers (II–13, 16, 17), concave combination scrapers (III–13), straight scrapers (IV–19, 23), and bifaces (V–3), including stemmed ones (V–14), predominantly side scrapers on thin flakes (VII–2, 13), segmented biface scrapers (X–7, 9), and an indented spokeshave (XII–4). The burins of the late stage of the Ust'-Belaia culture are varied. They are subdivided into multifaceted with core-like and retouched hafts (II–1, 5) and dihedral and lateral with flattened retouched hafts (III–4). And finally, adzes that are ground, flattened, and rectangular in plan and in cross section, with stepped butt (II–7) belong to this complex.

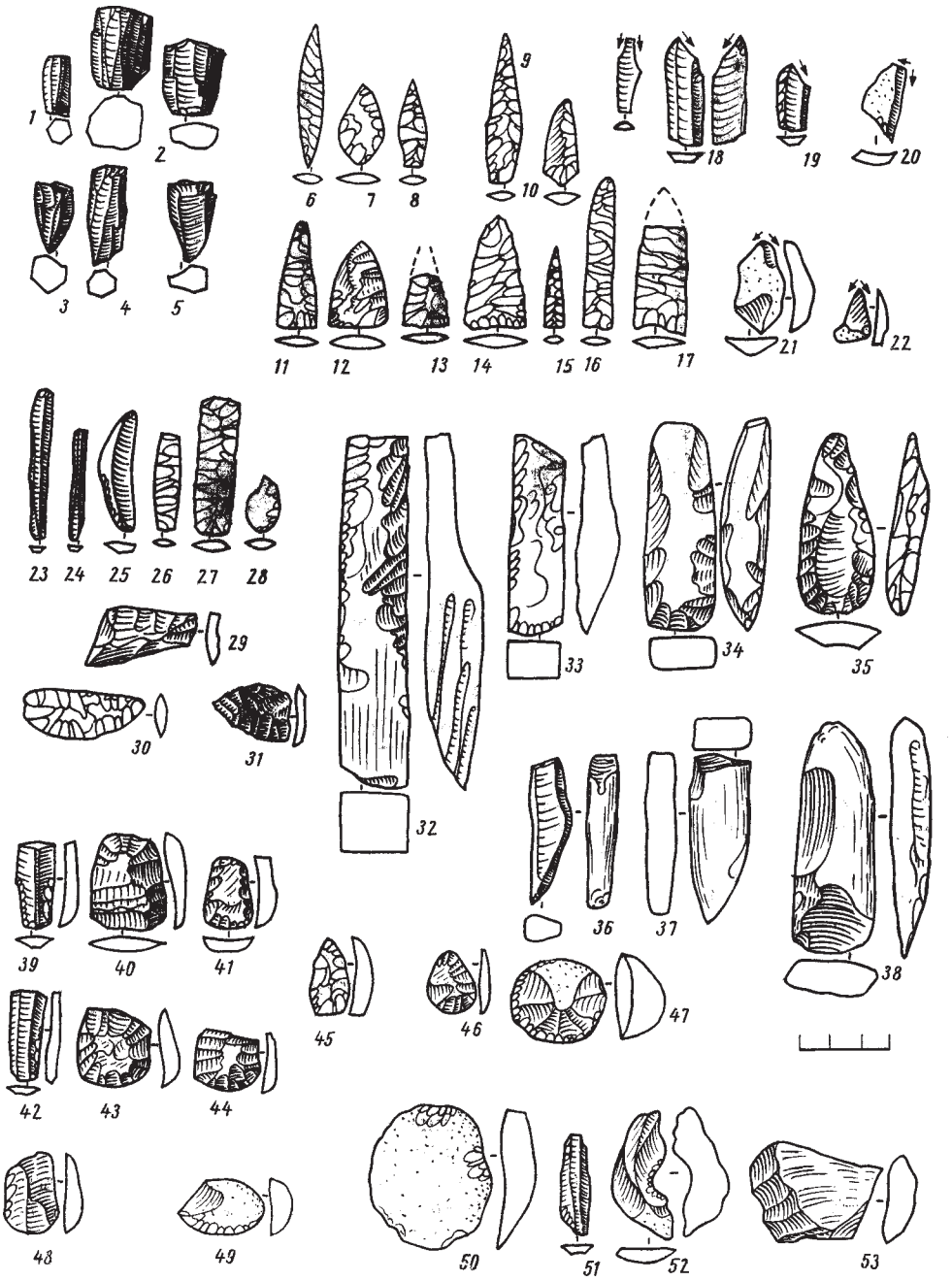

Figure 54. Early complex of stone artifacts from the Ust'-Belaia culture (1–53).

The following stone artifacts (Fig. 56) belong in equal measure to both the first and second complexes of finds of the Ust'-Belaia culture: conical cores (II–2) and knife-like blades; bifacially retouched pentangular arrow points (I–6a) with rudimentary triangular stem (X–2), triangular (V–a, b; VI–a), and elongatedly triangular (VI–c); rectangular side-blades retouched on two sides (I–9); leaf-shaped curved biface knives (IV–1); concave end scrapers on blade-like flakes (IV–1); concave trapezoidal end scrapers (I–12); and rectangular adzes (II–9).

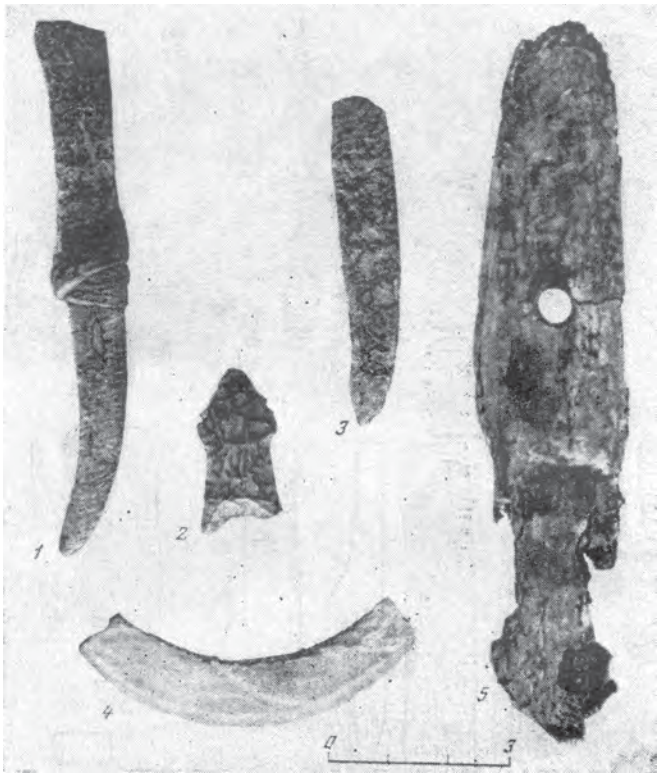

Figure 55. Bronze burins, flint figurine, fragment of a white nephrite ring, and a toggling harpoon head from the late complex of the Ust'-Belaia culture (1–5).

Both of the above-described type complexes of the Ust'-Belaia undoubtedly belong to one culture. This is also indicated by the overwhelming majority of the remaining Ust'-Belaia finds, including artifacts from sites of the Ust'-Belaia culture (Figs. 57, 58); the similarity of the burial ceremony in the grave complexes belonging to them, the latter being connected with partial cremation in the burial mounds; and the basic similarity of the inventory, including the ceramics. Clear delimitation between these two complexes at present is impossible. As we have indicated, there are many common elements, while elements of difference between the complexes are not present in every burial. However, the tentative division of these two complexes gives some idea of the duration of the Ust'-Belaia culture and helps date it.

The lower boundary in dating the Ust'-Belaia culture, belonging to the first complex, is determined by such characteristic artifacts as rectangular stepped adzes, flat rectangular adzes, combination scrapers with a cutting edge, triangular microscrapers, and ceramics imprinted with a ribbed paddle. All these artifacts are typical for the Ymyiakhtakh culture of the second millennium B.C. (Mochanov 1969b:Pls. 43–47). At the same location, hatched with ribbed paddle ceramics are encountered together with waffle-marked ceramics. The presence in the complex of stepped adzes similar to those spread throughout the Bel'kachi culture of the third millennium B.C. provides grounds for assigning this Ust'-Belaia complex and, consequently, the lower boundary of the age of the Ust'-Belaia culture not so much to the end or middle of the second millennium B.C., as to its very beginning.

The upper boundary in dating this culture is determined as the end of the second–beginning of the first millennium B.C. based on characteristic artifacts from the second group of the Ust'-Belaia burials. In this regard, bronze burins (Fig. 55:1, 2) from Burial 1 of Burial Mound 9 and Burial 3 of Burial Mound 8 have decisive significance, as does a bronze rectangular awl from Burial 2 of Burial

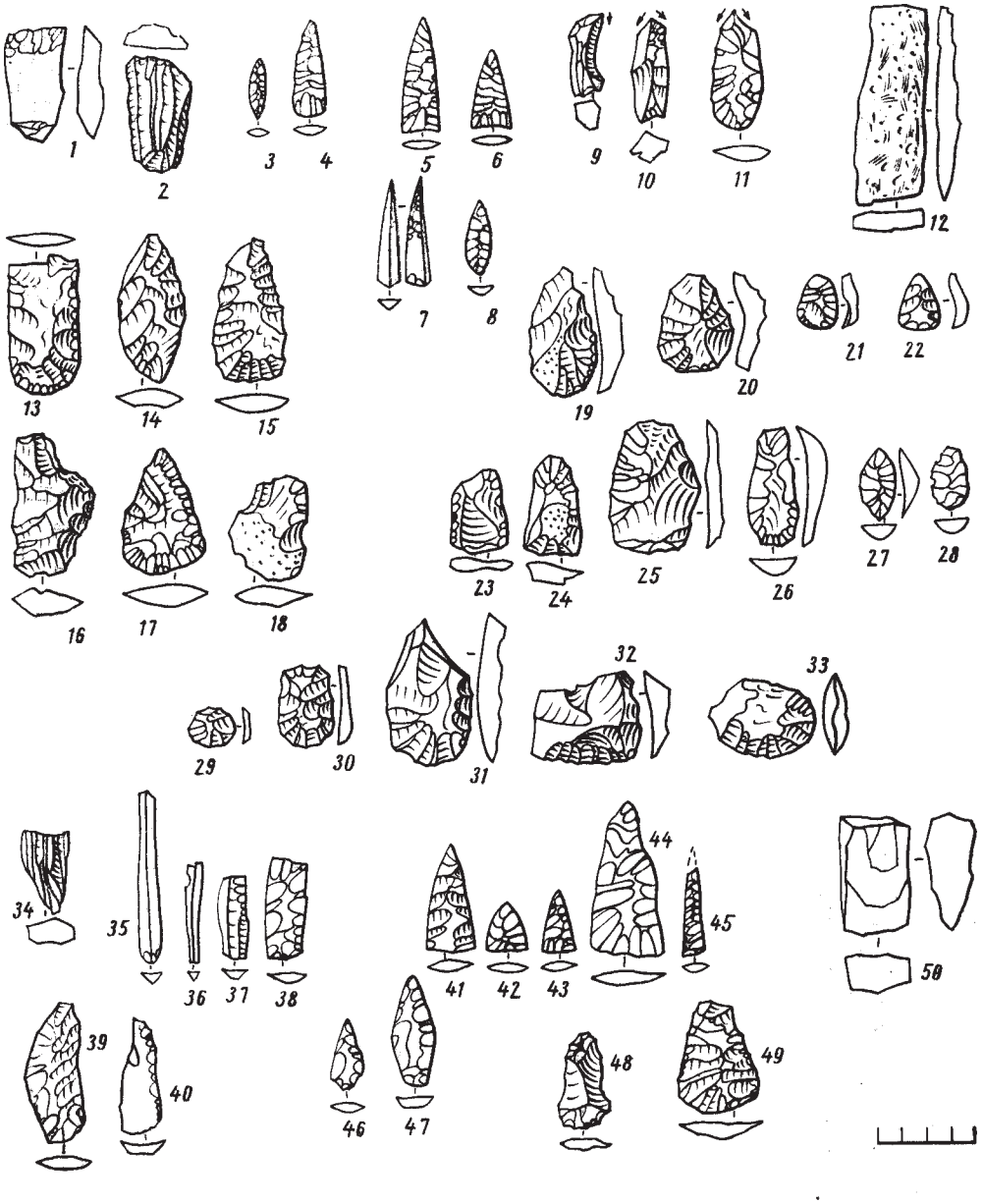

Figure 56. Late complex of stone artifacts of the Ust'-Belaia culture (1–50).

Mound 8, all of which, judging by the date of the Bronze Age in neighboring Yakutia, cannot be earlier than the end of the second millennium B.C. No less significant for the establishment of the upper date is the point of a toggling harpoon from Burial 1 of Burial Mound 9. It was carved from walrus tusk by a sharp metal instrument. It has a broad open socket for a foreshaft, one line hole, and no grooves for stone insets or an end blade (Dikov 1977b:Pl. 95:13). It is generally Old Eskimo in its basic features, though it is somewhat different from all known artifacts of similar kind. It is very similar to some rarely encountered points of Pre-Dorset and Dorset types found in Greenland and on Baffin Island in sites from the end of the second–beginning of the first millennium B.C. (Bandi 1969:Fig. 56:2; Knuth 1962:Fig. II:1, 2). Points similar in form to Ust'-Belaia are also known in

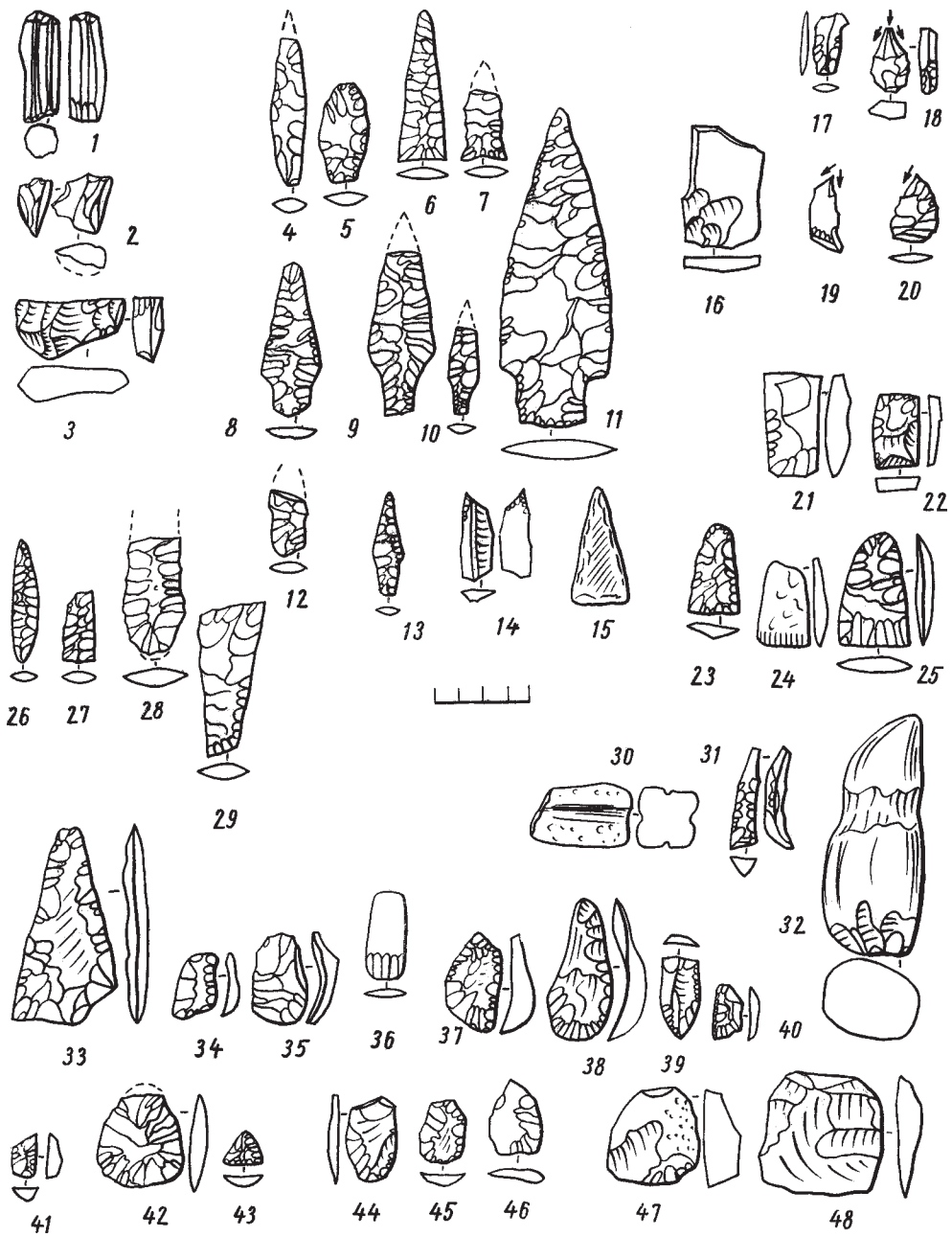

Figure 57. Stone artifacts from the Ust'-Belaia cemetery not yielding to chronological separation into stages (1–48).

Alaska in the cultural complex of Kachemak I, which is assigned to the end of the second–beginning of the first millennium B.C., and in the Norton complex of the middle of the first millennium B.C. (Bandi 1969:Fig. 31:1, 2; Giddings 1964:36:18, 20). Finally, the presence in this complex of a stone point with lateral indentations (Fig. 280:10) and a stemmed scraper (Fig. 278:6), characteristic for the Alaskan Old Whaling culture of the first half of the second millennium B.C., should be considered (Bandi 1969:Fig. 17:3; 17:8–10).

Taking into account the above-noted analogies in dating, the Ust'-Belaia culture should be assigned to the second or even to the end of the second millennium–first half of the first millennium

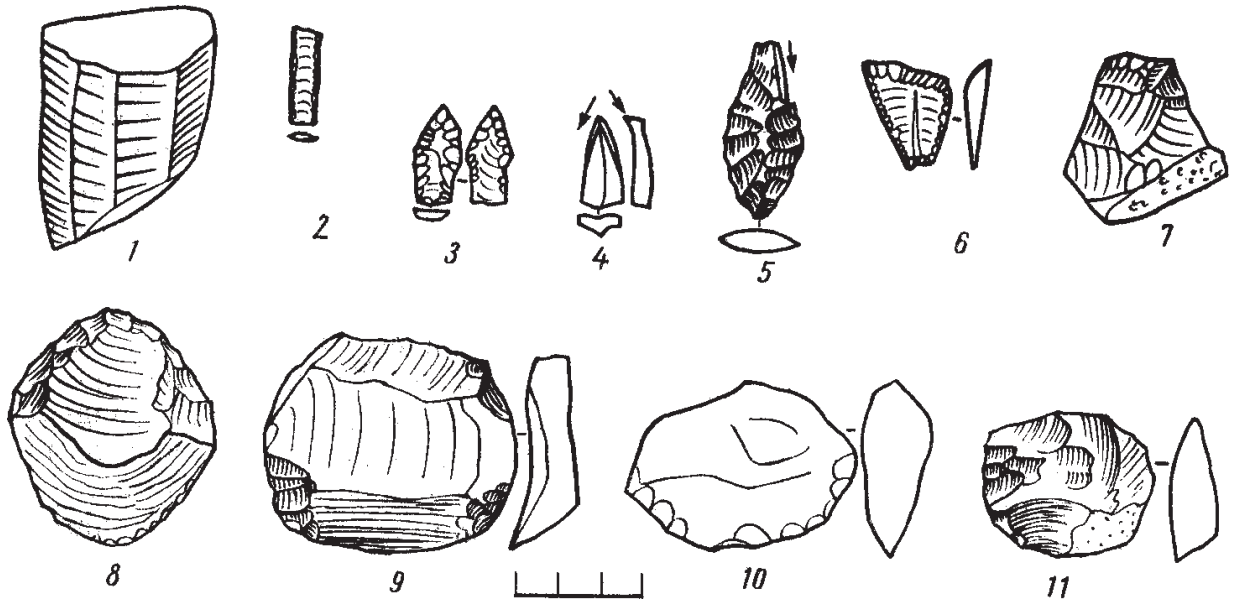

Figure 58. Stone artifacts from sites of the Ust'-Belaia culture (1–11).

B.C. A radiocarbon date of 2865 ± 95 B.P. (RUL) was assigned to charcoal taken from Burial Mound 15, apparently from the relatively early (first) Burial Complex IV, in which among its arrow points there were elongatedly triangular ones (Fig. 57:6), which therefore probably brings the date closer to the lower chronological boundary of the Ust'-Belaia culture than to the upper. The upper boundary approaches in time the Alaskan Norton Paleo-Eskimo culture (mid-first millennium B.C.) in which there are many elements in common with Ust'-Belaia, in particular ceramics with ribbed paddle impressions on the outer surface.

Finds in the Ust'-Belaia cemetery throw a clear light on the spiritual and material culture of interior tribes of Chukotka in the Late Neolithic and Bronze Age. Everything in these large, flat stone burial mounds turns out to be uncommon and different with regard to previous ideas about the early population of Chukotka: the custom of partial cremation, the rite of covering the corpse with red ocher, tiny circular beads decorating the hat of the deceased, canine teeth of bears, the wealth of stone points and their forms, the head of a toggling harpoon, and especially bronze artifacts. These finds and the burial ritual compel the proposition that the population of the Anadyr' River basin in these remote times were in contact with the population of the interior regions of Siberia. Of course, such a proposition requires examination based on detailed comparison of the entire aggregate of archaeological materials of the Ust'-Belaia culture available to us.

The original Ust'-Belaia culture, in other words the Ust'-Belaia cemetery, has already attracted the attention of researchers and challenged them to attempt to affiliate it with other cultures. Mochanov included it, together with sites of the other, North Chukotkan culture—the sites on Chirovoe Lake and at Chikaevo—with the so-called Bel'kachi culture of the third millennium B.C. (Mochanov 1969b:182, Map, Fig. 20). Fedoseeva, on the basis of a chance and uncharacteristic find in Ust'-Belaia Burial Mound 5 of a "waffle-marked fragment," assigns the Ust'-Belaia cemetery to the Ymyiakhtakh culture (Fedoseeva 1970:141). Vasil'evskii is inclined to connect the Ust'-Belaia culture—more precisely the Ust'-Belaia cemetery—to the North Okhotsk Neolithic and to consider the Ust'-Belaia toggling harpoon the earliest Chukchi-Koryak evidence of the presence in

northern Priokhot'e of a separate center of origin of sea mammal exploitation, distinct from Eskimo and not connected with it (Vasil'evskii 1970b, 1971, 1973, 1975c).

All these hypotheses are justified in their own way and not devoid of meaning. One should be alerted only to this, that each of the named authors characterizes the Ust'-Belaia culture in his or her own way, in connection with "his or her own" well-studied culture. Perhaps this indicates the well-known and psychologically very explicable inclination (in addition to objective consideration) of almost every archaeologist to proceed from his or her more familiar material and to consider "his or her" culture the most distinctive one in relation to surrounding cultures, it being the source of resettlement, influence, and the like.

However that may be, the presence of completely different hypotheses of interpretation of the connections with the Ust'-Belaia culture prompts us to make as far as possible a more careful analysis of its connections with the Bel'kachi (and the Prilensk cultures in general) and the North Okhotsk culture, especially since it is with them that the Ust'-Belaia culture has the greatest number of similar elements.

The similarity, apparently genetic, of some elements of the Ust'-Belaia culture with that of the middle Lena began as far back as the Syalakh stage, that is, in the fourth millennium B.C. In Levels VI–VII of the Bel'kachi I site, just as in the Ust'-Belaia site, were found knife-like blades (I–2, 3), including those retouched along the edges (I–7) (Mochanov 1969b:Pls. 22:19, 20, 24, 27; 14:2, 19, 21); points from partially retouched blades (O–3) (*Ibid.*:Pl. 16:1, 4, 5); humpbacked biface knives (IV–1) (*Ibid.*:Pl. 23) and knives with straight, flattened butts (VI–5) (*Ibid.*:Pl. 15:10); burins (III–4; IV–4; IV–1; I–2) (*Ibid.*:Pls. 14:5, 6; 21:14; 32:27), and trapezoidal scrapers (I–12) (*Ibid.*:Pl. 23:5).

In the above-lying Levels IV–V of the Bel'kachi site, dated by Mochanov to the third millennium B.C. and, in his opinion, characteristic of the so-called Bel'kachi culture, there are still more analogies. These are cone-shaped and prismatic cores (II–2; III–2, 3) (*Ibid.*:80, 81, 99); end scrapers on blades (I–1) (*Ibid.*:Pl. 32:23) and pear-shaped scrapers (*Ibid.*:Pls. 39:14; 31:47); various kinds of combination scraper-gravers (III–13, 14) (*Ibid.*:Pl. 38:13, 14), including unique ones with corner points (III–6) (*Ibid.*:Pl. 33:10), as well as indented scrapers (XII–7) (*Ibid.*:Pl. 38:24); insets (I–8) (*Ibid.*:Pl. 1:8); and finally, probably to some measure, even rectangular stepped adzes (II–5) (*Ibid.*:Pl. 40).

Mochanov gives more decisive significance to the stepped adzes just mentioned in the argument regarding his opinion about the continuation of the Bel'kachi culture in Chukotka. It is necessary, however, to keep in mind that Bel'kachi adzes of this type are essentially different from the Ust'-Belaia both in form and character of manufacture. In contrast to the latter they are completely unground and do not have a rectilinear profile, having rather a convex-curvilinear outline.

Objectivity requires one to note that in the Ust'-Belaia cemetery the cord-wrapped ceramics connected with these adzes are of a completely non-Bel'kachi type, rather hatch-marked and covered with ribbed paddle imprints.

Thus, in spite of the presence of some analogies, the Ust'-Belaia site with the cemetery cannot be assigned to a single Bel'kachi culture. This is even more true of the Chirovoe site, which Mochanov assigns to the Bel'kachi culture, where no signs of cord-wrapped ceramics are found; instead, many are of the check-stamped style.

Consequently, it is permissible to speak of a few Bel'kachi elements in the Ust'-Belaia culture, but not of the unity of these cultures.

Thus, even in the following Late Neolithic Yakutian Ymyiakhtakh culture of the second millennium B.C. we continue to find many analogies to some elements of the late Ust'-Belaia culture, except for the ceramics, since in the Ust'-Belaia culture, in contrast to the Ymyiakhtakh, there are no check-stamped ceramics at all. The same things are there that were noted above in the Bel'kachi culture: prismatic cores (III–2), knife-like blades (I–2), angle burins on flakes (IV–4), and end scrapers (I–1). But there are also new things there that are not characteristic of the Bel'kachi culture: completely retouched insets (I–9) (*Ibid.*:Pl. 44:1), triangular micro-scrapers (I–25) (*Ibid.*:Pl. 44:13), and leaf-shaped arrow points (I–9a) (Okladnikov 1955:Fig. 27:4).

Meanwhile, the degree of similarity between the stone inventory of the Ust'-Belaia culture and the cultural complex of the Late Neolithic Chuchur-Muranskii Ymyiakhtakh cemetery found near Yakutsk, presently still unpublished, is not entirely clear (Fedoseeva 1969:223, 224).

But the presence of three-sided arrow points and check-stamped ceramics in the burial inventory of the latter also attests to the lack of unity of these complexes in the most essential things, and that they are most probably related to different cultural-ethnic communities.

Similarities are also few in ceramic production with the Ust'-Mil' culture of the Bronze Age, characterized by round-bottomed vessels with applied rims (Fedoseeva 1970:132), which are entirely absent from the Ust'-Belaia vessels.

We now extend our comparison with the sites of Yakutia farther to the north. And we see in the Lower Lena culture the closest analogies to many elements of the Ust'-Belaia culture. Moreover, we find there almost the same burial complexes of the early Bronze Age (end of the second–beginning of the first millennium B.C.) as at Ust'-Belaia. First, it is the burial on the Kullaty River, where with the deceased, in addition to typically Ust'-Belaia triangular arrow points (V–a, b), are the same bone foreshafts for seating them on the main shaft (Okladnikov 1955a:Fig. 45). Then, it is the early Bronze Age burial on the Bugachan River, where the same arrows and the same bone foreshafts for them are again repeated (*Ibid.*:Fig. 41:1; 1946:Pl. X). These points, most typical for the Ust'-Belaia culture, are abundant in the lower Lena, unlike the Aldan, where they are comparatively few. There is no necessity to prove again the presence of a distinct Lower Lena culture, identified by Okladnikov (Okladnikov 1968:95). We note only that the Ust'-Belaia is the closest to it, perhaps even in genetic regard, but of course only in a clearly cultural-historical aspect, since at present no physical anthropological data show an ethnic relationship. Taking into consideration check-stamped ceramics found in the Ymyiakhtakh cemetery and their distribution in the Late Neolithic in northern Yakutia as well, it is more likely to be acknowledged that the Ust'-Belaia and Lower Lena cultures are less related in ethnic and historical-cultural regard than can be demonstrated at first glance.

And now we will turn to the north coast of the Sea of Okhotsk. On Nedorazumeniia Island during the first millennium B.C. and in the Upper site on Zav'ialova Island at the end of the first millennium B.C. we actually find quite a number of artifacts similar to those of Ust'-Belaia. Similar artifacts occur simultaneously either in the northern Neolithic of Yakutia (inset blades I–10, triangular points V–a, and truncated rhomboid points I–6aK) (Vasil'evskii 1965b:Fig. 1:27; 1965a:Figs. 3:1, 4; 4:1, 4; 3:8) or in the southern (arrow points V–c; X–2; stemmed knives V–1; scraper-gravers IV–19; and triangular knives VII–5) (Vasil'evskii 1965a:Fig. 5–3; 1965b:Fig. 1:5;

1969:Fig. 1:4, 6, 10; Museum of Anthropology MGU, Coll. 475–104, 106, collected by M. G. Levin). Others are not found in Yakutia, though are noted in Primor'e, the Kurile Islands, Sakhalin, Pribaikal'e, the Urals, Zaural'e, and even in northern Europe and elsewhere. These are triangular points with a straight concave and asymmetrically concave base (V–b, bx, by), stemmed on flakes (O–5) (Vasil'evskii 1965b:Fig. 1:1, 17; 1968:Fig. 1:1, p. 314), curved knives (IV–6), and miniature triangular scrapers (II–25) (Vasil'evskii 1966). However, in northern Priokhot'e the primary thing is absent—there are no or almost no signs of developed blade technique, the very thing that is characteristic for the Ust'-Belaia culture.

Therefore the inclusion of the northern coast of the Sea of Okhotsk within the zone of the Ust'-Belaia culture is out of the question, just as is inclusion of the Ust'-Belaia culture in the Priokhotsk zone.

Evidently the North Chukotkan culture played a very significant role in the formation and development of the Ust'-Belaia culture. The Ust'-Belaia culture has a large number of elements in common with it, in particular the following types of artifacts: cone-shaped cores (II–4, 5); retouched and smooth knife-like blades (I–2, 3, 7); triangular arrow points with a straight base (V–a, b; VI–a, c) and with a concave base (V–ax; V–bx); stemless biface-knives (II–4, 7), stemmed (V–1), and with a flattened straight back (VI–4, 5); triangular sharp points on flakes (VII–5); end scrapers (I–1), side (VII–3), and corner (VII–8, 10); cobble spalls flaked along the edges (VIII–4); biface scrapers (X–10); indented scrapers made on knife-like blades (XII–1); lateral burins on knife-like blades (I–2), dihedral burins (I–5), polyhedral with a retouched haft (II–5), with a flattened bifacially retouched haft (III–2, 4), and burins on flakes (IV–3, 4, 5, 6).

However, in the most important element—the ceramics—the Ust'-Belaia culture is essentially distinct from the North Chukotka with its clay vessels covered on the outside by check-stamped ("waffle"-marked) imprints.

Ust'-Belaia cultural connections with early cultures of America can be traced through different stages.

Even in the Denby Flint Complex (the approximate age of which is about 3000 B.C.) are encountered triangular arrow points (V–a; VI–9) (*Ibid.*:Pls. 71:a, 6; 72:8; 72:7) finely retouched by diagonal flaking, leaf-shaped points (I–1c) (*Ibid.*:Pl. 71:b, 2, 3), segment-like insets (I–11) (*Ibid.*:Pl. 71:b, 9, 16; Fig. 56:a), uniface knives (VII–8) (*Ibid.*:Fig. 53:6, 8, 10; Pl. 69:1, 7, 8), and angle burins (IV–5) (*Ibid.*:Pl. 66:b, 1, Fig. 5).

Parallels can be traced even in later complexes of Alaska. They are most characteristic in the Norton Paleo-Eskimo complex (mid-first millennium B.C.). The parallels are arrow points like the ones in the Denby complex (V–a, VI–c) (*Ibid.*:Pls. 46:30, 31; 72:7; 47:31; 47:24, 25, 27), segment-like insets (I–11) (*Ibid.*:Pls. 46:2, 29; 46:5, 11, 13, 15), and uniface knives (VII–8) (*Ibid.*:Pl. 54:14, 15), as well as rhombic stemmed arrow points with a concave base (I–15, 19; III–14) (*Ibid.*:Pls. 46:30, 31; 48:1, 2, 10; 49:7, 9), small oval insets (I–18) (*Ibid.*:Pl. 46:3, 4, 7–9), and side scrapers on flakes (VII–3) (*Ibid.*:Pl. 54:2). In Alaska and the surrounding regions of Canada some other quite characteristic Ust'-Belaia types of artifacts are present at the beginning of the second millennium B.C.: arrow points with lateral indentations (VIII–22) and stemmed scraper-bifaces (V–14) in the Old Whaling culture at Cape Krusenstern (Bandi 1969:Fig. 17), as well as combination scrapers with an angular cutting point (III–6) (Dumond 1963:Fig. 1:u).

At the same time, in the Ust'-Belaia culture, in addition to noted elements of similarity with the Norton culture, are found other "Eskimoid" traits, in particular knives and other artifacts of slate, a stone that later acquired broad and prevailing distribution on the North Pacific coast among the early Eskimos and ancestors of the Coastal Chukchi, as it also did to the south along the Asiatic coast of the Pacific Ocean as far as Indochina and the Philippines.

The basis of life for inhabitants of the North Pacific, who made their knives, scrapers, and projectile points from such gray slate, was sea hunting for pinnipeds with a special harpoon with a detachable, so-called toggling, head. All these surprising analogies with the coastal Eskimo culture are crowned by finds in Burial Mound 9 at the Ust'-Belaia cemetery of this very harpoon, more precisely, its essential part—the head.

Being located at the crossroads of the intercontinental route of the north, the Ust'-Belaia culture of Chukotka evolved from its very beginning, as was shown above, under conditions of broad connections that were facilitated by the similarity of life of northern hunters, fishermen, and collectors in both the Old and New World. These broad cultural connections embraced all of northern Asia at that time, including Chukotka (Okladnikov 1945:No. 2, 1950:22–37).

The data of physical anthropology with regard to the ethnic association of the Ust'-Belaia people are still rather vague: the study of one well-preserved skull from the Ust'-Belaia cemetery indicates that together with features characteristic for the Arctic race (in which the Chukchi and Eskimos are included) there are also features in it of the Baikal type of the northern Asiatic race, which is quite evident in the plastic reconstruction of the face (Fig. 59) (Gokhman 1961). This combination is characteristic to a certain extent for modern Chukchi reindeer herders and is usually explained by physical anthropologists as the consequence either of Yukagir admixture (Debets 1951, 1960; Levin 1949, 1950) or of undifferentiation of similar proto-Yukagir types, and at the same time, proto-Arctic types (Zubov 1977). In recent times there is even the tendency to consider this Ust'-Belaia skull simply that of a proto-Eskimo who possessed neutral physical anthropological features characteristic for very distant ancestors of the Eskimos (Alekseev 1967).

Actually, this point of view is supposedly confirmed by Eskimoid features in the Ust'-Belaia culture, which were discussed above. However, some traits that are not characteristic of Eskimo culture are noted in it: decoration by mother-of-pearl beads of the hat of the deceased in Burial Mound 8, bear canines in all burial mounds, ornamentation of "raven's" feet on the bone item of Burial Mound 15, and the rite of partial and possibly even complete cremation itself. The first two features are typical for taiga peoples of Siberia (the Even and Yukagir), the last two—more for the Chukchi.

Hence, from this it can be concluded that the early Ust'-Belaia people, who already knew bronze but retained mastery of the Neolithic stone-working technique to perfection, could be related to the ethnogenesis of the Eskimos, Yukagir, and Chukchi, and if to the Chukchi, then of course to the Koryak who were related to them, though the Chukchi ethnic component probably predominated.

It is not accidental, therefore, that the ideas of scholars are so sharply divided concerning the population for whom the Late Neolithic people of interior Chukotka were ancestors. At first the population was interpreted as Old Yukagir (Levin 1958b; Okladnikov 1950e, 1953a)—Iu. B. Simchenko's (1976) position being very comprehensively substantiated within the framework of a broader conception of a single Ural ethnic substrate in which the Yukagir play the role of the

Figure 59. Face of a man based on the skull from Ust'-Belaia Kurgan 8 (reconstructed by G. V. Lebedinskaia).

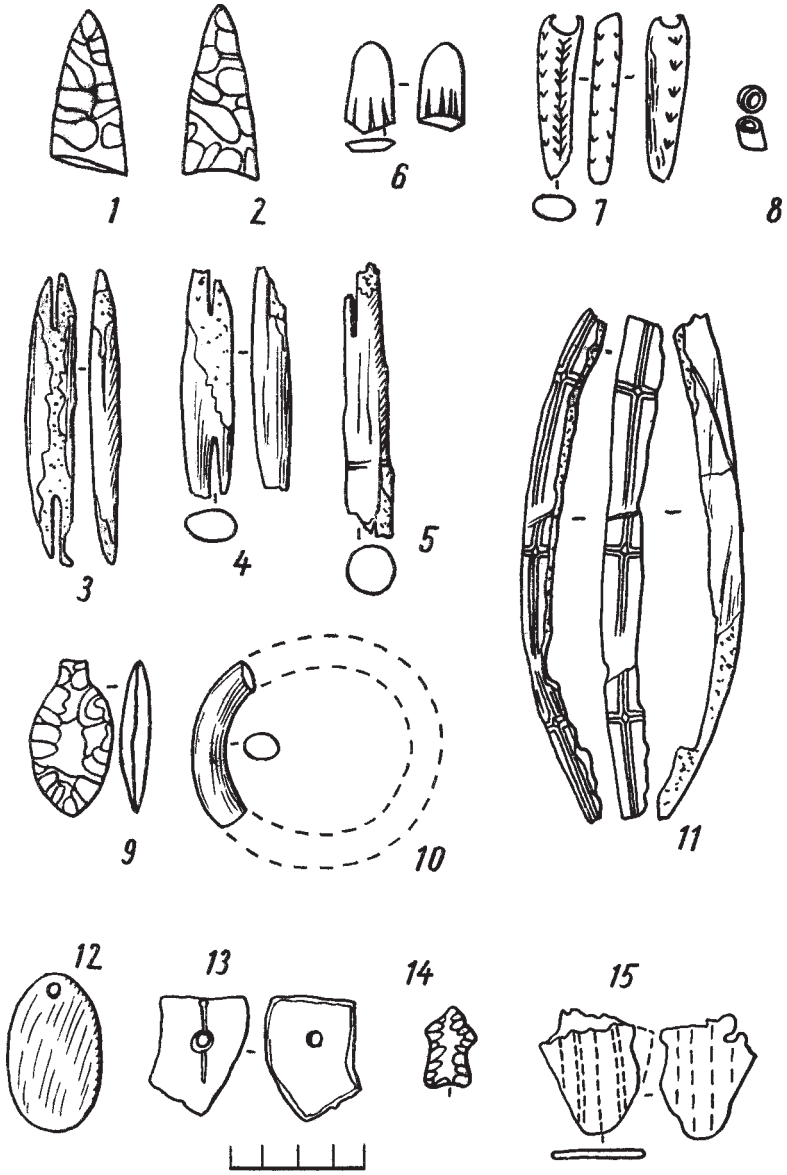

Figure 60. Ornaments, amulets, and other items of the Ust'-Belaia culture (1–15).

northeastern people (Chernetsov 1973). At the same time, the population is seen by many specialists as northeastern Paleo-Asiatic, in particular, Old Chukchi (Dikov 1960:66, 71; Gokhman 1961; Vasil'evskii 1971, 1973; Vdovin 1972:107).

There is some basis for considering that later, probably at the end of the first millennium B.C., the Ust'-Belaia culture spread to the northern coast of Chukotka. This is attested by the Ekiatapskii cemetery in the Amguema River valley, which is similar to the Ust'-Belaia by its burial ritual (95), by the Pegtymel' hunting camps (99–101) near the cliff drawings, and by the Pegtymel' petroglyphs themselves (102, 103).

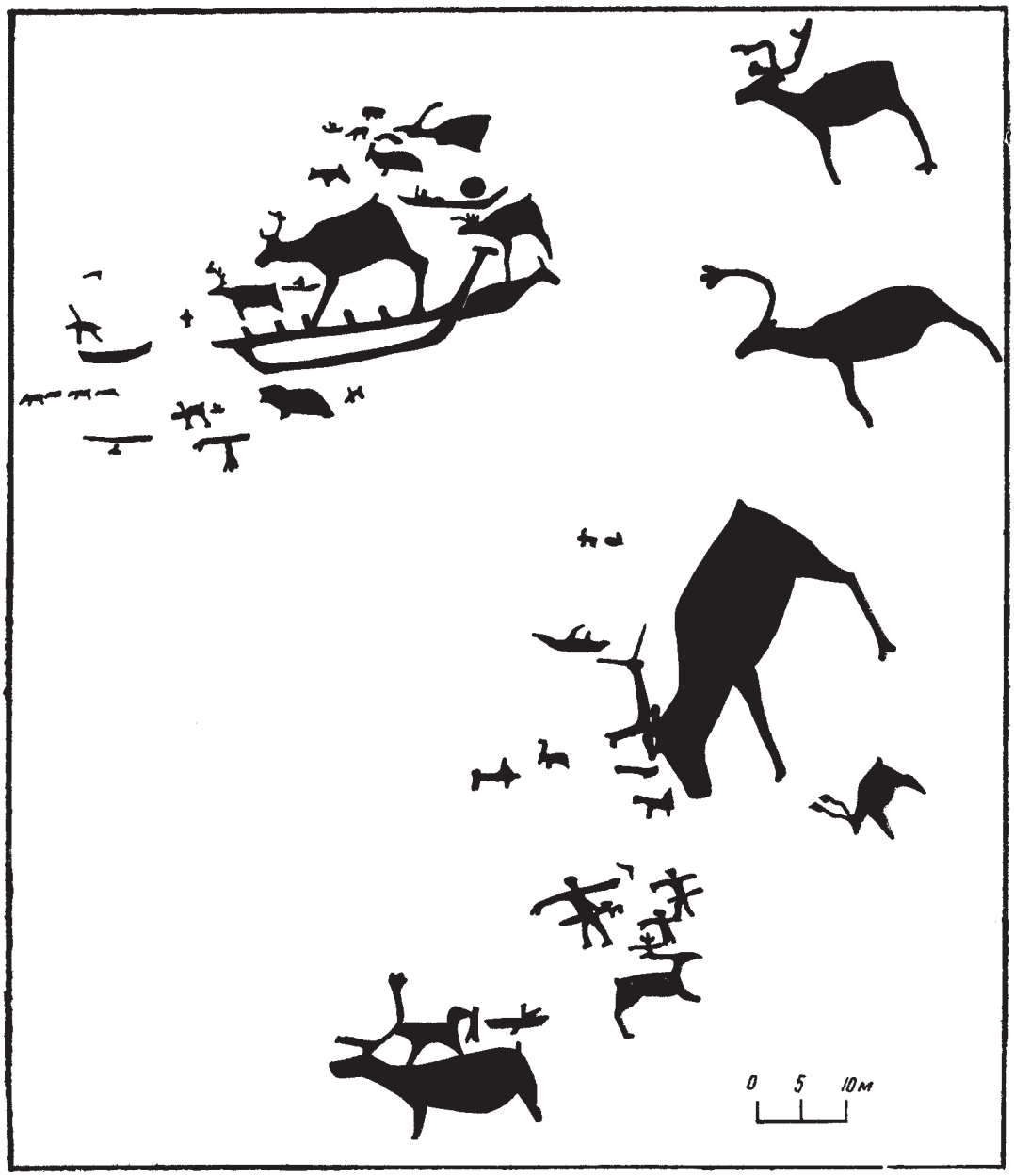

Figure 61. Grazing wild deer (Pegtymel' petroglyphs).

The Pegtymel' petroglyphs (Figs. 61–64) substantially expand ideas about the economy and mode of life of the population of Chukotka during the period under examination. There is no necessity to speak in detail here about them since we have exhaustively described, classified, and dated them, and given their ethnocultural characteristics in a special monograph (Dikov 1971b).[31] We only mention that owing to these cliff drawings did the speculation concerning the remote antiquity—descending at least from the first millennium B.C. in polar Chukotka—of hunting wild

[31]We note with pleasure that the idea we posited on the basis of classification of the Pegtymel' petroglyphs, of a separation of descriptive canons, was accepted and recently developed in conformity with the petroglyphs of Belomor'e by A. D. Stoliar (1977:24–41).

Figure 61a. Image of deer on a Pegtymel' cliff.

Figure 61b. Head of a toggling harpoon and stone artifacts from the Paleo-Eskimo site of Chertov Ovrag on Wrangel Island.

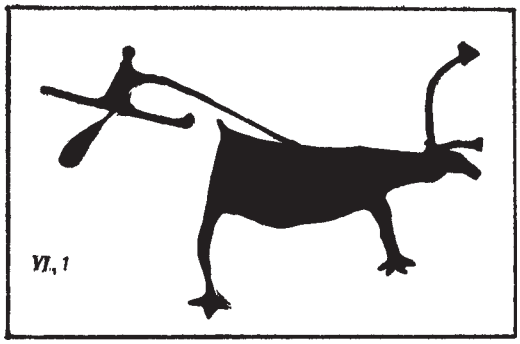

Figure 62. Hunting wild deer (Pegtymel' petroglyphs).

deer in spring on skis with dogs (petroglyph 104) and in fall on the river shore with the aid of large boats and small kayaks with double-bladed paddles, using thrusting spears and harpoons, become certain (Dikov 1971b:54–56). And of special importance, the Pegtymel' petroglyphs are the most valuable source of ethnic identification of the population that left them. In them, especially in the anthropomorphic mushrooms-toadstools (Fig. 64) and in some cases in Chukchi-Eskimo fur suits (*kerkery*) (Dikov 1971b:Fig. 44), the Old Chukchi component of Bronze Age Chukotka, in its Ust'-Belaia culture, is manifested even more and substantially strengthened.[32]

A more recent discovery in Tuva, in Saiany Canyon on the Yenisei, of Bronze Age representations very close in essence to the Pegtymel' mushroom anthropomorphs (Fig. 65:3–5) (Devlet 1975:238–248; 1976a:Pls. 34, 36; 1976b:115–123; Devlet, Popova, and Titova 1976:240), in combination with linguistic data for the possible connection between Chukotkan-Kamchatkan

[32]The Chukchi component of the Pegtymel' petroglyphs is also confirmed by I. S. Gurvich's discoveries in 1975 of representations of deer and dogs similar in style to those of Pegtymel' on the *retem* of a yaranga in a Chukchi nomad camp in northern Chukotka.

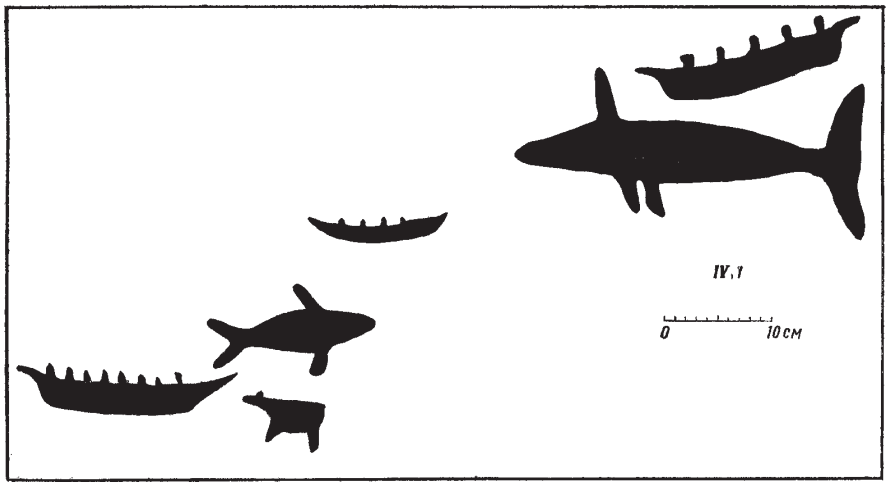

Figure 63. Whale hunting (Pegtymel' petroglyphs).

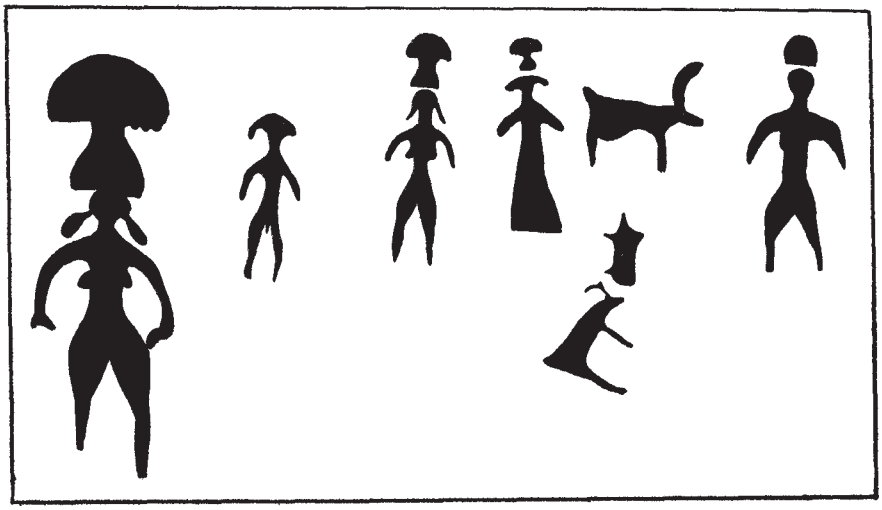

Figure 64. Toadstool people (Pegtymel' petroglyphs).

Figure 65. Petroglyphs representing people with mushroom-like heads. 1—in the Stone Age in Spain; 2—on the Olekma River (after A. P. Okladnikov and A. I. Mazin); 3–5—in the Yenisei canon, on the right bank of the Chinge River, in Tuva (after M. A. Devlet).

and Yenisei peoples, in particular the Kets (and consequently, for the fact that prior to the Ural-Altaic peoples, Siberia was possibly populated by some of the ancestors of the Chukchi and Koryak) (Dul'zon 1969a:31), permits viewing in a somewhat new way the problem of the origin of this Chukchi (Chukchi-Koryak) component in the Ust'-Belaia culture and, on the whole, the problem of the origin of the Chukchi (and Koryak).

It is entirely possible that the ancestors of the Chukchi (and Koryak) arrived not only and not so much from the southern part of continental Priokhot'e (Vasil'evskii 1971, 1973) or nearby continental regions (Arutiunov and Sergeev 1975), but even more likely from some more remote region of southern Siberia, through Taimyr from the upper Yenisei.[33] If such is the case, the south Siberian origin of bronze, from which the Ust'-Belaia burins and awl (square in cross section) were made, can be explained.[34] This also explains the discovery, inexplicable up to now, in 1904–1907 by N. P. Sokol'nikov on the middle Anadyr' of a fragment of a clay vessel with an out-turned lip, decorated in a rectilinear zigzag-shaped pattern (Dikov 1961a:10, Fig. 4:28). These ceramics were favored in antiquity by the steppe tribes of Khakassko-Minusinsk in the south and are also found in the taiga of the middle Yenisei in the Neolithic (and later) site near Podkamennaia Tunguska (Nikolaev 1963:130, Pl. 4:9, 10). Finally, it explains the similarity, probably genetic, of the stone ceremonial structures of the Entsi and Nganasani in Taimyr with those of the Karasuk, on the one hand (Dolgikh 1951:13, 14 [Footnote]; Nikolaev 1959:19–21), and, on the other, with Ust'-Belaia items, and through them even with the Uelen, Seshan, Chini, Ekven, and other Old Eskimo stone burial constructions. Agreeing well with this hypothesis are the remains of a bronze smelting production of the Piasin culture in Taimyr at the end of the second millennium B.C. (Khlobystin and Gracheva 1972:297), the connection of the Kets with the bearers of the Karasuk culture (Chlenova 1969:143–146; Nikolaev 1960:67, 1962:253–262; Simchenko 1976:30; Vainshtein 1951), the Ket mushroom tradition (Elizarenkova and Toporov 1970:40–46), cremation in the Ust'-Belaia cemetery, and finds there of bear canines, attesting to the bear cult, which is characteristic also for the Kets (Alekseenko 1967:172, 1977:41), even for their legendary ancestors—the Kaigus' (Nikolaev 1973:492).

A. A. Formozov (1973) turned to the famous ancient East Indian soma (intoxicating vine) for his interpretation of the Pegtymel' mushroom-like images. He equated the divine beverage of the Aryans with an infusion of mushroom/toadstool (Wasson and Wasson 1957). Judging by the upper Yenisei petroglyphs, such a concoction was being used by the ancestors of the Kets during the Bronze Age, and probably in even earlier times by the substrate Paleo-Eurasian population (about which the anthropomorphic images of mushrooms in the art of the Stone Age of Spain may attest) (Schuster 1970:Figs. 48, 49), probably in Priladozh'e (near St. Petersburg),[35] and quite definitely in Olekma [Fig. 65]) (Okladnikov and Mazin 1976:Pl. 12:4, p. 93). Thus, this makes the spread of the tradition of eating hallucinogenic mushrooms quite possible not only in Northeast Asia among the

[33]We conjectured earlier about the alternative of the spread of the ancestors of the Chukchi from Taimyr (Dikov 1958b:9).

[34]We cite data from spectral analysis on the Ust'-Belaia burins, produced on 6 April 1960 by I. Bogdanova-Berezovskaia in the Laboratory of Archaeological Technology LO IA AN SSSR (given by percentage). For the large burin: Cu—94, Pb—0.01, Sn—2, Sb—0.2, As—1.5, Ni—1–0.7, as well as traces of Fe, Ag, Bi, Mg, Si, Al, Co, Ti, Na, Ca. For the small burin: Cu—95, Pb—0.1, Sn—0.5, Fe—0.1, Sb—0.5, Bi—0.07, As—1–0.75, Ni—1–0.7, as well as traces of Ag, Mg, Si, Al, Mn, Ti, Na, Ca (total sum 99%).

[35]We have in mind the bone sculptural representation of a man, possibly with a mushroom-like head, from the Priladozh'e sites, usually interpreted as a mythical man-like being with two bird heads (Gurina 1961:Fig. 19:14).

ancestors of the northeastern Paleo-Asiatics, but even earlier into America, where the cult of hallucinogenic anthropomorphized mushrooms was widely known in the art of the early Maya, which we have previously discussed (Dikov 1971c:24). Therefore, the tentative hypothesis regarding genetic connections of the proto-Chukchi component of the Ust'-Belaia culture with the early Karasuk culture, possibly to the hypothetical Dinlins or their ancestors (Chlenova 1969:253–262; Nikolaev 1962) through the ancestors of the Kets, who might have come to Chukotka through the Yenisei and Taimyr, probably reflects only a very late presumable wave of Yenisei peoples into Northeast Asia. The earliest of these waves, going directly back to the substrate Paleo-Eurasian population, may correspond with migrations into America from Asia of the ancestors of the Paleo-Indian population. Also pointing toward this are connections between the Kets and Indians both in language (Dul'zon 1969b; Swadesh 1962) and in mythology (Ivanov 1973), and possibly in physical anthropology (Elizarenkova and Toporov 1969:217). Furthermore, the languages of the Yenisei type, forming the Paleo-Eurasian linguistic substrate, were spread in a significantly more vast territory of Asia (Ivanov 1973:178). Only after this first presumed migration of ancestors of the Paleo-Indians separated from the proto-Yenisei people were the northeastern Ural peoples (ancestors of the Yukagir) and Eskimo-Aleuts able to settle Northeast Asia. This might be the earliest Yukagir and Eskimo ethnic wedge between the ancestors of the northeastern Paleo-Asiatics and Paleo-Indians, who were related in the remote past (going back to the Paleo-Yenisei peoples). Of course, all these speculations are in need of more solid linguistic (especially toponymic) corroboration than that which we presently have at our disposal. Broad and attentive comparative study of languages and toponymics of northern and central Asia might bring the necessary clarity to the problem of the origin of the Chukchi and of the northeastern Paleo-Asiatics in general.

The Appearance of Sea Mammal Hunting and the Problem of the Origin of the Eskimos

The beginning of specialized sea mammal exploitation was a large progressive shift in the history of the Northeast during the second millennium B.C.

It was preceded by a long period of formation of coastal economy, probably beginning as far back as the early Holocene after the extinction of the megafauna. Having a revolutionizing effect on the formation of this idea among archaeologists studying the northern Pacific Ocean were Bandi's idea, regarding the possible beginning of sea hunting during the penetration into the Aleutian Islands through Beringia by bearers of the microlith tradition (Bandi 1969:175–186), and J. Malaurie's report at the 13th International Congress of Historians in Moscow in 1970, expressly dedicated to the substantiation of this idea through vast materials drawing on the data of the archaeology of the Eskimos and our Ushki Paleolithic (Malaurie 1970, 1972, 1973). Soon Vasil'evskii, who before had dated the origins of sea exploitation to the second millennium B.C. (Vasil'evskii:1969), took up this idea, made it the basis of his work, and began to develop it (Vasil'evskii 1973, 1974, 1975a:134). The wide and rapid recognition of this idea was promoted by a new formulation of the concept of a maritime culture as not being necessarily connected, among those harvesting the gifts of the sea, with sea hunting with harpoons. This new definition was formulated by the American archaeologist McCartney (1974) in contrast to its previous definition by Chard and Vasil'evskii as a culture permanently connected with hunting in the sea. Incidentally, the earliest sea exploitation was understood in the same way by both Laughlin and Borden, also

assigning it either to the boreal tradition at the end of the Pleistocene (Borden 1973:202) or to the Anangula site in the Aleutian Islands at the beginning of the Holocene (Laughlin and Aigner 1966).

There is still much that is not clear about where the initial formation of sea mammal exploitation originated. Some suggest it was in the region of Bering Strait (Arutiunov and Sergeev 1975:116; Dikov 1958b), others on the shores of Bristol Bay in southwestern Alaska (Chard 1962). The first center is connected only with the Eskimos, the second with the Eskimo-Aleuts, and they are both dated to comparatively recent times—the third and second millennia B.C. The possibility of the spread of sea hunting with toggling harpoons from the island of Hokkaido is examined (Chan Su Bu 1977:16). These harpoons are known there as far back as Late Jomon (in the first half of the second millennium B.C.) (Borob'ev 1958:Fig. XII:10). The idea even exists of two independent centers of coastal adaptation: among the ancestors of the Eskimos in the region of Bristol Bay in southwestern Alaska and among the ancestors of the Koryak on the northern coast of the Sea of Okhotsk—and accordingly of two "spheres" of sea mammal hunting culture: the northern Eskimo and the southern Koryak-Chukchi-Aleut (Vasil'evskii 1971, 1973).[36] Below, in the section on the early Koryak culture, we go into more detail regarding this recent, and in our view, mistaken hypothesis. Meanwhile we note that it is most likely that a single common method of adaptation to the coastal mode of life and to hunting on the open sea with the simplest toggling and nontoggling harpoons—though at first entirely without them—developed in Northeast Asia and in North America, first during the Holocene climatic optimum. As temperatures cooled about 4,000 to 3,000 years ago, the sea mammal hunting culture gradually diverged into more isolated local cultures.

The problem of the origin of the Eskimos is most closely connected, as we see, with the problem of the beginning of sea mammal exploitation, but, of course, is not limited by it. In the search for the remote ethnic origins of the Eskimos, researchers use the data of physical anthropology, ethnography, and language, and with consideration of these data, especially the linguistic relation of the Eskimos and Aleuts, have arrived at the conclusion of the existence in the distant past of a certain initial proto-Eskimo/proto-Aleut commonality (Esko-Aleuts or proto-Eskimo-Aleuts) from which the Eskimos split off either in the fourth–third millennium B.C. in southwestern Alaska (Chard 1962) or somewhat later, not earlier than the middle (first half) of the second millennium B.C. in the zone of Bering Strait, arriving there across the isthmus of Kamchatka from the southwestern coast of the Sea of Okhotsk (Arutiunov and Sergeev 1975:195). (We note that this does not agree well with the spread of the Independence culture to northern Greenland at the beginning of the second millennium B.C., if this culture is considered Paleo-Eskimo). Other researchers, and first among them it seems is D. Dumond, suggest that the division of the Esko-Aleuts could have occurred significantly earlier than 4000 B.C., as far back as the end of the Pleistocene, in the region of Beringia, along which they spread from Asia into America (Dumond 1969a; Fainberg 1971). Then Vasil'evskii put forward this idea as the basis of his work, having somewhat exaggerated it and ascribing the separation of the Aleuts from the Eskimos to the region of Kamchatka. Following Laughlin, he connected the sixth Paleolithic level of the Ushki sites with the earliest Aleuts, while the ancestors of the Eskimos—along with later (in the early or middle Holocene) migrations across Bering Strait of some groups of Asiatic population at different times—he suggested mixed with Paleo-Indians (Vasil'evskii 1973:210). He follows Mochanov in

[36]More recently Vasil'evskii (1975a:133) calls the second center Northeastern Paleo-Asiatic (Chukchi-Koryak).

this respect, who sees the Asiatic ancestors of the Eskimos (Aleuts also) in his Sumnagin peoples (Mochanov 1969b:142, 1977:253).

Finally, there is even a circumpolar, or "Yukagir," variant of the proto-Eskimo ethnic substrate based on the possible relationship of the Eskimo and Ural languages. According to this hypothesis, features of circumpolar culture with subsurface dwellings and other attributes of a northern complex are elaborated among hunters of wild deer as a result of the deterioration of the climate on the boundary between the third and second millennia (Simchenko 1976:18, 26). A labret found in the Maimech culture in Taimyr at the boundary of the first millennium B.C. is elicited as testimony of the relationship of the early inhabitants of Taimyr and Arctic America (Khlobystin 1969, 1973; Simchenko 1976:19). In the last hypothesis the ecological approach draws attention, and, beginning with the American archaeologist L. Giddings (1961:171), has gained ever more adherents in recent times not only for the explanation of the origin of Eskimo culture, but for the comprehensiveness of the variations in its development (Arutiunov 1975).

At one time we too proposed an ecological explanation for an indigenous (of which we are still convinced) origin of Eskimo culture, having separated this aspect of the problem from its other aspect—the origin of the Eskimo ethnic group itself (accepting the appearance of the latter from more southern regions of Northeast Asia) (Dikov 1958b:8, 1963).

The cooling at the end of the second millennium B.C. and the complete deforestation of the Arctic coastal zone brought on by it (Borisov 1970:67; Chizhov 1970:74; Shvartsbakh 1955) must have, as we still suppose, played a decisive role in the production of several peculiarities of an Arctic culture of sea mammal hunters, such as tightfitting, ingeniously cut, warm and waterproof fur clothing; semisubterranean dwellings constructed from whale bone because of a lack of wood; bedding from deer skins; oil lamps for warmth; unsinkable swift kayaks and large light baidars of walrus skin; toggling harpoons with detachable heads; and many other tools of stone and bone adapted to Arctic sea hunting. All this could have appeared precisely at the confluence of the two oceans, the Pacific and the Arctic, in the place most abundant in the world with sea mammals, as a result, we suggest, of the adaptation to new, more severe climatic conditions (Dikov 1958b:8).

We employ the term "Old Eskimo culture" in the tentative sense since in reality the culture denoted by it corresponds to different ethnic groups of Eskimos, though in some local manifestations it might turn out to be not even Eskimo according to the ethnic attribution of its bearers.

In the western districts of Alaska during the first millennium B.C. lived sea mammal hunters who did not use knife-like blades, in contrast to the Dorset peoples living to the east of them, thus marking a break in the northern Neolithic tradition. Here in western Alaska at the end of the second millennium and in the first centuries of the first millennium B.C., the Kachemak I and Choris cultures spread, and then, in the middle of the latter millennium, the Norton culture and, finally, at the end of the first millennium B.C.–beginning of the first millennium A.D., the Ipiutak. These were the so-called Paleo-Eskimo cultures. At the end of the first millennium B.C. the Neo-Eskimo cultures took shape here: Okvik, Old Bering Sea, and in the middle of the first millennium A.D., the Birnirk and Punuk. All the enumerated cultures have clearly local elements, not characteristic of eastern Arctic sites.

In its development the Old Eskimo culture passed in Chukotka, as is usually supposed, through several stages: the Okvik, Old Bering Sea, Birnirk, and Punuk, so named by the location of the most

typical of their sites. In essence, these do not represent the whole stage of Old Eskimo culture of Chukotka, but rather the indigenous cultures of different time periods (sometimes partially coexistent). Each of them is distinguished now primarily by forms of bone toggling heads of harpoons—the basic tool for the exploitation of sea mammals—and by the style of artistic carvings on them and on other bone artifacts.

The origin, development, and interrelationships of these coastal sea mammal hunting cultures is a long way from being clear. Until very recent times (up to the discovery in 1975 of the Paleo-Eskimo culture on Wrangel' Island) the initial Asiatic cultures of sea mammal hunters were still entirely unknown, and our acquaintance with them on the sea coast of eastern Chukotka began with the very complex and well-developed Okvik and Old Bering Sea cultures. The question of which is older is still being discussed. Therefore, we need to address the Eskimo problem, which embraces a very broad sphere of questions.

We do not set before ourselves the task of final and complete resolution of this Eskimo problem, but we nevertheless do make an effort according to our strengths to understand it and for this we examine each of the named coastal archaeological cultures in light of recent archaeological materials.

The Wrangel' Paleo-Eskimo Culture

It became possible to speak about the distribution on the Asiatic side of the Eskimo area of the earliest Paleo-Eskimo culture in Asia only after the discovery in 1975 on Wrangel' Island of a Paleo-Eskimo site at Chertov Ovrag (167) (Dikov 1976c, 1978b). We will limit ourselves here to only preliminary data about this culture on the basis of our first materials pertaining to it, inasmuch as at the present time a special crew of the Northeast Asiatic Expedition (under the direction of T. S. Tein) is still conducting fieldwork there (Tein 1977, 1978).

In the complex of stone artifacts of this sea mammal hunting culture, as is typical of Paleo-Eskimo cultures, ground tools are almost completely absent.

Among the stone artifacts are projectile points, knives, knives-gravers, scrapers, and some other instruments. They were almost all made by percussion and pressure flaking, which gives them a very archaic appearance. Below we give a description of them.

All the projectile points were made by bifacial pressure flaking and are typical bifacial tools with fine retouch along the edges. They all have a more or less pronounced stem and can be subdivided into two basic groups: leaf-shaped stemmed (Fig. 66:1) and triangular stemmed (Fig. 66:3). In addition, the stems may be narrow and long (Fig. 66:1) or hardly noticeable (Fig. 66:2). Only one stemmed point was made from dark-gray flint of good quality; the remainder are of coarse filleted, almost black, argillo-arenaceous slate.

Knives, as a rule, differ by crude manufacture and based on the working of the surface are either bifacial (Fig. 66:8) or unifacial (Fig. 66:7). The predominant form of knife is leaf-shaped (Fig. 66:8) or elongated oval (Fig. 66:9), though knives of shaped (curved) forms were also preserved as fragments.

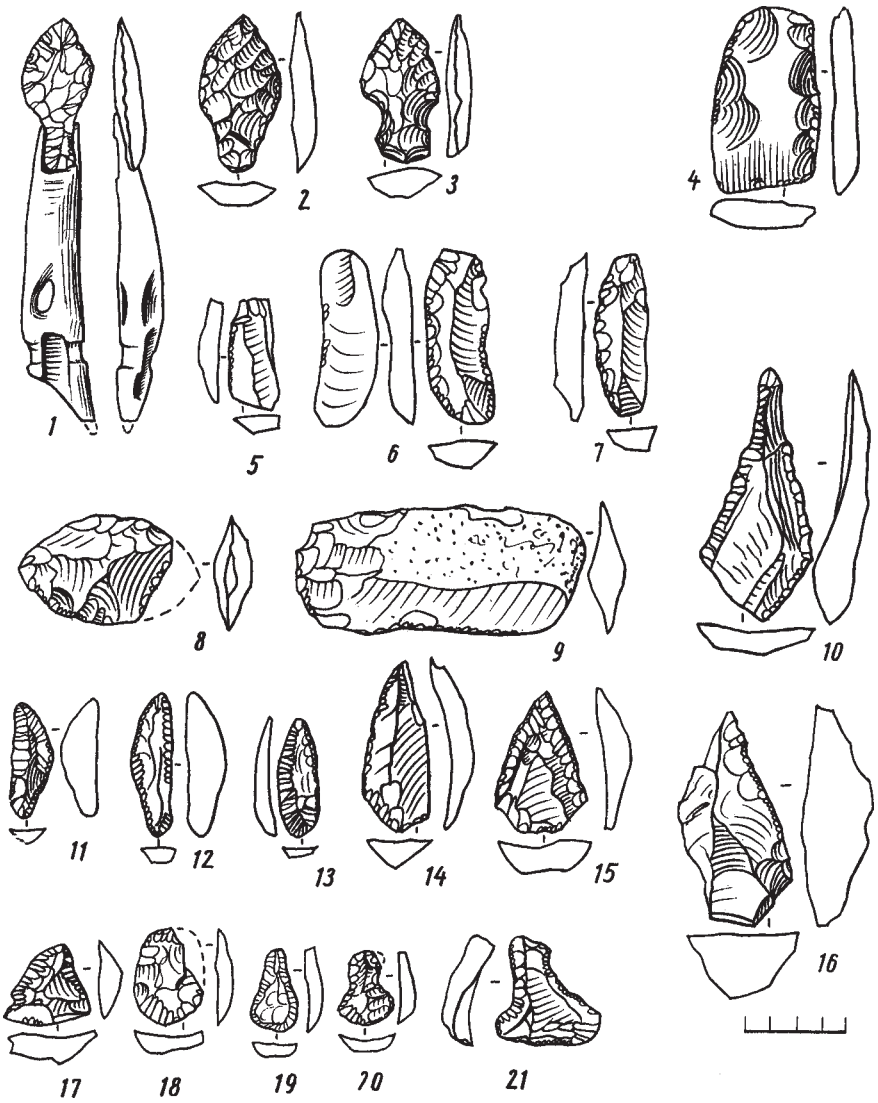

Figure 66. Paleo-Eskimo complex on Wrangel Island (1–16).

Another group of knives is made up of more or less massive blade flakes retouched primarily on the dorsal side (Fig. 66:5, 6) or on the ventral side too. Some varieties of these artifacts can be assigned to the category of crude knife-like blades with retouch.

A special category of tools is made up of large triangular knife-gravers, bifaces, and unifaces (Fig. 66:14, 15). In essence, they closely resemble the previous category of knives, being different from them by the presence of a pointed working end.

A combination of features of the two previous categories of tools forms another, and very specific, group of tools—uniface knives-gravers on comparatively thin blade flakes or broad knife-like blades (Fig. 66:11, 13). As a rule, they have a more or less long and narrow segmented outline with one carefully pointed working end, with the opposite end rounded, the ventral side entirely unworked, and dorsal side covered completely with pressure retouch.

Scrapers make up a comparatively numerous group. They were made from flakes by means of more or less complete working. Characteristic in form are scrapers with "ears," carefully worked on the dorsal side (Fig. 66:20, 21); a "pear-shaped" scraper, precisely retouched on both sides, and probably being a scraper-punch (Fig. 66:19); an oval scraper (Fig. 66:18); a trapezoidal scraper; subtriangular ones (Fig. 66:17); and others of less pronounced forms. Some of them could have served simultaneously as knives.

A distinctive tool is a massive knife bearing a burin spall (Fig. 66:16) and an adze-like instrument of gray arenaceous slate.

Finally, simply flakes are also encountered, some of them with traces of retouch.

Among the enumerated artifacts, worked by percussion and pressure, only one small adze of subtrapezoidal form on a flat cobble was found with the working edge slightly ground. It was worked rather carelessly, and along one of its edges and on the butt was preserved untouched cobble cortex (Fig. 66:4).

Artifacts of walrus tusk are represented by three rod-like tools resembling leaf-shaped ice-picks. They have slightly pointed working ends, while the opposite ends are unworked. It is possible that some of these tools could have served also as pressure flakers for working stone artifacts.

Finally, the most interesting and important artifact in diagnostic regard is a one-holed toggling harpoon head of rather large dimensions, very archaic in appearance, and distinctive (Fig. 66:1) (Dikov 1977b:Pl. 188).

We have already noted (*Ibid.*:Pl. 188) that this toggling harpoon head found at the site is with all its distinctiveness generally closest in its construction to the earliest harpoon heads from Peary Land in extreme northern Greenland, where they were found more than two decades ago by the Danish archaeologist Eigil Knuth among the remains of the Independence II Paleo-Eskimo culture (second millennium B.C.) (Bandi 1969:Fig. 64).

The general appearance of the stone industry first discovered in the Wrangel' Island culture, and especially the prevalence of such artifacts as stemmed points worked by retouch, knife-gravers, and, though crude, knife-like blades, also has many features in common with the earliest Paleo-Eskimo cultures of Arctic America, especially in the northern Greenland Independence culture and in the Palisades II culture (4000 B.C.) on Cape Krusenstern in Bering Strait (Bandi 1969:Fig. 16; Giddings 1961:Fig. 4). Coastal sites in northern Chukotka, in particular the Old Bering Sea and Punuk sites and the sanctuary on Cape Schmidta (Ryrkaipiia) that we investigated in 1957 and 1975, at present do not provide analogies with the early Wrangel' culture.

Thus, we now have very convincing comparative-typological data for adequately setting the date of the maritime culture found on Wrangel' Island to a very early time—second millennium B.C., a period that undoubtedly preceded the Okvik and Old Bering Sea cultures. These data agree with a radiocarbon date of 3360 ± 155 B.P. (MAG–198) on charcoal from a hearth at the Chertov Ovrag site. Moreover, we not only obtained the first evidence of an early settlement for Wrangel' Island but also found the earliest Paleo-Eskimo culture in Asia. A striking fact in the similarity of this Wrangel' culture with Paleo-Eskimo cultures of the Canadian Arctic and even of the distant island of Greenland on the one hand, and the noticeable similarity of many specific types of stone artifacts—stemmed scrapers, knife-gravers, and curved knives (Tein 1978)—on the other, with

those of Neolithic Kamchatka up to Cape Lopatka, with the northern Okhotsk, and with Old Aleut (Dikova 1976; McCartney 1971:Fig. 15; Vasil'evskii 1971) is good confirmation of this single and broad cultural stratum during the period of mastery of maritime economics in Northeast Asia and North America, which was discussed above.

Northeast Asia During the Period of the Undeveloped Iron Age and the Remnant Neolithic

By the beginning of our era iron starts to penetrate into extreme Northeast Asia. It is used in insignificant quantity—tools of stone, bone, and wood predominating as before. However, the end is closing on the former Neolithic culture as such in Kamchatka and Chukotka. The Neolithic in this territory now acquires a remnant character and enters into the last, though very protracted phase of its development, which continued until the arrival of the Russians in the Northeast in the seventeenth century.

During the course of time several ethnocultural commonalities were formed here that are clearly distinguished by the character of their archaeological sites (Fig. 67). On the Chukotka Sea coast we find cultures of the ancestors of the Eskimos and Coastal Chukchi during this time, as well as of the Koryak. In the interior of Chukotka, in the valleys of the Anadyr' River, the Main River, and evidently the Kolyma, we likely find the Old Yukagir culture. On the northern coast of the Sea of Okhotsk and the Bering Sea coast of northern Kamchatka is the Old Koryak culture. In the valley of the Kamchatka River is the Middle Kamchatkan (Nikul'skaia) variant of the Old Itel'men culture and, finally, in the southern Kamchatka Peninsula is the South Kamchatka (Nalychevo) variant of the culture of the Itel'men, which underwent Ainu influence.

We will examine these archaeological cultures in sequence beginning with the most northern, those connected with sea mammal hunting.

The Okvik Culture

The Okvik culture can now be considered one of the earliest and best known maritime cultures in Chukotka, along with Old Bering Sea. Okvik was well investigated on St. Lawrence Island, where its remains are covered by deposits of the Old Bering Sea culture. Traces of the Okvik culture can also be found in southwestern Alaska, on Kodiak Island, and on the islands in Bering Strait. In Chukotka its distribution is restricted primarily to the coast of Bering Strait, from Uelen to Chaplino, but signs of it have also been found in Nunligran.

Among the burials of the Uelen cemetery (112), which we excavated between 1957 and 1963, one (No. 1) turned out to have toggling harpoon heads typical in construction of Okvik, decorated with the spare Okvik pattern of deeply incised, lightly bent lines. The skeleton of a man lay supine,

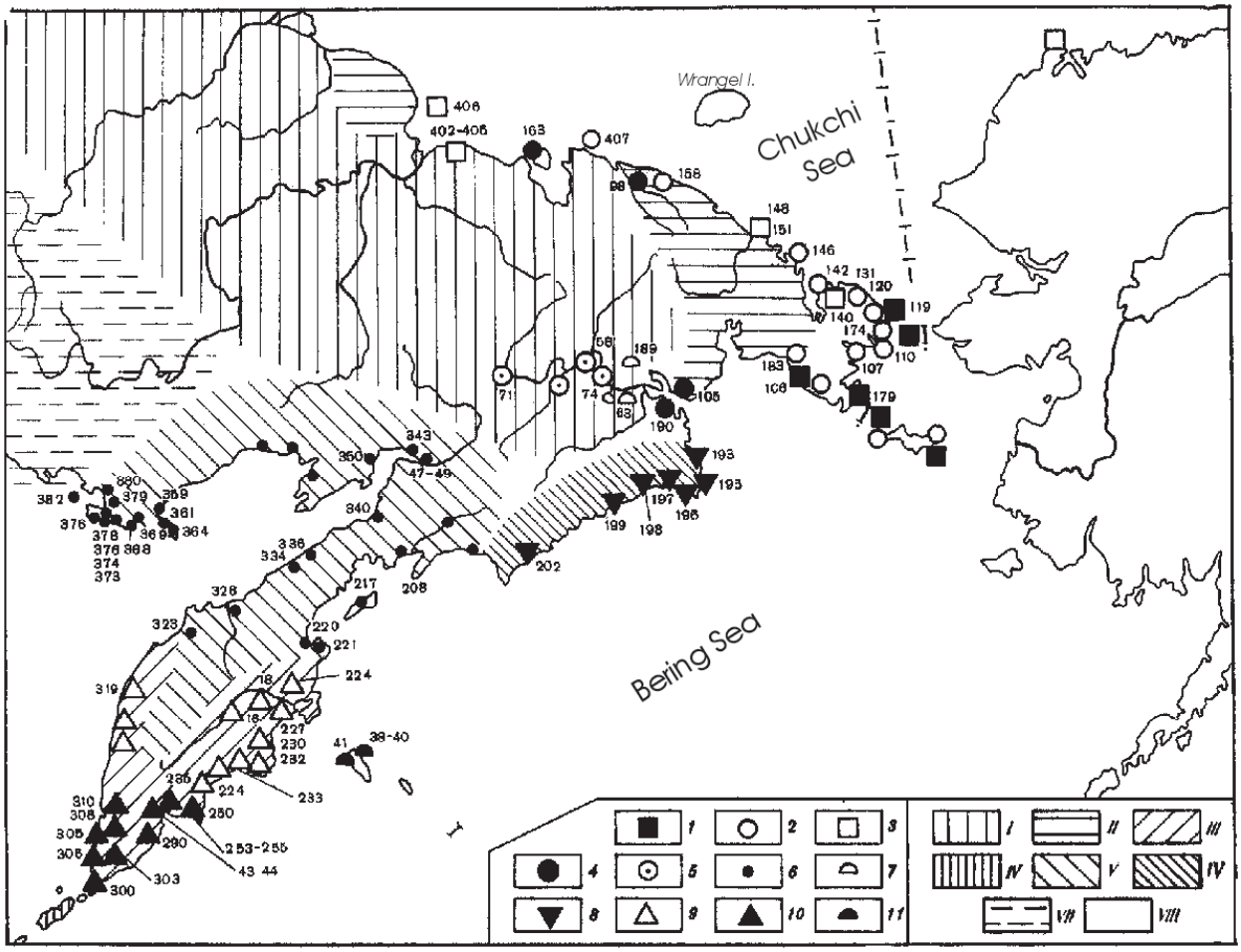

Figure 67. The settlement of peoples of Northeast Asia in the seventeenth century and archaeological cultures of the Undeveloped Iron Age and the Remnant Neolithic. I—Yukagir; II—Chukchi; III—Itel'men; IV—Ainu; V—Koryak; VI—Kerek; VII—Even; VIII—Eskimos of the Chukchi Peninsula. Sites: 1—Okvik culture; 2—Old Bering Sea; 3—Birnirk; 4—Tule-Punuk; 5—Vakareva culture; 6—Old Koryak; 7—Kanchalan culture; 8—Old Kerek; 9—Old Itel'men (Middle Kamchatka); 10—South Kamchatka (Nalychevo) Old Itel'men; 11—Old Aleut.

head to the east, under a slab of a wall of later burials. Beside it were many stone and bone artifacts including a ground slate punch reminiscent of Eskimo-Aleut labret studs (Dikov 1967a:Fig. 4:2).

At least one more (No. 15) clearly Okvik burial was found in 1959 at the Uelen cemetery by M. G. Levin, D. A. Sergeev, and S. A. Arutiunov. It was also oriented with the head to the east, buried extended in the same manner, lying on its back (Arutiunov and Sergeev 1969:56, Fig. 15).

We determined these two Uelen burials as Okvik by both the form and style of the decoration of the toggling harpoon heads, and by the presence in one of them of an archaic "winged object" of Okvik type, similar to those that had been found earlier (Arutiunov and Sergeev 1969:Fig. 50:9).

Bone and stone artifacts from these burials form a rather completely defining characteristic complex, almost analogous to that known from the excavations of Collins and Rainey on St. Lawrence Island.

Among the bone artifacts of the Okvik complex are toggling harpoon heads made of walrus tusk, having both closed and open sockets for the base, either with an end blade or lateral insets,

but always with one hole for the line (Arutiunov and Sergeev 1969:Figs. 36, 124, 127; Dikov 1967a:Fig. 6:1–4). Also characteristic for the Okvik complex are "winged objects" of rather archaic form with straight short wings (Bandi 1969:Fig. 23).

Anthropomorphic bone statuettes are quite common to the Okvik culture, as are images of human faces simply carved from walrus tusks, most often adorning buttons and plugs for floats. The Okvik anthropomorphic images, as a rule, are distinguished by a face of extended proportions and a long, narrow nose. Especially significant in this respect is the so-called Okvik Madonna from the Punuk Islands. Often labrets are very definitely depicted on such bone images from mixed Okvik-Old Bering Sea burials. The fact that there are no similar images with labrets in pure Old Bering Sea burials or in Old Bering Sea sites permits concluding that these images are associated with Okvik. Also, directly corroborating this is the lack of labrets on Old Bering Sea wooden masks recently found by Sergeev in the Ekven cemetery.[37]

In the complex of Okvik bone artifacts are also various tools of land and sea hunting: arrow points with end slots for a stone point and long barbs on the stem, arrow points with a blunt end (for hunting birds), mattocks, long rods for lateral inset stone blades, leister points, hooks, buttons, plugs for floats, sled runners, and so forth. Finally, an antler bow for starting fire, which we found in an Uelen burial, is very characteristic by its typically Okvik design (Dikov 1958a:Fig. 14:1).

In the Okvik assemblage of stone artifacts (Fig. 68) are bifacially retouched arrow and dart points that are leaf-shaped (I–9a, 9aM) (Dikov 1967a:Figs. 4:9; 7:11), stemmed (VIII–4M) (*Ibid.*:Fig. 7:5), triangular (II–4b; VI–b) (Arutiunov and Sergeev 1969:Fig. 63:1); ground slate spear points (E–4) (Bandi 1969:Fig. 23); slate knives, among which was preserved a complete knife of broad leaf-shaped form and very large dimensions (22 cm long), with one hole for fastening to a handle (E–37) (Dikov 1967a:Fig. 5:1); fragments of bifacially retouched, incompletely leaf-shaped knives on flakes; short (no longer than 4 cm), irregular knife-like blades retouched along the edges (I–7) (*Ibid.*:Figs. 4:6; 7:16); small, leaf-shaped inset blades for a toggling harpoon (I–14) (*Ibid.*:Figs. 4:11; 7:14) and triangular inset blades for a harpoon (I–11) (*Ibid.*:Fig. 4:15); combination scrapers with end and side working edges (V–5) (*Ibid.*:Fig. 7:3), rounded micro-scrapers (V–8) (*Ibid.*:Fig. 4:3), scrapers on flakes (X–9, 10) (*Ibid.*:Figs. 4:7, 8; 7:6), a high disk-shaped scraper (IX–13) (*Ibid.*:Fig. 7:10); a dihedral burin on a flake (IV–6) (*Ibid.*:Fig. 7:9) and a quartz crystal in the role of a burin (V–9) (*Ibid.*:Fig. 7:13); punches: flat, slate, and ground, without a haft (II–6) (*Ibid.*:Fig. 4:2) and a fragment of a massive punch (II–4) (*Ibid.*:Fig. 7:12); flaked adzes—in some cases with a slightly ground working edge—of irregular lenticular cross section, with rounded blade and pointed butt (IV–1), as well as of irregular subtrapezoidal form (V–3); cube-shaped cores-pressure flakers; and sandstone slabs for grinding ocher (*Ibid.*:Figs. 4:16, 19; 5:7; 7:1; 7:2).

We will now examine the problem of dating the Okvik culture. Larsen and Rainey dated it to the first centuries A.D., considering this culture earlier than Old Bering Sea and synchronic with Ipiutak (Larsen and Rainey 1948). Collins, having subjected the development of the representational style of Old Bering Sea sites to thorough investigation, assigned Okvik to the first phase of development of Old Bering Sea art, placing it chronologically in the last three centuries B.C. (Collins 1954). At Collins's disposal at this time was the first radiocarbon date from Okvik House No. 2 at the Hillside site at Gambell on St. Lawrence Island, determined by Libby (2258 ± 230 B.P.).

[37]A mask without labrets was also recently found at Uten (122). It is preserved in the repository of the Chukotka District Regional Museum.

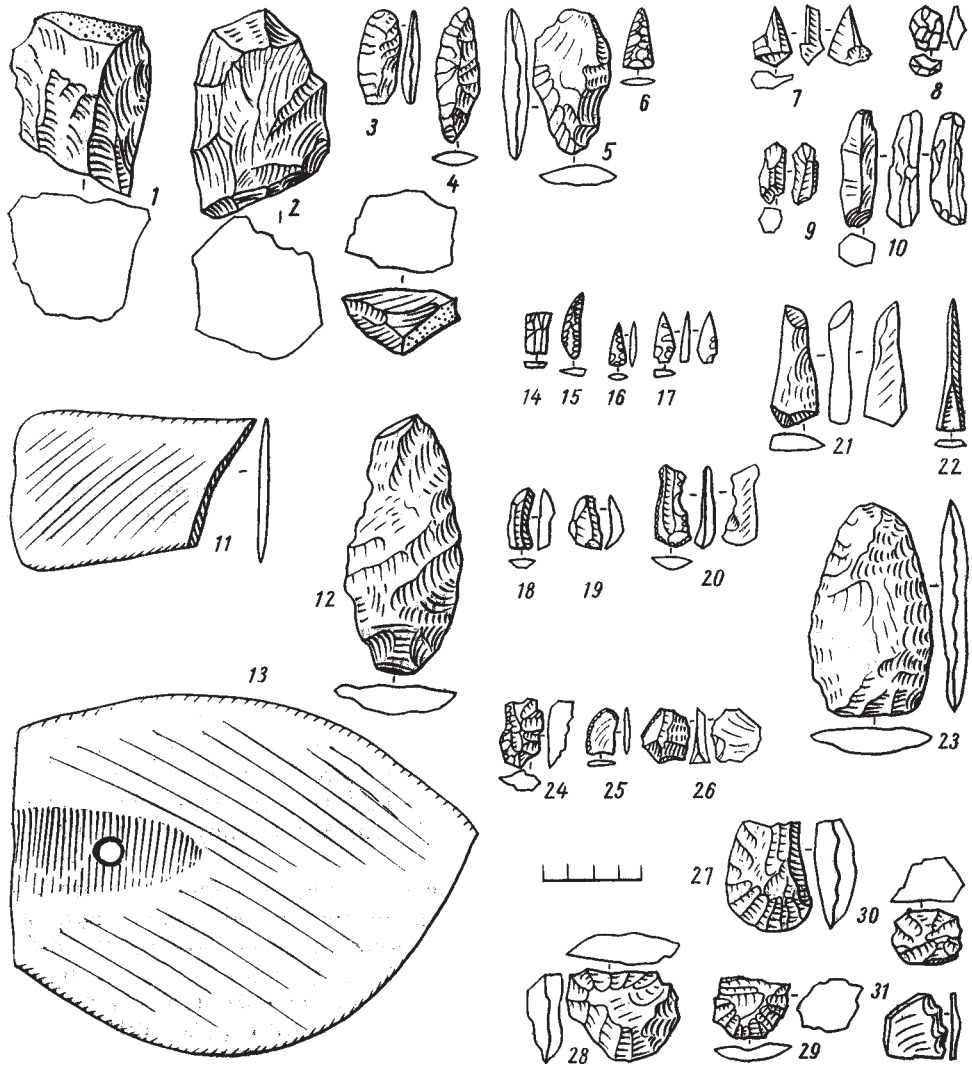

Figure 68. Okvik complex of stone artifacts (Uelen cemetery, Burial 1. Author's excavations in 1956).

This Okvik date and the belief that it was the earliest of the known sea mammal hunting cultures of the Asiatic part of Bering Strait has been maintained up to now by all or almost all American researchers of the Eskimo problem, including J. Giddings and H. Bandi (Bandi 1969; Giddings 1964:252). In addition, the opinion gradually began to prevail that Okvik was not simply the first stage of Old Bering Sea, but rather an independent culture, one occurring at the beginning of and even earlier than Old Bering Sea, then developing in parallel with it (Bandi 1969; Ford 1959:239).

It is very important that such an idea about the chronological relation of the Okvik and Old Bering Sea cultures prevails in spite of the fact that by 1959 new radiocarbon dates on the same samples from the Hillside site at Gambell were found to be younger (averaging 500 years A.D.) than Old Bering Sea (averaging 300 years A.D.) (Rainey and Ralph 1959). This served Levin, and then Arutiunov and Sergeev, as a reason for the categorical revision of the relative chronology of Okvik. Levin pointed out the necessity of this as early as 1949, supposing even then that Okvik was younger than Old Bering Sea (Levin 1949). On the basis of the analysis and classification of harpoon heads

from the Uelen and partially the Ekven cemeteries, these investigators confirmed, they suppose, this conclusion (Levin et al. 1975).

However, it should be noted that Collins anticipated that the dates on the charcoal from House No. 2 at Hillside were not sufficiently reliable to determine the chronological position of Okvik, since no items characteristic of Okvik were preserved in this house. They, in Collins's opinion, were either earlier than ordinary Okvik, or later (Rainey and Ralph 1959). Considering this circumstance, we should treat all the radiocarbon dates on the charcoal from Hillside with great care. This also relates, of course, to the new radiocarbon date (1370 ± 60 B.P.) from the other house at Hillside, which can also be assigned to the late stage of Okvik (Bandi 1976:489, 490). Meanwhile, there are no other radiocarbon determinations for dating Okvik.

Also incorrect, in our view, is the determination of the age of the Okvik culture on the basis of the typology of toggling harpoon heads, which the named investigators suggest. Contrary to the facts, they consider the two-holed heads as the basic form (consequently, Old Bering Sea) and the one-holed (consequently, Okvik) as later. Meanwhile, both in Chukotka (at the Ust'-Belaia cemetery) and in Alaska (in the Kachemak I, Choris, and Ipiutak cultures) the earliest heads are not two-holed, but rather the simplest one-holed heads (Bandi 1969:Fig. 22, 31, 36). Moreover, the Ipiutak one-holed heads, which, of course, are definitely not later then Old Bering Sea, are similar to Okvik even in their constructional details of the second order (end blades, lateral insets, and barbs) (*Ibid.*:Fig. 36).

At the same time, one must take into consideration the very specific typology of "winged objects" worked out by Collins and confirmed through recent investigations both by us and by M. G. Levin, S. A. Arutiunov, and D. A. Sergeev. The earliest initial form is "winged objects" with short straight wings. It is for this form that the Okvik style of decoration is most characteristic. Such "winged objects" were found at the Okvik site on Punuk Island (Bandi 1969:Fig. 23; Collins 1962:Fig. 7:a), and in the Uelen cemetery accompanied by Okvik type harpoon heads (Arutiunov and Sergeev 1969:Fig. 50:9, 11). Even if one admits that Okvik "winged objects" are not represented by the earliest variety of this early type, as this presumably follows from the typology of "winged objects" proposed by Arutiunov and Sergeev (Arutiunov and Sergeev 1975:153, Fig. 85:5), they are nevertheless not later types, and this is decisively significant. Therefore, Okvik "winged objects" are synchronic only with the early phases of the Old Bering Sea culture and in addition could not have been borrowed from it initially, not in the earliest phase of Okvik culture.

We consider the predominance of flaked stone tools over ground stone in Okvik as another archaic feature, which is more significant than in the Old Bering Sea culture, and the presence of spear-like bone rods equipped with lateral stone insets similar to the kind of inset rods from the Mesolithic deposits of Trail Creek Cave in Alaska (Larsen 1968:Pls. 11–13).

At the same time we suggest that the beginning of Okvik probably was not much earlier than the beginning of the Old Bering Sea culture. Also, R. V. Chubarova-Kozyreva, M. G. Levin, S. A. Arutiunov, and D. A. Sergeev are correct, of course, in ascertaining the Uelen site after its excavation and the investigation by Chubarova-Kozyreva to late "prehistoric" times (fifteenth–seventeenth centuries) (Chubarova-Kozyreva 1969:34), though not S. I. Rudenko, who seemingly assigned it to the end of the second–first millennium B.C. (Rudenko 1947:107, 108). An Uelen culture connected with Okvik is in reality a fiction and we therefore are not dealing with

an Uelen-Okvik culture, as Rudenko mistakenly considered it and as Yu. B. Simchenko at present traces it (Simchenko 1976:67), but only with Okvik.

Recognizing chronological priority for Okvik, and not Old Bering Sea, we have in mind the periods of origin of these cultures, suggesting that later they coexist for a long time.

Thus, we do not have a sufficient basis at present for making Okvik older, according to Rudenko, or for making it excessively younger, according to Levin, Arutiunov, and Sergeev. This, one of the oldest Neo-Eskimo cultures, probably belongs to the end of the first millennium B.C. and to the first half, or perhaps even to the middle, of the first millennium A.D. Only by a misunderstanding is it possible to explain the observation of Arutiunov and Sergeev, that we supposedly continue to adhere to Rudenko's old concept of an Uelen-Okvik stage entirely preceding Old Bering Sea (Arutiunov and Sergeev 1975:184). After the investigations conducted in 1957 at the Uelen site by Chubarova-Kozyreva, it became clear that all the grounds fell away for inclusion of this site in the Okvik culture and for dating the latter to the second–first millennium B.C., as well as for the inclusion in Chukchi and not Eskimo. If for a time we used the term "Uelen-Okvik culture" (but not "stage," as Arutiunov and Sergeev attribute to us), then it was in a quite different chronological context: "the Uelen-Okvik culture of the first centuries of our era" and meaning not the Uelen site, but a purely Okvik burial in the Uelen cemetery (Dikov 1967a:48). Later we completely eliminated this term from use, having restored the former, American term "Okvik" (Dikov 1969a:172, 1971a:32–33, 1972, 1974a, and others).

Shifting to the question of cultural connections and the origin of the Okvik culture, it must be stressed that, in spite of Vasil'evskii's opinion, it cannot be the oldest Eskimo culture in Chukotka, which, until the resettlement here from Alaska of the Okvik people, was supposedly occupied exclusively by northeastern Paleo-Asiatics—ancestors of the Chukchi and Koryak (Vasil'evskii 1973:212, 1975a:132). A Paleo-Eskimo pre-Okvik culture is now known even on Wrangel' Island, where it could have arrived only by going through Chukotka. There is no convincing data about a connection between Okvik and this Wrangel' culture, though in principle it is not out of the question. This is indicated by the general similarity of their stone industries, more archaic on Wrangel' Island in comparison to Okvik in which, though limited, ground slate knives were used.

Though traces of Okvik culture were preserved primarily on the islands (St. Lawrence, the Punuks, Diomede) and only to a smaller degree on the mainland (in Chukotka and Alaska), it maintains some features of genetic similarity with continental cultures.

Many common genetic features of similarity with Okvik are observed in the Ust'-Belaia culture, where, judging by the finds of oblong, segmented flint insets (I–11), there were, just as in Okvik Uelen Burial 1, composite pikes made of bone and stone. In the Ust'-Belaia culture the simplest toggling harpoon heads with one hole were used (Fig. 55:5), which are characteristic for Okvik, as well as bone arrow sockets bifurcated on both ends and decorated with engraved design (Fig. 60:3–5) very similar to Okvik but simpler, which can be viewed as its prototype.

Okvik corrugated ceramics (Bandi 1969:Fig. 23) also have analogies in some forms of ceramics of the Ust'-Belaia cemetery.

In addition, in the Ust'-Belaia culture are stone artifacts similar to Okvik: bifacially retouched, oblong, triangular arrow points with a straight base (II–4c), as well as leaf-shaped with a truncated base and rounded point (I–9aM); triangular lateral insets completely retouched on

both sides (I–11) and small leaf-shaped items worked by the same method (I–14); short knife-like lamellar blades retouched along one edge (I–7); rounded micro-scrapers (V–8), round, high disk-like scrapers (IX–13), and semi-oval scrapers on flakes (X–9, 10); and dihedral burins on flakes (IV–6). However, it must be noted that the similarity between the Okvik stone inventory and the Ust'-Belaia is not complete. In the Okvik culture, in distinction from the Ust'-Belaia, knife-like lamellar blades are not the dominant form of the industry and are more the exception. In addition, the lamellar blades noted above (I–7) have quite irregular "non-classic" features.

The Okvik stone industry also has similarities with the North Chukotka Late Neolithic culture, though fewer. There are the same lamellar blades retouched along one edge (I–7) and dihedral burins (IV–6), as well as entirely flaked subtrapezoidal adzes of coarse manufacture characteristic for the Okvik culture (V–3). In everything else there are fewer similarities with the North Chukotkan culture. There are no similar bone artifacts, and the ceramics are entirely different—a small check-stamped design.

Just as in the Ust'-Belaia culture, in the North Chukotka (in distinction from Okvik) the technique of flaking knife-like lamellar blades prevails, and in addition, three-sided stone arrow points quite foreign to Okvik are present. Thus it is that the Okvik reveals in general significantly fewer connections with the North Chukotkan culture than with the Ust'-Belaia that might be considered genetic. This may in part be explained by its relatively greater chronological remoteness from Okvik.

Nor did we find similarities with the Okvik complex farther in the depths of Siberia. However, it should be noted that the spread of some elements of this complex (similar arrow points and adzes) can be traced to the end of the second–first millennium B.C. primarily in the circum-Pacific zone—on the northern coast of the Sea of Okhotsk, on Sakhalin, in Primor'e, and farther to the island of Hokkaido.

In North America some similarities with Okvik artifacts are found along the entire Arctic zone, the greatest quantity of them belonging to Alaska, especially to the Norton complex (second half of the first millennium B.C.). In the latter we find one-holed toggling harpoon heads (Giddings 1964:Pl. 36:17, 20); labrets (*Ibid.*:Pl. 39); elongated triangular arrow points with a straight base (II–4c) (*Ibid.*:Pl. 47:12, 14, 15, 18, 21, 23, 24), stemmed (VIII–44) (*Ibid.*:Pl. 50:14); entirely retouched inset blades, lateral triangular (I–11) (*Ibid.*:Pl. 46:5, 11, 13, 15) and oval (I–18) (*Ibid.*:Pl. 46:3, 7–9, 17); and, finally, oval adzes with a pointed butt and only partially ground on the blade (IV–1) (*Ibid.*:Pl. 44:11). Of the Norton items named, some are already found in the earlier Denby complex (about 3000 B.C.): elongated triangular arrow points (II–48) (*Ibid.*:Pl. 72:8) and triangular insets (I–11) (Campbell 1962:Pl. 3:8; Giddings 1964:Fig. 56:a; Pl. 71:b, 9).[38] In the temporally intermediate Old Whaling culture (beginning of the second millennium B.C.) we see, just as in Norton, elongated triangular points (II–46) (Bandi 1969:Fig. 17:14), and in the Choris culture (middle of the first millennium B.C.)—labrets, one-holed toggling harpoon heads, and stemmed points (II–14), as well as triangular (III–5) points (Bandi 1969:Fig. 22).

Thus, on the northwestern coast of Alaska is a continuous genetic chain of some cultural elements coming from the Denby complex through the Old Whaling culture and the Choris culture to Norton, and from it to the Okvik culture. It is even possible to add to the earlier sources for the

[38]Also see Giddings (1964) about insets from Natvakruak (middle of the third millennium B.C.).

Okvik material culture, going back to the Mesolithic deposits in the western Alaska Trail Creek cave, where bone rods analogous to Okvik with lateral grooves for segment-like stone insets were found (Larsen 1968:Pl. III:5).

The origin of Okvik and its similarity with the labret-bearing Ipiutak culture that developed in northwestern Alaska at the end of the first millennium B.C.–beginning of the first millennium A.D. is of definite interest for the problem being examined. There is much in common here in the construction of one-holed toggling harpoon heads (Bandi 1969:Fig. 35, 36), the style of decoration of bone artifacts, and in the stone inventory. Similar in the last are triangular and oval lateral inset blades (I–11) (Larsen and Rainey 1948:Fig. 20 [Type 1]; Pls. 2:26, 27, 24, 33; 36:2, 6, 7, 14, 17); bifacially retouched, oblong, triangular, flat arrow points with a straight base (II–46) (*Ibid.*:Pls. 2:1–4; 35:2–6, 9, 12); and the general domination of flaking over grinding.

It is interesting that the named triangular points are encountered sporadically as far as Labrador, where they are known in a culture that existed from 3000 to 1000 B.C. (Harp 1963:Pl. I:c), and on the Kuskokwim in the vicinity of Bristol Bay, where they have a concave base and date to the beginning of the first millennium B.C. (Ackerman 1964:Fig. 8:1). At the same place but somewhat later, from the middle of the first millennium B.C., lateral, triangular inset blades so characteristic for Okvik (I–11) are also encountered (*Ibid.*:Fig. 9–2–3). However, at present it is to early too judge whether these analogies are evidence proper of cultural connections of a contact character, in other words, cultural diffusion, or the manifestation of a general earlier cultural base.

Surprisingly many elements similar to Okvik can be traced from the end of the second to the middle of the first millennium B.C. southeast of Alaska, in the delta region of the Fraser River in British Columbia, where in the cultural deposits of the Locarno Beach and Marpole phases labrets (Borden 1962:Pl. 5:k, l, p), one-holed toggling harpoon heads (*Ibid.*:Pl. 2:k, l, m), ground slate knives (*Ibid.*:Pl. 4:d, e, k, h), and stemmed slate dart points (E–4) (*Ibid.*:Pl. 4:b), as well as small plaques in the form of human faces (*Ibid.*:Pl. 5:a), have also been found.

Open-work bone plaques characteristic of this American culture, including plaques in the form of human heads and skulls (*Ibid.*:Pl. 5:c, m, e), labrets, and barbed non-toggling harpoon heads (*Ibid.*:Pl. 2:a, h), bring this culture quite close to the Ipiutak culture, on the one hand, and to the culture of the Aleuts, on the other (Hrdlicka 1945; Jochelson 1925).

Evidently the maritime culture of Kachemak I of southwestern Alaska, with labrets, one-holed toggling harpoon heads, and non-toggling unilaterally barbed harpoon heads (Bandi 1969:Fig. 31), is the intervening culture between the culture at the mouth of the Fraser River, on the one hand, and the Choris, Norton, and Okvik cultures, on the other—not only by its geographic position but genetically.

Unfortunately, the triangular lateral insets (I–11) and almond-shaped flaked adzes (IV–1) excavated in the Aleutian Islands by W. I. Jochelson are undated (Jochelson 1925:Fig. 34:A; Fig. 26:A). They are similar to Okvik and Norton, probably reflecting genetic relations with them, at the same time showing a commonality of origin with early Aleut and Eskimo cultures.

Summarizing the comparative analysis of the Okvik material complex that we conducted above, it should be noted that there are no exact analogies with this complex.

Similar in many ways, the Ust'-Belaia and North Chukotkan cultures are nevertheless distinct by a technique of flaking knife-like lamellar blades entirely uncharacteristic for Okvik. A large

chronological break between these cultures of continental Chukotka and Okvik is the reason for this difference. But it is not impossible, and is even more probable, that the Ust'-Belaia and North Chukotkan cultures belong to an ethnocultural tradition different from Okvik.

The Ipiutak, Norton, Choris, Kachemak I, Marpole, and Locarno Beach complexes can be considered the closest to Okvik. These complexes are characterized by the presence of one-holed toggling harpoon heads and labrets, as well as a well-developed, in greater or lesser degree, ground slate industry and the complete or almost complete lack of production of knife-like lamellar blades. By a combination of similar traits all these complexes can with sufficient basis be considered Old Eskimo. Consequently, we must acknowledge even the Okvik culture as truly Old Eskimo by its ethnic quality. Corresponding completely with this definition are language data (examined by glottochronology), according to which the separation of the Eskimo from the Aleut occurred no later than 4,000 years ago (Swadesh and Marsh 1952:452–463).

It can be easily seen that this conclusion agrees in significant measure with Chester Chard's hypothesis regarding the location of the origin of Eskimo culture in the vicinity of Bristol Bay in Southwest Alaska (Chard 1962:No. 5).

At the same time, we have to acknowledge a more southern—from British Columbia—strong influence on the formation of early western Alaskan Eskimo culture and, consequently, on the Okvik culture. Drucker's hypothesis of an Old Eskimo substrate on the Northwest Coast of America is supported by this (*Ibid.*:97).

But neither Chard's hypothesis nor ours supplementing it answers the question of the first appearance on the north coasts of the Bering Sea of the most distant, primordial ancestors of the Eskimos. The answer to this question is contained, in our deep conviction, in new archaeological material from Kamchatka. Precisely, the Final Paleolithic culture of Cultural Layers V–VI of the Ushki site permit determination of the earliest sources of Eskimo culture.

This culture of the late Paleolithic of extreme northeastern Siberia was determined above as proto-Eskimo-Aleut on the basis of an artifact similar to a labret, wedge-shaped cores, and other data. It contains the rudiments of several elements, which, having spread throughout Alaska, created there a substrate of proto-Eskimo culture. Above all, the technique of flaking knife-like lamellar blades from wedge-shaped cores and the bifacial pressure flaking of cutting edges and projectile points belong to this proto-Eskimo culture. In Alaska we see this technical tradition 10,000–8,000 years ago in the Campus, Akmak, Healy Lake, Donnelly Ridge, and Teklanika complexes (Anderson 1970; Bandi 1969:51; McKennan 1970). In later, Mesolithic or Early Neolithic times this tradition is partially preserved in the Trail Creek and Denby complexes. In the latter we even have evidence of something resembling a wedge-shaped core (Bandi 1969:Fig. 21). And the narrow, leaf-shaped, carefully bifacially worked projectile points or blades are as similar as two drops of water to such elegantly retouched, narrow, leaf-shaped points from Cultural Layers V–VI of the Ushki sites. It is impossible not to agree that the skills of preparation of such intricate flint points, as well as insets later, were one of the basic components of the material culture in the Arctic from the earliest stages of Eskimo history.

Also to the array of culture-forming proto-Eskimo features should be ascribed ground slate knives, found in small quantity in the Ushki Final Paleolithic complex, and a labret-like artifact mentioned above.

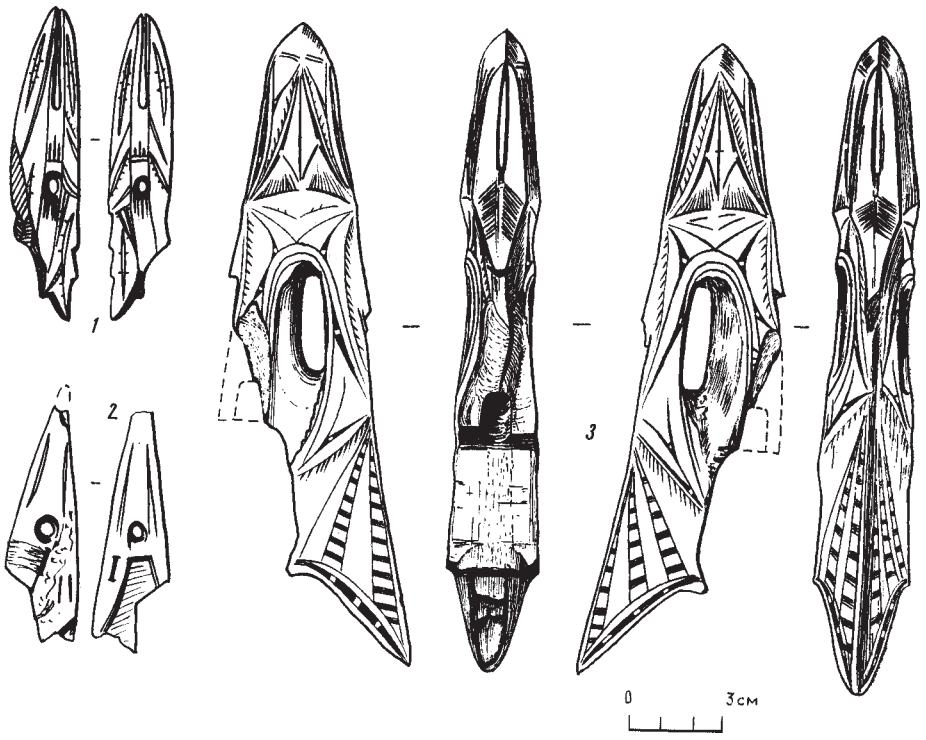

Figure 69. Okvik toggling harpoon heads. 1, 2—from Burial 1, Uelen cemetery (1956); 3—found by G. A. Menovshchikov in Sireniki (106).

In light of these archaeological data, the Denby complex, in which the manufacture of pressure-flaked inset blades attained its brilliant development, can probably be viewed as a transformation of the final Ushki Paleolithic culture under the effect of exogenous influences (that is expressed in the dominance of the Siberian burin technique). The complexes from Anangula and the mouth of the Fraser River can be seen as its most ethnically stable branch, having preserved not only the technique of flaking off knife-like lamellar blades but the tradition of labrets as well.

A recent discovery of labrets at the Neolithic site of Maimech IV in Taimyr by L. P. Khlobystin (1969:217) attests to the spread of these specific ornaments not only toward America but also to far northern Siberia. Evidently, in Taimyr we have a case of a relict culture penetrating there from more southern regions, having been a part of the same ethnocultural area entered by the Final Paleolithic culture of Kamchatka. Corroboration for this assumption can be seen in the striking similarity of mushroom-shaped steatite pendants found by Khlobystin together with labrets at the Maimech IV site (Khlobystin 1969:217) with a form of the same steatite pendants from Cultural Layer VI of the Ushki site (see Fig. 64:9).

Physical anthropological data also point to a great antiquity for the ancestors of the Eskimos in America and northern Siberia (Debets 1951:108, 109), who penetrated from Asia into North America. It is appropriate to recall Laughlin's interesting observation, which was later cited by Debets. We have in mind the fact noted by Laughlin that the quite rare blood group "N" is characteristic both for Eskimos and for American Indians (Debets 1960:61–65; Laughlin 1951). This cannot but attest to very early, probably late Pleistocene, penetration into North America from Asia by the ancestors of the Eskimos.

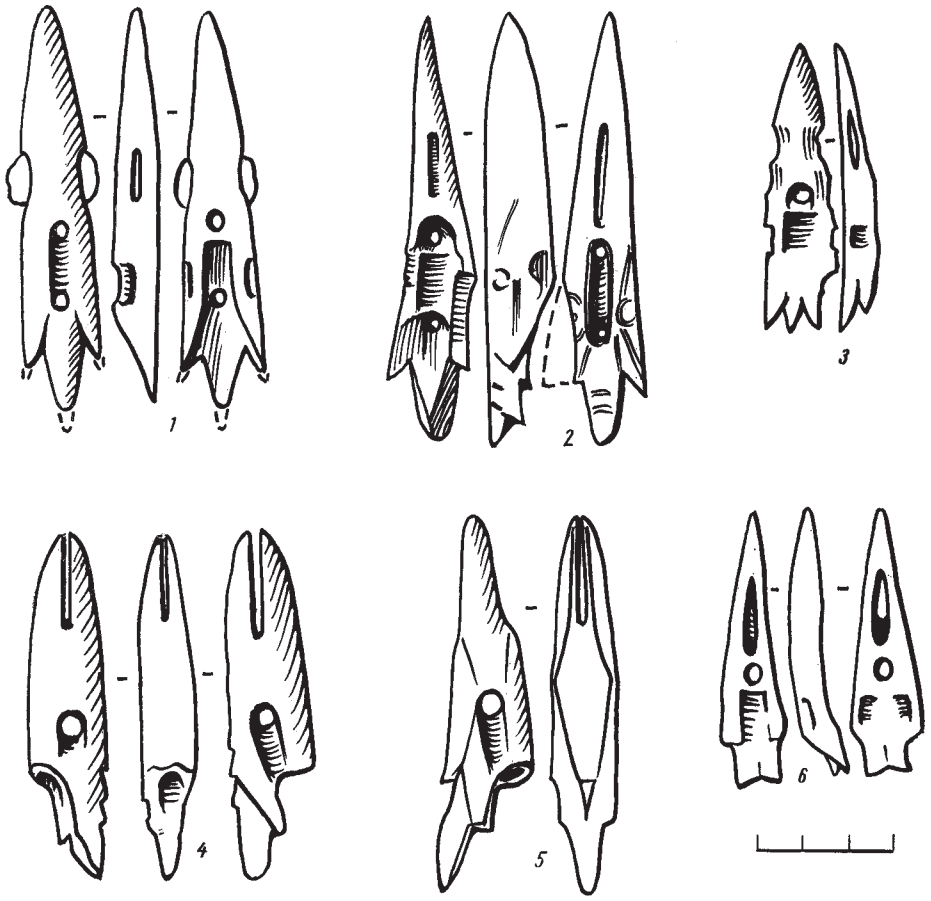

Figure 70. Old Bering Sea toggling harpoon heads. 1, 4–6—Chini cemetery (110); 2—Uelen cemetery (119), Burial 9 (1957); 3—Dzhenretlen II (143).

In short, without any effort, relying on data from archaeology and physical anthropology, as well as the theory of a general Aleut-Eskimo ancestral language that we mentioned earlier, it can be supposed that the ancestors of the Eskimos and Aleuts initially, as long ago as the end of the Pleistocene–beginning of the Holocene, spread across the Bering Land Bridge from Asia into northwestern America, and then under conditions of post-glacial isolation underwent ethnic differentiation in the territory of southern and southwestern Alaska and western Canada. As a result of this, an Eskimo ethnocultural commonality, which specialized in hunting with the toggling harpoon, was separated out by the second millennium B.C. Its noticeable ethnographic feature, as among the Aleuts, over a long time and throughout substantial territory, was labrets.

With regard to the level of development of Okvik culture proper, it can be flatly stated that the cultural remains express a fully developed complex of economic and domestic adaptation to the severe conditions of the Arctic sea coast and a cold sea with rich maritime fauna. It is quite possible as well that the limitations and instability of ecological correlations in the Arctic (to which Malaurie directs his attention), especially in the vicinity of Bering Strait, with several warming trends against a background of general late Holocene cooling, provoked repeated modifications of the Eskimo cultural complex, which resulted in the formation of its indigenous and phasic variants. Perhaps, in fact, a consequence of this was an ecologically caused (as Arutiunov and Sergeev suggest) diversity of types of toggling harpoon heads and even types of economy. The Okvik culture of maritime

hunters emerged together with Ipiutak (predominantly dry land and not just maritime hunters) as a result of such active adaptation to various ecological conditions—to hunting in the open sea and to hunting under the conditions of coastal ice. However, it is doubtful whether the traditional style of ornamentation or decoration, for example labrets characteristic for this or other groups of Eskimos in the region of the Bering Sea and Bering Strait, underwent these same ecologically caused modifications. The changes in these spheres of culture, as soon as they occurred, had here, of course, an ethnogenetic nature.

The Okvik culture, unfortunately still relatively unknown, is weakly represented in the archaeological materials. Therefore, it will be easier for us to trace these ethnic processes in the region of Bering Strait and in general on the coast of Chukotka through sites of another culture—Old Bering Sea—investigated substantially more fully, to the examining of which we now proceed.

The Old Bering Sea Culture

The Old Bering Sea Culture is observed over a broader area than the Okvik culture, emerging probably somewhat later and coexisting with it for a long time.

Old Bering Sea sites are preserved in large numbers on the Chukchi Peninsula, as well as on the islands of St. Lawrence and the Diomedes. The most western sites of the Old Bering Sea culture on the Arctic coast of Chukotka are the sites on Shalaurova Island (407) (Beregovaia 1960) and the Pegtymel' petroglyphs (102). Traces of influence of this culture also can be found in northern Alaska as far as Point Barrow.

In the Old Bering Sea culture, even more than in Okvik, the tools are improved for the exploitation of walruses, sea lions, seals, and whales. Toggling harpoons are now equipped with even more diverse specialized heads. Now they have, for example, two-holed heads with intricate symmetrical spurs that are particularly characteristic of the culture. The style of the artistic carvings, until now so concisely stressed, now attains a special fluorescence, showing a sophisticated, and later an even richer, combination of curvilinear patterns. For this curvilinear, so-called Old Bering Sea decoration, the "eye" (as A. P. Okladnikov defines it) motifs in the form of concentric ovals and circles with dots in the middle become characteristic. Becoming typical over a long time span, though not clearly understood, are the special "winged objects" carved from walrus tusk, which are even more skillfully made than in Okvik. The settlements of the Old Bering Sea people, as a rule, were located near walrus hauling grounds. First studied in Chukotka by Rudenko, they had been known on the Bering Sea coast for a long time: near Cape Dezhnev, at Yandogai (107), Sireniki (106), Enmylen (183), and on Cape Chukotskii (179) (Rudenko 1947). In 1963 we obtained positive data on the extent of Old Bering Sea sites and on the existence of "winged objects" in the past on the coast of the Chukchi Sea (at Vankarem [152] and Inchoun [120]), of artifacts with Old Bering Sea decoration (on Koliuchin Island [146], at Seshan [131], at Inchoun [120]), and finally, of typically Old Bering Sea types of toggling harpoons (at Inchoun [120], Dzhenretlen [142], and at Second Creek near Chegitun [130]). A great part of all this was in the ruins of comparatively small pit houses constructed of driftwood and whale bones on rather high capes at the influx into the sea of rivers or creeks. We obtained the most interesting materials in 1975 as a result of excavations of one such pit house on Cape Shmidta, near the cliff of Kozhevnikov, or Ryrkaipiia (159).

We also found typical Old Bering Sea cemeteries with burials in rectangular enclosures of entrenched stone slabs set on edge—with the deceased placed on the back, with legs and arms extended—at Seshan (132), Uten (123), and on the Ikolivrunveem River (134). We examined similar cemeteries on the shore of Bering Strait at Uelen (119), and later, in 1965, both at Cape Chini (110) and at the village of Enmynytnyn (115–117). A very interesting Old Bering Sea-Okvik cemetery was investigated as well by Arutiunov and Sergeev at Ekven. Cemeteries give a very clear picture of the life of early coastal areas of Chukotka during Old Bering Sea times. Their technology is distinct in having greater development than in the Okvik culture. The grinding of stone knives and points predominates and flaked flint artifacts are encountered relatively rarely, though their number is still very large. It can be clearly seen that many carved bone objects were decorated by designs with the use of iron burins—one of them was even found in a burial in the Uelen cemetery.

The mode of the economy, as far as it can be reconstructed from the remains of the material culture in the sites and cemeteries based on the numerous stone and bone objects (Fig. 71–79), is distinct in the predominance of hunting sea mammals, but land hunting, fishing, and collecting were also well developed.

Features of some social differentiation within the kin group were noted. "The presence in the early Uelen cemetery of poor and rich (in inventory) burials," writes Sergeev, "speaks to the fact that the kin system begins to enter a phase of its long decay. Present are facts of property inequality, probably connected with the appearance of shamanic leadership. The richest Old Bering Sea burials undoubtedly belong to shamans, thus it is not without reason that cult objects always predominate in such burials: all kinds of totemic signs, sculpted images of the original [female] ancestors, who are often given a half animal-half human appearance, as for example on a bone plaque that represents a beaver with young" (Arutiunov and Sergeev 1975:108).

This statement, word for word, literal and without quotation marks (and without footnotes), reproduces the basic part of the paragraph of our article published as long ago as 1964 (Dikov 1964b:20, 1971b:20), the only difference being that Sergeev mentions as evidence of social differentiation "numerous female statuettes, which, it is entirely possible, represent a female-original ancestor, object of a maternal kin cult" (Arutiunov and Sergeev 1975:108). This in essence is the same as what we wrote about them as being evidence for reverence of the female original ancestor (Dikov 1971b:20).

It causes some bewilderment as to why Sergeev abridged our list of features of social differentiation in the paragraph he used, having eliminated from it "winged objects and chains skillfully carved out of walrus tusk—an indispensable attribute of attire for a shaman" (*Ibid.*). Perhaps, from the urge toward originality.

We won't conceal the fact that in the development of our ideas we now use new data on Old Bering Sea social differentiation derived from Arutiunov and Sergeev's book, and particularly from the rich burials (No. 9, 10–11) of notable hunters of sea mammals (Arutiunov and Sergeev 1975:117–120) and a twin burial (No. 27a, b), which probably reflects, in Sergeev's opinion, patriarchal bondage (*Ibid.*:125, 127), as well as the burial of a hunter and warrior (No. 130) with bone plate from reinforced armor (*Ibid.*:129, 131). We will add to this the interesting find in the fill of the Uelen cemetery (after the excavations of Sergeev) of an Old Bering Sea protective slat with observation slots for the eyes, also probably from combat armor, found by a local inhabitant, S. Etekmen, our former aid at the excavations at Senlun in 1956, which he gave to us in 1975 (Fig. 72:2).

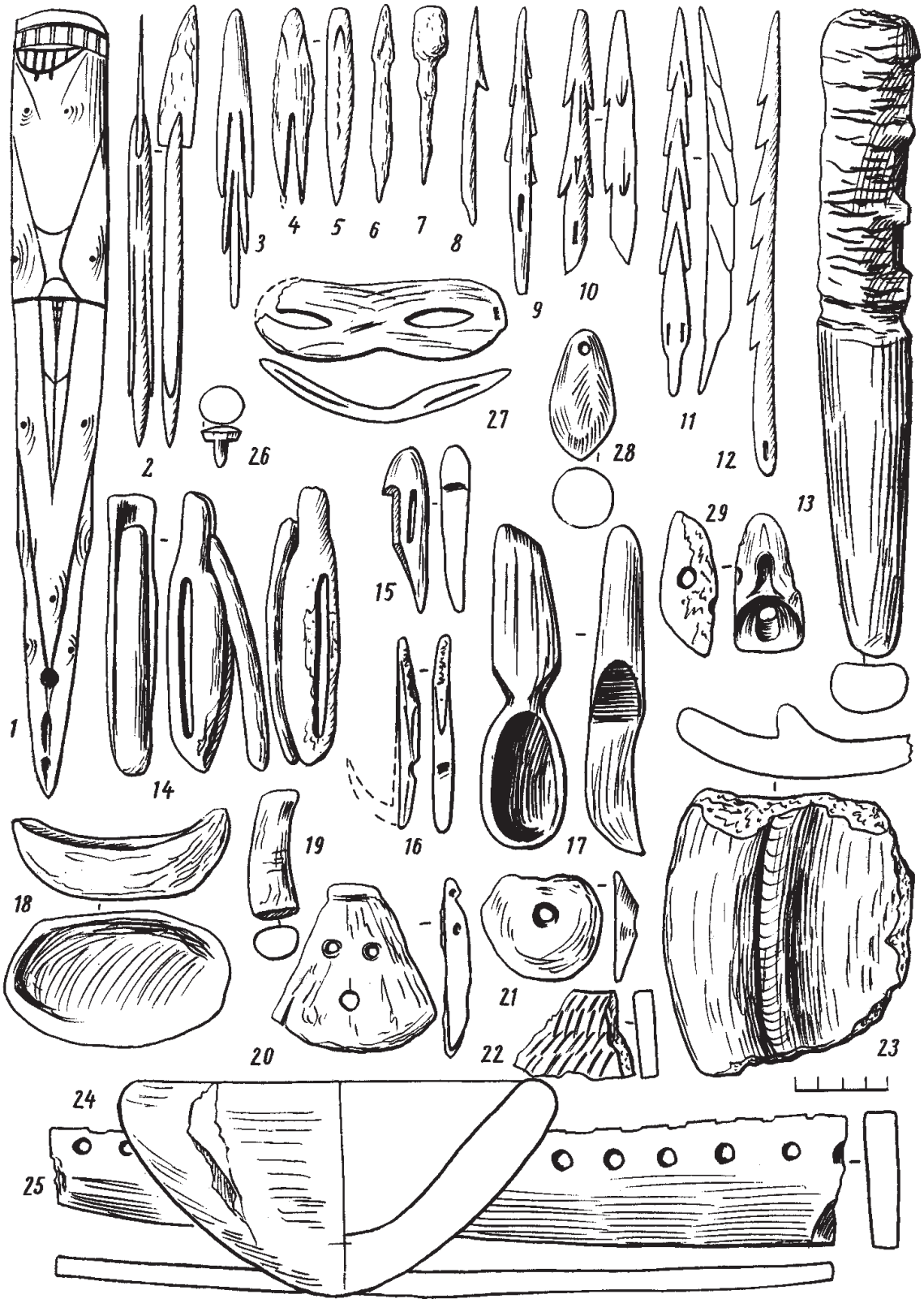

Figure 71. Old Bering Sea bone artifacts. 1, 2, 4–9, 11, 14, 16, 19, 20—Uelen cemetery (119) (author's excavations); 3—Dzhenretlen (143); 10, 12, 13, 17—Yandogai (107); 15, 18, 21, 23–29—Chini cemetery (110).

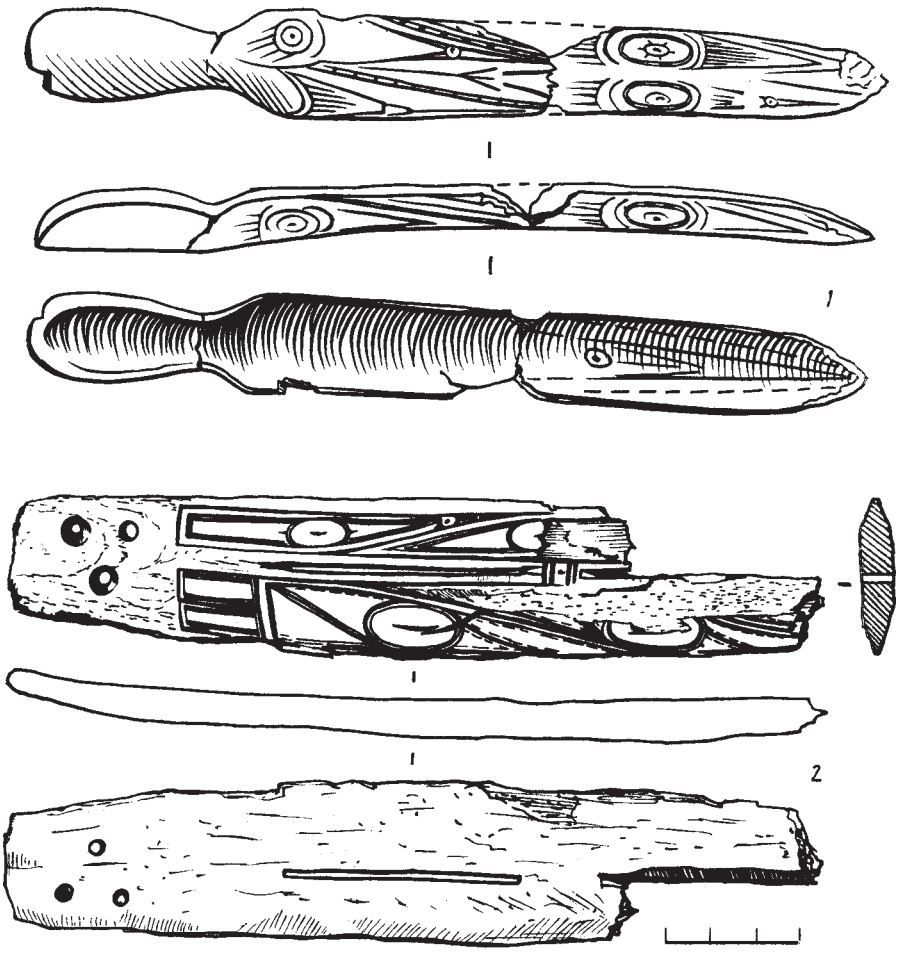

Figure 71. Old Bering Sea bone artifacts. 1, 2, 4–9, 11, 14, 16, 19, 20—Uelen cemetery (119) (author's excavations); 3—Dzhenretlen (143); 10, 12, 13, 17—Yandogai (107); 15, 18, 21, 23–29—Chini cemetery (110).

The great antiquity of Eskimo combat armor thus becomes quite tangible, though unexpected, and the Old Bering Sea community appears very developed and tribal, as Arutiunov, Sergeev, and Fainberg suggest (Arutiunov and Sergeev 1975:116, 109; Fainberg, L. A. 1964:244), already entering into a period of intertribal armed collision.

For an understanding of the social structure of the Old Bering Sea community, three series of cemeteries located near the settlement of Nuniamo are quite interesting. Two of them, First and Second Enmynytnyn (115, 116), turned out to have an exceptionally rich high-art inventory, while Chini (110) was poorer. It seems that the ordinary tribal kinsmen were primarily based here. But genuine masterpieces in carving skill turned up even here at times.

An object of typically elegant Old Bering Sea style is a walrus tusk pick handle from one of the Chini burials. Unfortunately, it is quite damaged owing to its long duration in a damp burial pit, but nevertheless it is easy to see how oddly and uniquely it was decorated with an engraved curvilinear pattern and fantastic representations of the human face (Dikov 1974a:Pls. 2, 3).

In all, 101 burials with objects of Old Bering Sea appearance were excavated from the Chini cemetery. However, the orientation of the burials turned out to be unusual: the head was not to the

north and northeast as was most typical of Old Bering Sea burials in the Uelen cemetery, but with a slight deviation to the south. Evidently, this cemetery is one of the formerly quite unknown Old Bering Sea social-ethnic groups of northeastern Chukotka.

The worship of a female original ancestor is characteristic for it: numerous statuettes of women skillfully carved from walrus tusk have repeatedly turned up in burials along with other artistically carved bone artifacts.

The excavations of the Chini cemetery also provided much for the understanding of such items as the up to now enigmatic "winged objects." Of course, we strived to record their location with maximum accuracy and noted everything, even the smallest details and peculiarities in the positions of the things surrounding them. As a result, we succeeded in establishing an interesting regularity: "winged objects" are often found in a burial together with shafts, on the end of which they are set. In some cases, the head of a toggling harpoon turned out to be on the opposite end of the same shaft (Dikov 1969a:196–199, Fig. 106, 1974a:81).

Thus, for a solution to the function of the "winged object," reliable archaeological data were first obtained. It was set on a harpoon shaft. It did not serve as a "lock" on the prow of a kayak nor on a umiak, as Sergeev suggests (Arutiunov and Sergeev 1969:108–127). In any case, in our excavations of the burials we found "winged objects" fixed on poles that terminated on the opposite end with a head—a long socket of walrus tusk. This precludes any possibility of simultaneous use of "winged objects" for the fastening of the stem post or the midsection with the lateral planks (stringers) of an umiak or kayak, as Sergeev asserts.

At the same time, the construction of the "winged object" itself appears suited for use as a device for fastening a harpoon head to its fore part with a small hole or slot by means of an intermediate pin. This idea was at one time proposed by I. P. Lavrov. However, the solution to the problem went somewhat astray by the assumption that the "winged object" with a harpoon head was set on the prow of a kayak, with which they directly rammed whales (Lavrov 1958). Sergeev took up this idea and, uncritically relying on information from the Eskimos, developed only one side of it: the "winged object"—a lock that fastens the stem post to the lateral planks of the umiak. But it is possible to accept another version, following Collins: the "winged object" served as a rear stabilizer for a projectile harpoon. This explanation, it seems to us, successfully combines the hypothesis of Lavrov and the now archaeologically confirmed fact of the connection of the "winged object" with a shaft. The way we saw the "winged objects" in the Chini burials confirms Collins' hypothesis. Using ethnographic data on the Greenland Eskimos, he assumed it possible to explain these enigmatic objects as distinctive weights for projectile harpoons that are fastened to the rear of their shaft. The hole-slot served, in his opinion, not for fastening a harpoon head, but for engaging it with the tooth of a spear thrower (Collins 1962). This is a very probable explanation, especially when it is considered that we have discovered some spear throwers of Old Bering Sea antiquity, and they are known even earlier.

In such a case, if Collins is right, our hypothetical projectile apparatus was thrown at an animal with cylindrical head-socket forward. The harpoon head was attached directly to it, and the "winged object," equipped moreover with additional plumage, served as equilibrium.

The single weak point in this hypothesis, which we proposed in 1969 (Sergeev's hypothesis should have been discarded entirely) (Dikov 1969a:199–201), is that in the burials, as we saw just

now, the harpoon heads and pins always lie apart from the "winged objects." This, of course, can be explained by the custom of breaking burial goods for the release of their "spirits." But nevertheless some probability remains that in some cases we are dealing with the use of "winged objects" on the top of something, standards or rods, possibly shamanic ones connected with a cult of the ancestors, as we have already supposed, similar to Ket shamanic rods or tridents. Skillfully carved of walrus tusk in the form of a butterfly with spread wings, they are often formed quite anthropomorphically. In the intricate "eye" design, which decorates their central part, a representation of a human visage can almost always be seen (*Ibid.*:201). In one case a human face is even carved quite realistically and very expressively. There is also possibly a solution in this. It is known that the butterfly, according to notions of the Chukchi, whose mythology has much in common with Eskimo mythology,[39] is a mythical destroyer of sea mammals. Reminiscent of a butterfly, "winged objects" possibly represent the female original ancestor, the object of a tribal matriarchal cult of the ancestors, or one of the [female] "sovereigns" of the primeval pantheon. It is even more probable that the idea of such female rulers occupied a central place in the religion of the Eskimos even up to recent times.

Of course, the existence of a symbolic meaning for the "winged objects" does not exclude their having an actual function as well, for example, as a device for a projectile harpoon. Their later development into Punuk tridents led to the fact that very little of their details that could have practical meaning now remained. They probably simply became ritual crowns for something.

Old Bering Sea artifacts, made of bone, horn, and walrus tusk, are quite diverse. We will not dwell on their characteristics in detail. There is no necessity in this after Rudenko's exhaustive works and the not yet complete publications of Sergeev, Arutiunov, and Levin (Arutiunov and Sergeev 1969, 1975).[40] We need only remember that the leading types of bone artifacts are connected with maritime hunting and belong to the so-called harpoon complex (heads of toggling harpoons, ice picks, sled runners, etc.), though many things connected with land hunting, including bird hunting, have also been preserved (arrow points, spear throwers, bird bolas, bird spears, etc.). And many of these things are excellent pieces of highly artistically engraved walrus tusk (Figs. 73, 74) (Dikov 1977b:color insert p. 161).[41] Clay vessels are also often decorated with a furrowed pattern or straight line and curvilinear concentric impressions applied to unfired vessels with special stamps of walrus tusk (Fig. 73) (Dikov 1974a:Pl. 36:1, 2).

The stone artifacts of the Old Bering Sea culture of Chukotka are strikingly varied as well. They include all kinds—worked by percussion and pressure flaking—of points of arrows, darts, and spears; knives; scrapers; skreblos; burins; lateral inset blades for harpoons; adzes and axes; as well as ground supplemental end blades for harpoon heads, ground projectile points, and ground knives of the most diverse types (Figs. 75–80). We will try to give the summary characteristics of all these artifacts, both those published and those we introduce for the first time into scientific circulation.

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[39]D. A. Sergeev underestimates the influence of Eskimo mythology on the Chukchi (Arutiunov and Sergeev 1969:111).

[40]In these summarizing works, materials have, unfortunately, not always been published completely: drawings are often unscaled (Arutiunov and Sergeev 1975:Figs. 82–100) and not connected with their description; the descriptions themselves are incomplete.

[41]It should be noted that this illustration is upside down.

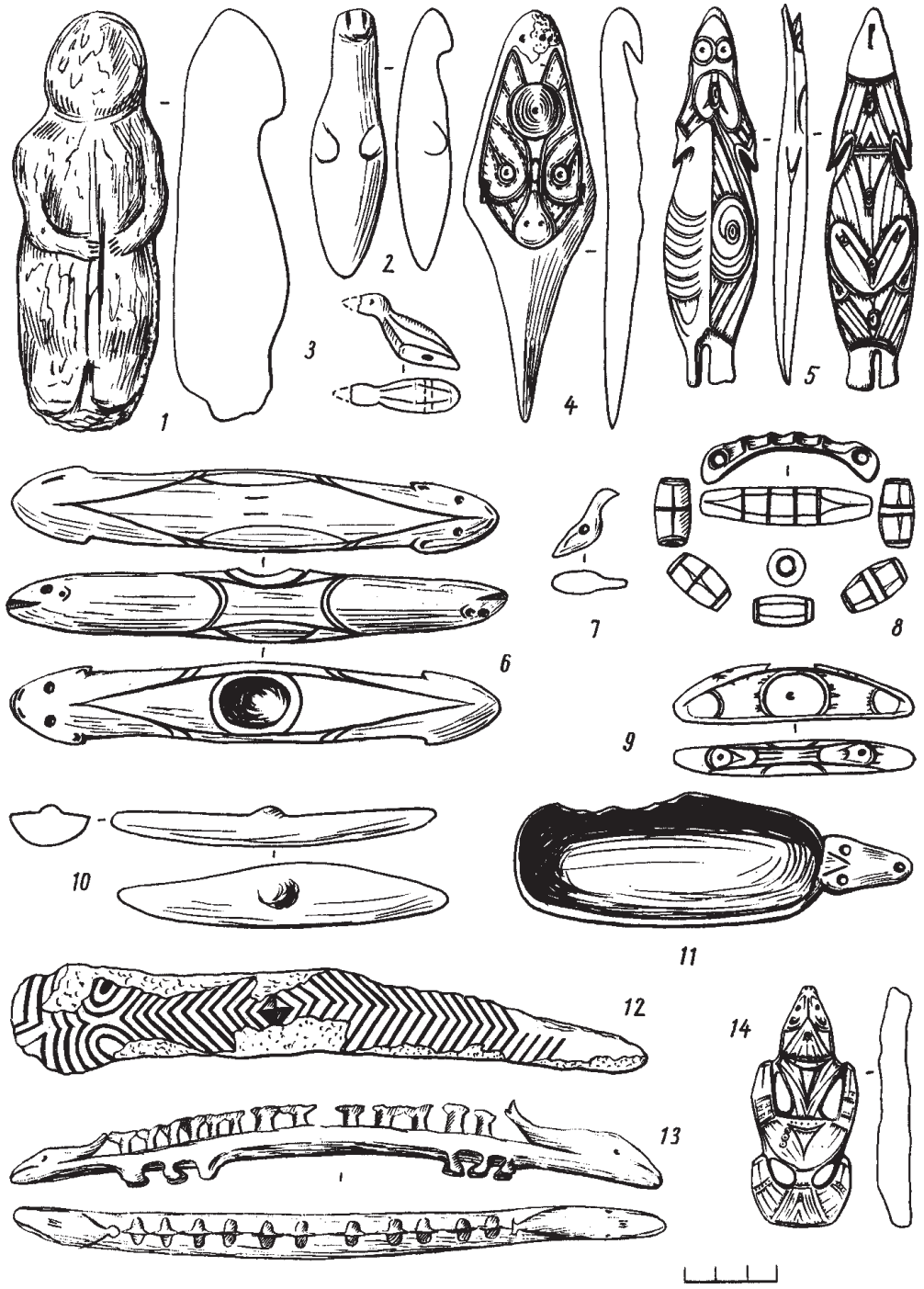

Figure 73. Old Bering Sea artistic artifacts of walrus tusk. 1–3, 12—Chini cemetery (110); 4, 7, 9–11—Uelen cemetery (119), found by author; 5—Yandogai (107); 6, 8—Enmynytnyn (115); 13—Ekven (175), found by O. N. Ivanov; 14—after S. I. Rudenko (1947:Pl. IV:8).

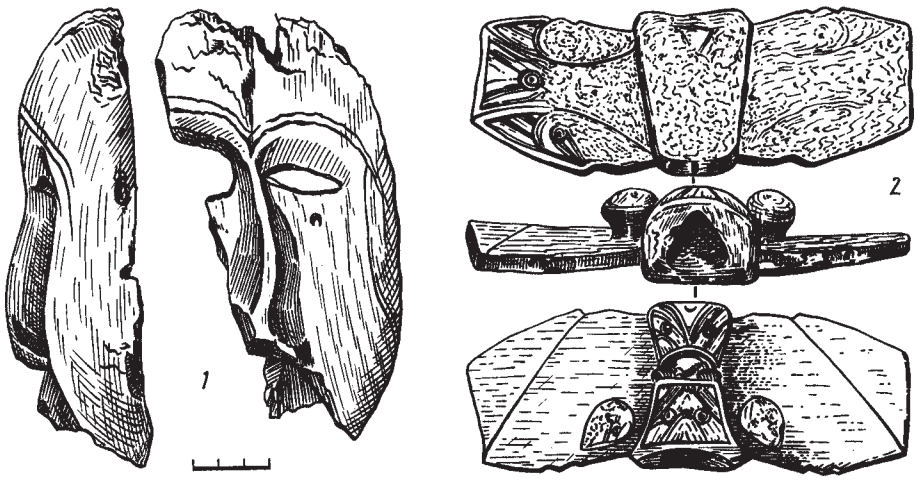

Figure 74. Wooden mask from Uten (122) and "winged object" from the Inchoun site (120).

Among the percussion flaked and retouched projectile points are the following varieties (Fig. 75): various bifacially retouched leaf-shaped forms (I–1b, 2b, 3a, 3b, 3c, 4b, 5b, 6b) and truncatedly leaf-shaped rhomboidal (II–2a, 2b); leaf-shaped/stemmed points of darts and spears with a rectangular stem, rather crudely worked on both sides, from 4 to 10 cm long (VIII–15), the same but with a flute on both sides of the stem (VIII–20), subtriangular-stemmed (X–9, 12, 14, 15, 18), triangular stemmed (XI–14, 15); bifacially retouched arrow points, truncatedly leaf-shaped with a straight base (II–2b, 3b, 3c, 4a, 4b), a symmetrically indented base (II–1bx, 4ax, 4bx, 1ax), and an asymmetrically indented base (II–Iby); oblong-triangular with a straight base (VI–b) and concave (VI–bx), the same with a subtriangular base (V–bx), broad and short triangular with convex lateral sides and a straight base (V–a) and an indented base (V–ax); triangular, of moderately oblong form with convex sides, with a symmetrically (V–bx) and asymmetrically (V–by) concave lower part and a slight bend on the side of the tip (V–ba; VI–by); with concave elongate sides and concave base (V–bz); leaf-shaped/stemmed with lateral notches at a straight base (VIII–22) and at an indented base (VII–22y); partially ground arrow points on irregular knife-like lamellar blades and flakes (O–5); ground slate triangular end blades of toggling harpoons (E–2), as well as stemmed (E–4, 5); stemmed dart points (E–3, 6); and a ground leaf-shaped spear point with triangular notches on both sides of the stem (E–7) (Fig. 76).

The collection of Old Bering Sea knives is also varied (Fig. 77). It is composed of percussion flaked, broad, leaf-shaped biface knifes (II–1, 3) and narrower ones with bifacially worked cutting edges (II–4, 6); leaf-shaped with a broad stem (III–3); with a convex working edge, straight back, and beveled working edge (IV–8); narrow-bladed with a short broad haft (V–14) and with a longer haft (V–4); broad-bladed with a straight stem, curved back, and convex working edge (V–18); narrow-bladed with a straight flattened back and convex working edge (VI–4); knives on flakes partially retouched along the edge (VII–2–4,), among which are especially characteristic broad asymmetrically triangular ones (VII–5) and oblong ones with a pointed end (VII–7).

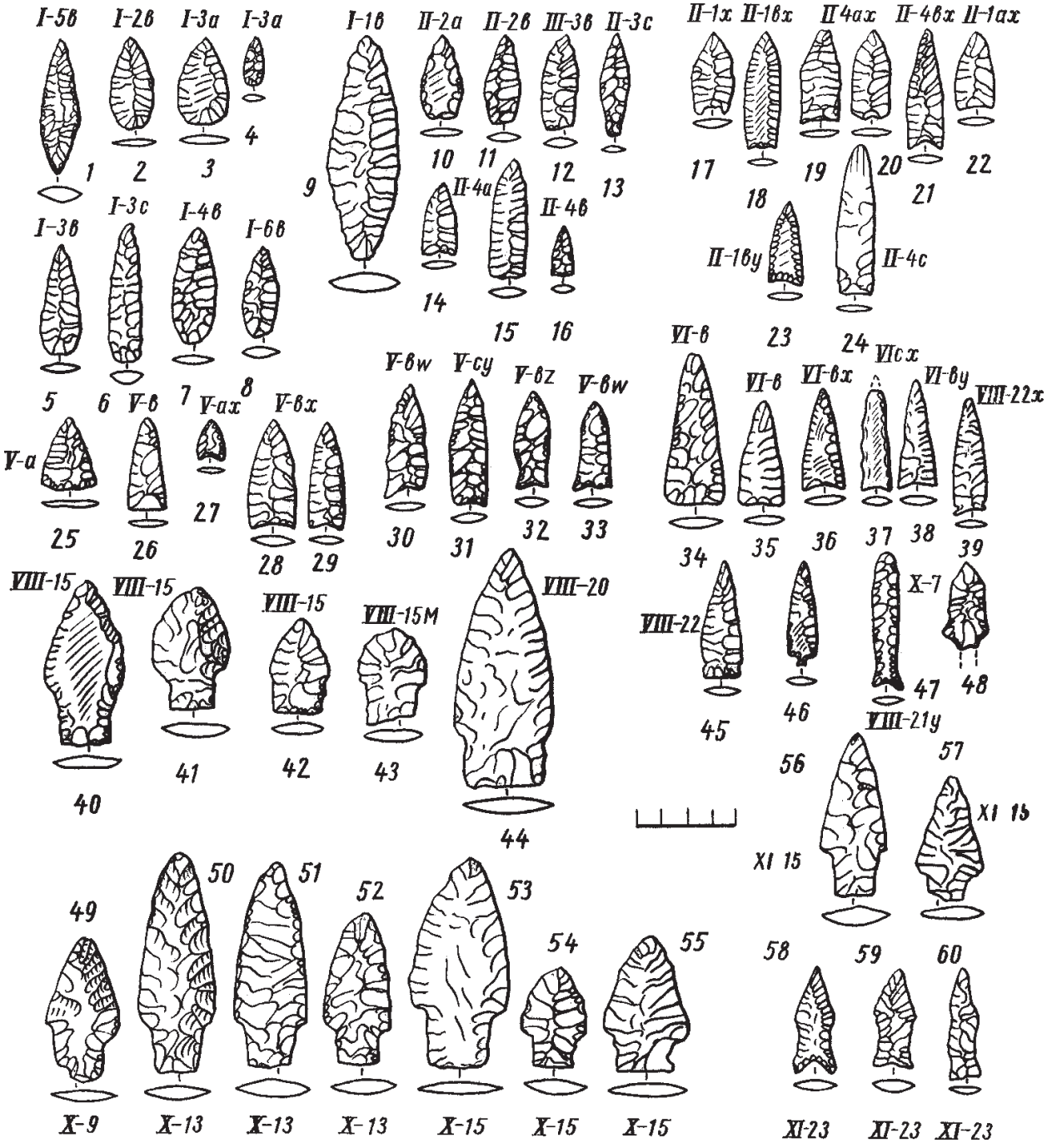

Figure 75. Stone projection points of the Old Bering Sea culture. 6—Seshan (131); 42, 55—Enmynytnyn (115); 47—Dzhenretlen (143); 51—Uelen cemetery (119); the remainder—Chini cemetery (110).

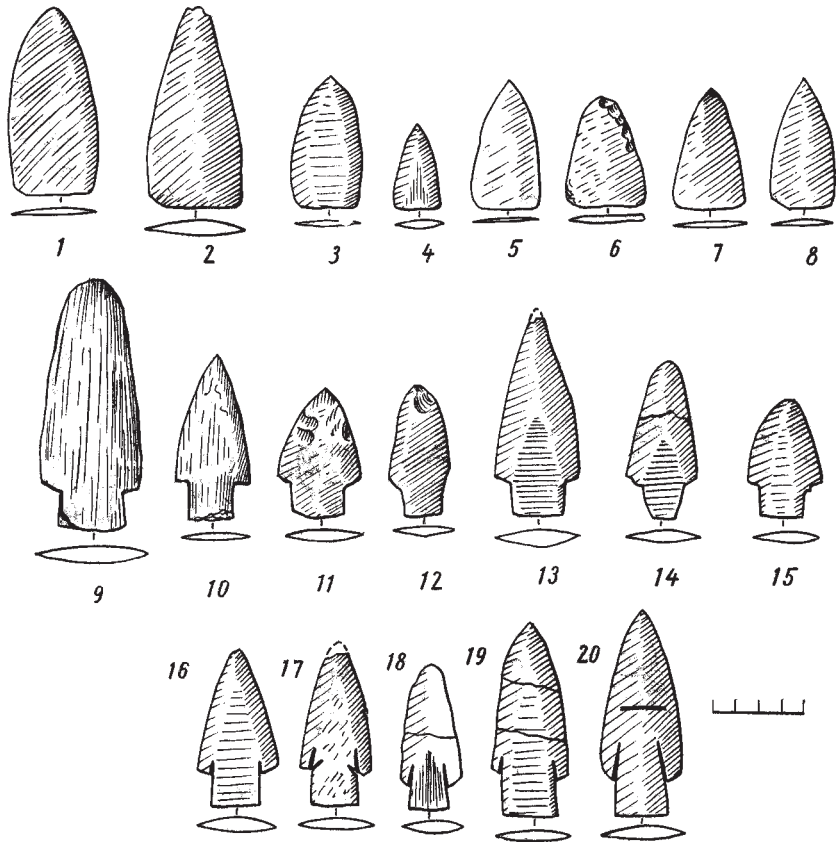

Figure 76. Ground slate end blades for toggling harpoon heads of the Old Bering Sea culture. 1, 13, 17—first Enmynytnyn cemetery (115); the remainder—Chini cemetery (110).

Of greatest variety is the category of ground slate knives, which includes 39 forms—with few exceptions almost all such artifacts are known in the early material culture of the maritime population of Chukotka (Table 5). In this category are those with a single convex working edge and without a stem of subtriangular form (VIII–1, 2) or subtrapezoidal with a hole (VIII–5, 8, 10) or without a hole (VIII–6, 7, 9, 12); with a convex working edge, stemmed (VIII–15–18) and stemless with a straight working edge (VIII–20–24, 25b, 26), including with holes (VIII–28); asymmetrical knives with a double working edge, with holes, narrow (VIII–27) and broad (VIII–29–32, 35); symmetrical knives with a double working edge and pointed ends, without holes, narrow (VIII–38), broad (VIII–37), and with holes (VIII–33, 36, 39, 40); subrectangular knives with a double working edge (VIII–47) and knives with a double working edge that are profiled in cross section, one of them symmetrical with a rounded end, a hole, and a grooved indentation on both sides (VIII–34); the other—only a fragment of the blade preserved—has a longitudinal ridge in the middle of both broad fluted sides (III–48) (Arutiunov and Sergeev 1969:Fig. 84:10).

Some short, knife-like lamellar blades with an irregularly prismatic outline, in some cases retouched along the edge (I–1, 5, 6), form a special group connected with knives, as do inset blades of rectangular form completely retouched on both sides (I–9), extended semi-lunar ones with a straight and opposite convex working edge (I–11–a), and shorter triangular insets (I–11–b), subtriangular (I–12, 13), and tiny oval (I–14).

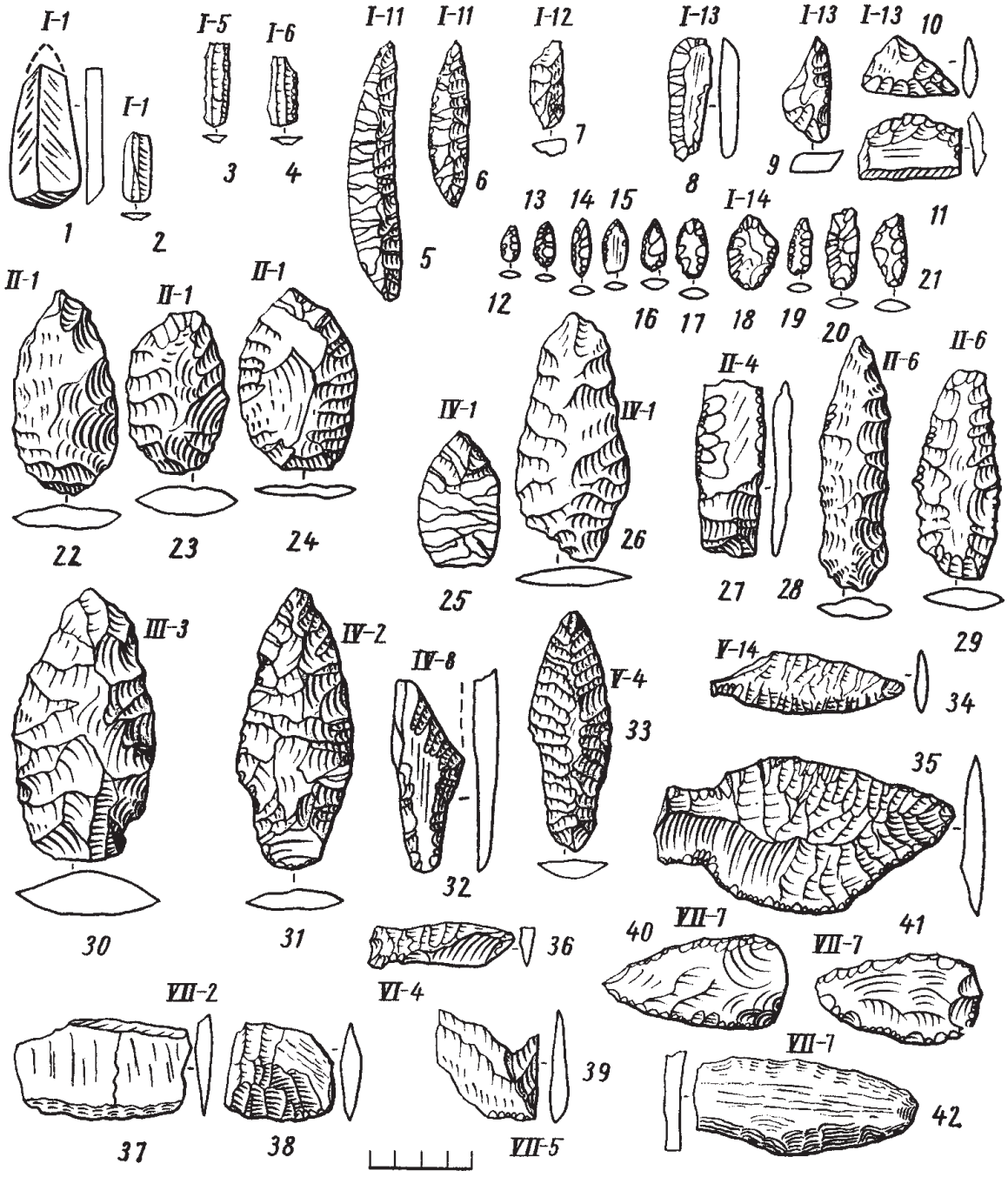

Figure 77. Old Bering Sea stone knives (from Chini and Uelen cemeteries). 5, 35—after S. A. Arutiunov and D. A. Sergeev; the remainder—from the author's excavations.

Of 53 forms of scrapers and skreblos (Fig. 78), 14 are unifacially worked end scrapers, concave ones (I–7, 12, 14, 16, 28) or straight (II–4, 12, 13, 16, 18–21), one scraper of the latter having a haft (II–26); 9 types are unifacially worked combination scrapers: concave with a laterally projecting cutting "ear" (III–1, 5) and pointed (III–12, 14), as well as straight with one lateral ear (IV–5) and with two (IV–1). In addition, three more quite distinctive, tiny ones with cutting edges should be assigned to the combination scraper-like tools (IV–7, 8), one of which has a regular almond-shaped

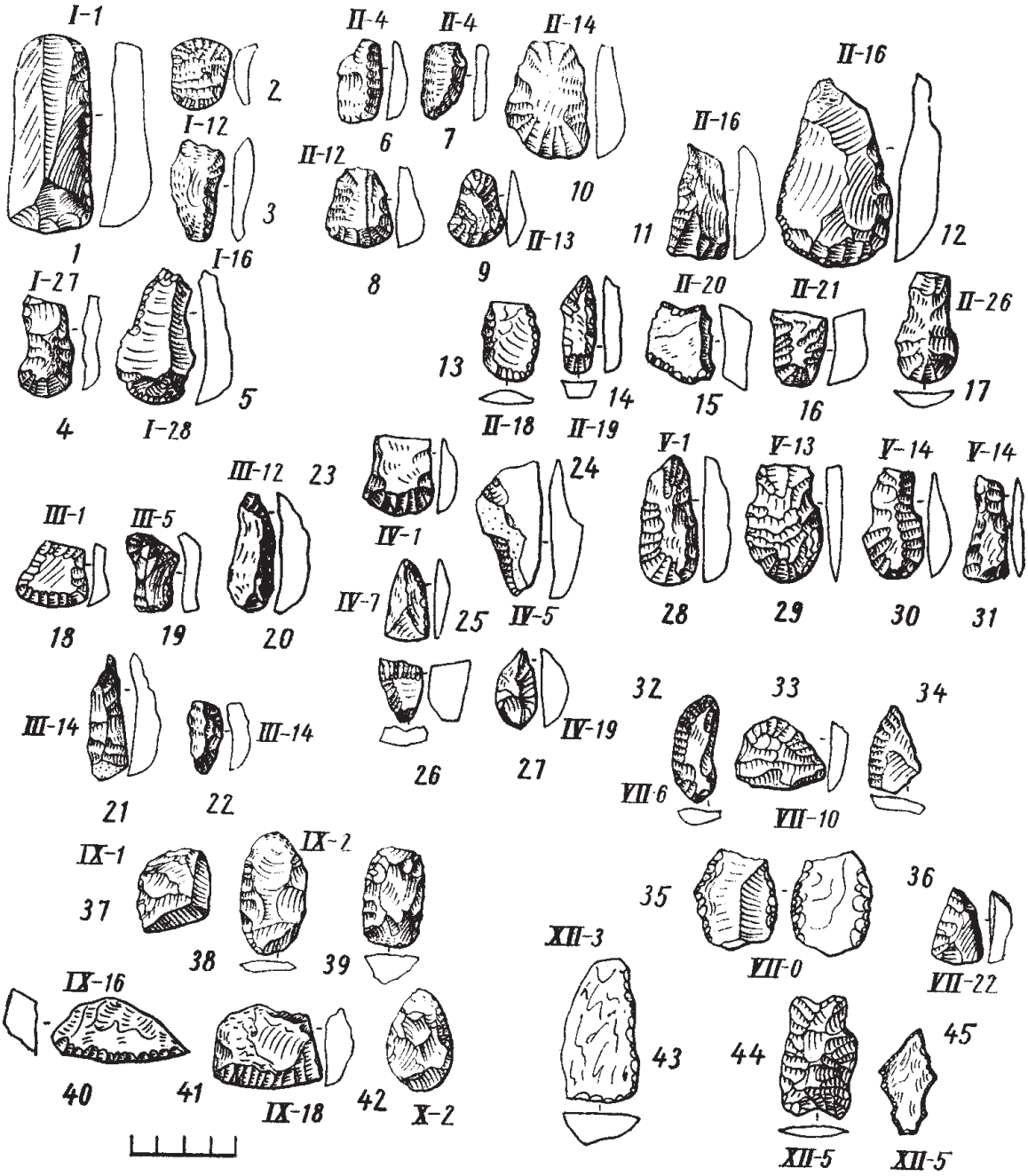

Figure 78. Old Bering Sea scrapers. 2, 9, 37–39, 42—Uelen cemetery (119), after S. A. Arutiunov and D. A. Sergeev; 40—Uelen cemetery (119), author's excavations; 10—Enmynytnyn cemetery (115); the remainder—Chini cemetery (110).

form with two sharpened ends (IV–19). Bifacially worked end scrapers are either pear-shaped (V–1), trapezoidal (V–8), or rounded with a straight stem (V–13, 14). In addition, there are 26 more varieties of scrapers and skreblo-like tools, including side scrapers on flakes worked along the edge (VII–3, 5, 6, 10, 11, 13) and on cobble spalls (VIII–22). Some tools can definitely be assigned to the skreblo category. They are large, worked either on only one side or on two. To the first belong oblong end skreblos (IX–2, 3) and side skreblos with a convex working edge (IX–1, 16–18); to the

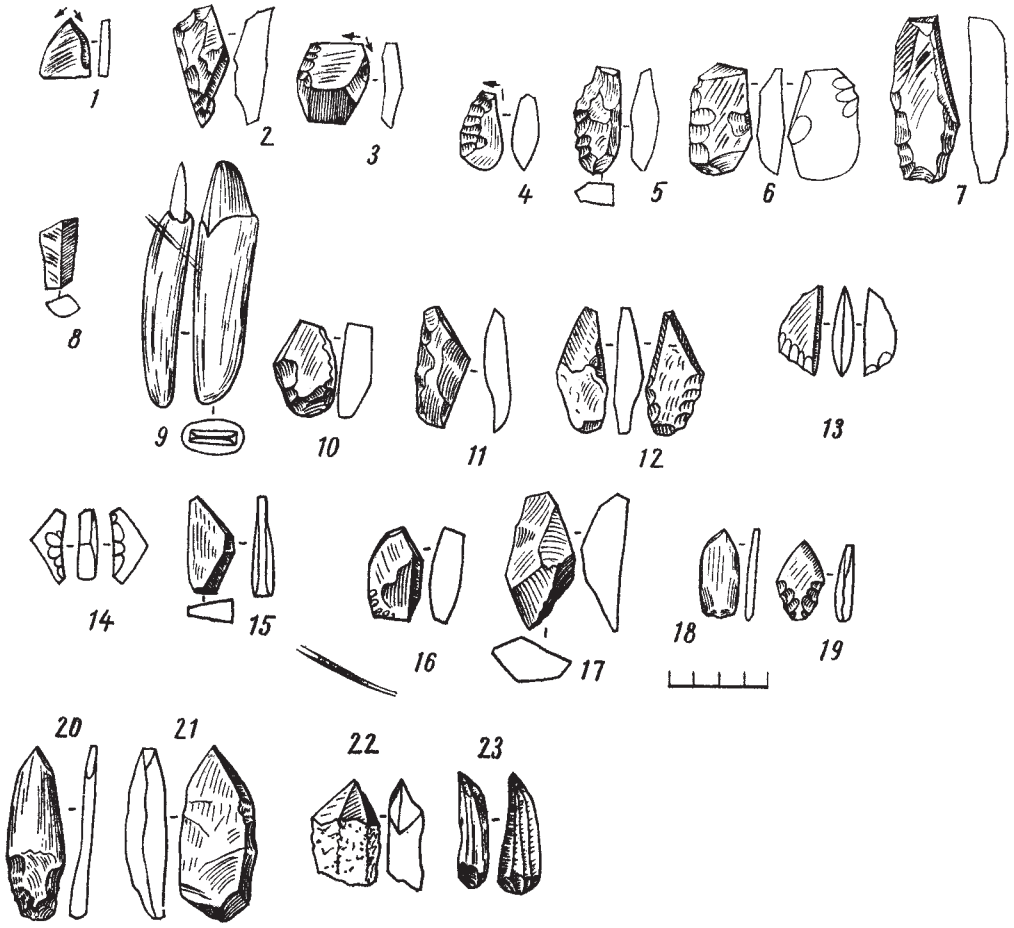

Figure 79. Old Bering Sea stone burins. 9, 12—Uelen cemetery (119), author's excavations of 1956; the remainder—Chini cemetery (110).

second—oval (X–4, 2) and subtriangular (X–8, 10). There are also varieties that, judging by the presence of lateral grooves in their working edge, most probably served as spokeshaves (XII–3–5). Finally, large oblong tools with a transverse rounded end, percussion flaked or more often with a partially ground working edge, worked along the back of the tool, on the opposite side of which (the ventral) is the unworked surface of the spall, probably used like a pressing iron, possibly for softening thongs or skins (XIII–1, 2, 4).

Punches fall into two groups: thin rod-like without hafts (I–2, 3; II–1, 2) and with a thickened hafting part opposite the point (I–4, 6; II–3, 5). No labret-like T-shaped punches have been found at present.

Burins are represented by 11 varieties (Fig. 79). Unground, only two—a dihedral burin on a lamellar blade fragment (I–4) and a polyhedral one with a large retouched haft (II–3). The remaining nine types are characterized by grinding on the working edge. These comprise angular, one-sided burins (V–1–3), two-sided corner (V–4), and dihedral (V–5–8). They all are adapted for attachment to bone or antler handles. Quartz crystals were also used as burins (V–9).

Axes, adzes, and chisel-like instruments are represented by 23 varieties, among which artifacts of triangular cross section are entirely absent, with comparatively few of rectangular (Fig. 80). All

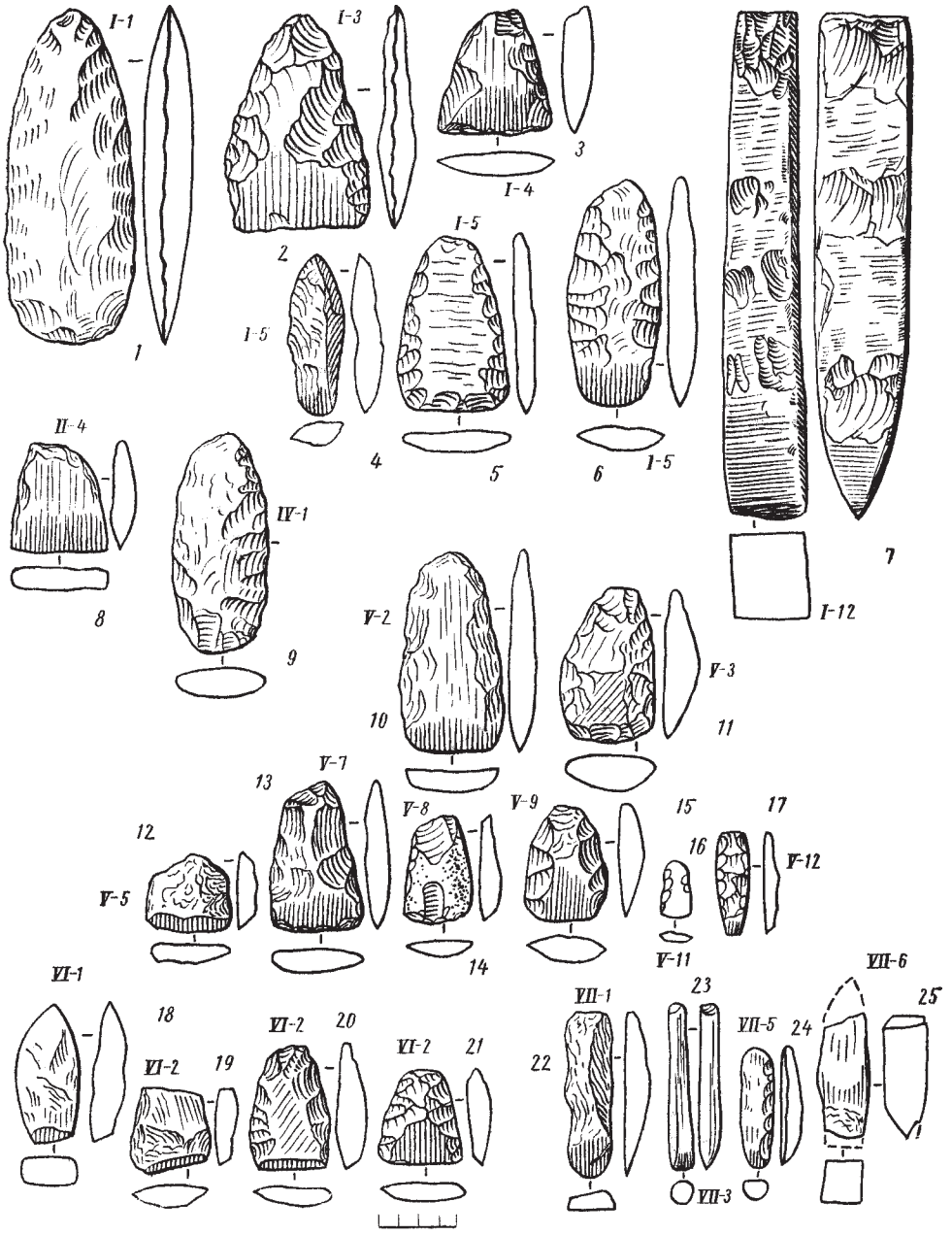

Figure 81. Old Bering Sea man (reconstruction by G. V. Lebedinskaia based on a skull from Burial 4 of the Uelen cemetery).

adzes positively belonging to the Old Bering Sea culture have a lenticular cross section and taper toward the butt, are trapezoidal (I–3–5) or elongated subtriangular (I–1). Only one ground axe-adze from the excavation by Levin, Arutiunov, and Sergeev at the Uelen cemetery has a strictly rectangular outline both in plan and in cross section (I–12), but from the publication it is not clear in which precise burial it was found (Arutiunov and Sergeev 1969:Fig. 92) and, therefore, we can assign it only tentatively to the Old Bering Sea culture. One variety of ground adze was found that is almost rectangular in both plan and in cross section (II–4). Of interest are the adzes that are completely or partially percussion flaked and ground only on the working edge, lenticular in cross section, and oval of form with a slightly sharpened butt (IV–1) or elongatedly trapezoidal (IV–3).

The most numerous and characteristic for the Old Bering Sea culture are incompletely ground adzes—that is, ground only on the working edges—having a geometrically irregular cross section and a more or less elongated trapezoidal form, sometimes with a rather significantly narrowing, almost triangular butt (V–2, 3, 5, 7, 8, 11). Among these is one exception—an adze with the butt, on the contrary, wider than the blade and with convex longitudinal narrow lateral edges (V–12). Finally, very specific forms of adzes are those with an unusually steep angle of sharpening, ground (VI–1) and partially ground (VI–2), serving for the processing of especially hard materials, for example, walrus tusks. Others in this group are chisel-shaped and completely or partially ground along the working edge. They are oblong wedge-shaped instruments of semicircular or trapezoidal cross section (VII–1, 5), round (VII–3), and rectangular (VII–6).

Endogenic innovations, that is, absolutely new stone artifacts not found in surrounding earlier or synchronic cultures, are the chisel-shaped instruments (VII–1, 5), adzes with a steeply sharpened blade (VI–1, 3), and the adzes with a narrow working edge (V–12) just mentioned (Fig. 80:18–25).

These endogenic innovations are evidently not exhausted. They also include triangular slate dart points with an incised stem (E–5), 22 varieties of ground slate knives (VII–1, 5, 7, 9, 10, 15–18, 22, 24, 28–33, 35–37, 47), possibly some kinds of scrapers (II–14, 21), scraper-like instruments (XIII–4, 5), ground punches (II–1, 2), and a whole series of various ground burins (V–1–8).

The variety of forms of stone artifacts attains its apogee in the Old Bering Sea culture, and later in Chukotka, as we will see below, it is almost never renewed with new forms, but rather on the contrary, became somewhat diminished (Dikov 1971b). Later, Arutiunov and Sergeev also noted this feature of evolution of Old Eskimo culture, having described the post-Old Bering Sea art of engraving on bone as a descending branch of its development (Arutiunov and Sergeev 1975:178).

Comparative analysis of the material complex of the Old Bering Sea culture permits bringing some clarity to the questions of its date, origin, and ethnic association. In this regard we will gather for deliberation as far as possible not only the bone, as was used up to now, but the stone artifacts as well.

We probably have to agree with the generally accepted date of the Old Bering Sea culture, which is based, according to Collins and Rainey, on the stratigraphy of sites on St. Lawrence Island, on stylistic analysis of the patterns of bone artifacts, and on radiocarbon determinations of the age of organic remains from sites of this culture. In accordance with this data, the Old Bering Sea culture belongs to the first half of the first millennium A.D. The presence of tiny iron burins found by Sergeev and Levin in one of the Uelen burials conforms completely to such a representation of the age of the Old Bering Sea culture (Levin and Sergeev 1960), as does the similarity in the technique of design, noted by Arutiunov, of some slate artifacts to Japanese metal halberds (Arutiunov and Sergeev 1969:160, Fig. 84:10–12). These facts attest to the chronological connection of the Old Bering Sea culture with the early Iron Age of more western and southern territories of northern and eastern Asia.

We will dwell in somewhat more detail on the problem of chronological correlation of Okvik and Old Bering Sea cultures.

Above we have already expressed our negative view toward the schema of Levin, Arutiunov, and Sergeev, in accordance with which the Old Bering Sea culture emerges earlier than Okvik and then coexists with it for a long time. Trying to prove this thesis, they fall into a contradiction by

setting Okvik single-holed toggling harpoon heads as typologically intermediate between Old Bering Sea and Punuk. Postulating their intermediateness, they date Okvik to late Old Bering Sea and post Old Bering Sea times. In order to reinforce such a date, Sergeev points to the joint location of Okvik and Birnirk harpoon heads in Burial 17, which they excavated in the Uelen cemetery in 1957 (Arutiunov and Sergeev 1969:35).[42] However, Arutiunov and Sergeev shut their eyes to such an evident fact contradicting this assumption as the find at the Okvik site on St. Lawrence Island of primitive "winged objects" of Group A that, according to them, are decorated with Okvik design, as Collins had already noted (Collins 1962:7, Fig. A). The majority of the Old Bering Sea "winged objects" belong to the better developed types of Group B, which occupy a typologically intermediate position between the Okvik and early Old Bering Sea artifacts of this kind and the Punuk tridents.

Consequently, even if Birnirk and Okvik harpoon heads were in fact simultaneously placed in Burial 17, this is still not an argument for assigning the whole Okvik culture to the time of late Old Bering Sea. Rather, the other way round, the presence of archaic Okvik "winged objects" compels the assumption of an initial Okvik stage earlier than Old Bering Sea.

Regarding the upper boundary of the Okvik date, unfortunately it cannot be based just on such a fact as the joint location of the Birnirk and Okvik harpoons in Burial 17. This grave was disturbed by neighboring burials, one of which (Burial 23) contained, together with Old Bering Sea items, undoubtedly Okvik artifacts (Arutiunov and Sergeev 1969:59). Therefore, it can be supposed that Okvik harpoons fell into the Birnirk grave from neighboring ones (judging by the plan of the cemetery [*Ibid.*:Fig. 3], Burial 17 is possibly the entrance with regard to the remains of the burial that were preserved in the eastern part of Burial 23). In addition, the authors themselves theoretically allow another course for earlier artifacts falling into relatively later burials, namely, as a result of intentional or unintentional excavations of old burials by early occupants of the Uelen site (Arutiunov et al. 1963:63). Thus, the joint location in the disturbed burial, published without appropriate graphic and photo-documentation as well, of Birnirk and Old Bering Sea harpoons is a very shaky base for a conclusion that Okvik is later than Old Bering Sea. However, even if we leave the question unanswered and take as possible such a late date for Okvik, it has to be understood only as its upper chronological boundary. The lower boundary, determined by a complex with archaic Old Bering Sea and possibly pre-Old Bering Sea "winged objects," inset archaic composite tools, and other archaic elements in the stone inventory, is undoubtedly earlier than all Old Bering Sea sites known at the present time.

The origin of the Old Bering Sea culture is a most complicated problem and a satisfactory answer has not yet been determined. Collins (1937), and after him Rudenko (1947), supposed that the origins of this culture go back to the Okvik culture. Rudenko, following Okladnikov, also noted the possibility of southern sources for it that are reflected in curvilinear decoration similar to Old Nivkhi. It is true that the harpoon complex, and in particular the intricate construction of the toggling harpoon heads of the Old Bering Sea people, have much in common with Okvik. But there is one substantial difference between these cultures: the Old Bering Sea people, in distinction from the Okvik people, left no signs of the use of labrets. Thus, the Okvik culture, probably emerging earlier than the Old Bering Sea and then coexisting with it, and developing over the course of several centuries, evidently cannot be viewed as the fundamental indigenous source for the origin of the Old

[43] This conclusion was soon seconded by R. S. Vasil'evskii (1973:212).

Bering Sea culture. Moreover, it is more logical to consider it only partially dependent in origin on the Okvik. Its main foundation is the older (than Okvik) cultures of Alaska and northeastern Siberia, and for this reason (in order to argue this position) it is necessary to closely examine complexes of artifacts in the named regions that are similar to Old Bering Sea.

Neo-Eskimo complexes of Alaska had an indisputable relationship to the formation of the Old Bering Sea culture.

It is no accident, of course, that there is a close similarity with the inventory, including the stone, of the synchronic Ipiutak culture. Characteristic for the Ipiutak culture, just as for Old Bering Sea, were various truncated/leaf-shaped and triangular arrow points with an indented or straight base (II–3b, 4b; V–a; V–bx; V–cy) (Larsen and Rainey 1948:Pls. 2:6, 7, 10, 11, 34, 35, 38; 35:25, 29, 36; 80:21, 22, 23, 24); stemmed (X–15) (*Ibid.*:Pl. 10) and narrow leaf-shaped points (I–9b) (*Ibid.*:Pl. 14:1–6); lateral inset blades (*Ibid.*:Fig. 20:c, e); and leaf-shaped biface knives (I–9) (*Ibid.*:Fig. 20:h; 20:d; 20:g). Also important is that, besides the large number of artifacts common both for the Ust'-Belaia and the North Chukotkan cultures, we find in the Ipiutak a completely different set of similar stone artifacts: bifacially retouched, stemmed, leaf-shaped projectile points (II–12, VIII–15) (*Ibid.*:Pl. 90:8–10); stemmed, rounded scrapers (II–26) (*Ibid.*:Pl. 18:3); combination end scrapers-gravers (III–5; IV) (*Ibid.*:Pl. 18:12–16); oblong, two-edged side scrapers (XII–3) (*Ibid.*:Fig. 24:f); and completely ground axes and adzes rectangular in cross section (I–12, VII–6) (*Ibid.*:Pl. 47:14, 15, 19), as well as partially ground triangular and trapezoidal forms (V–1, 7, 8, 9; VI–2) (*Ibid.*:Pls. 10:1, 2; 47:6–10).

There is a quite substantial similarity also with the Norton culture. Common there as well are truncated/leaf-shaped and especially triangular arrow points with an indented or straight base (II–4b; V–bx; V–cy; V–bz) (Giddings 1964:Pls. 41; 47:2, 8, 10, 12, 14, 15, 18, 20, 21, 22, 23, 24, 30, 36; 50:12), lateral segment-like triangular and oval inset blades (I–11, 14) (*Ibid.*:Pl. 46:2, 5, 11, 13, 15, 29), punches with a retouched haft (I–4, 6) (*Ibid.*:Pl. 53:8, 10, 11, 13), and trapezoidal adzes (V–8) (*Ibid.*:Pls. 44; 46:1, 7). Of the stone artifacts unknown in the Ust'-Belaia and North Chukotkan cultures, but characteristic for the Old Bering Sea culture, are long and narrow triangular points with an indented base (V–cx) (*Ibid.*:Pl. 47:16) and almond-shaped adzes ground only along the working edge (IV–1) (*Ibid.*:Pl. 44:11).

The origins of a very few elements of the Old Bering Sea culture can presumably be traced to even earlier cultures of western Alaska, which, owing to the presence of remains of toggling harpoons, the majority of researchers consider Paleo-Eskimo or proto-Eskimo. Thus, in the archaeological Choris culture (beginning of the first millennium B.C.) there were retouched stemmed (X–15) and truncated/leaf-shaped arrow points with a straight base (II–1b) (Bandi 1969:Fig. 22), and in the Old Whaling culture, dating to the beginning of the second millennium B.C., almost the same flint points (II–4b, V–b) (*Ibid.*:Fig. 17:13, 14), broad leaf-shaped knife-bifaces (II–3) (Giddings 1961:Fig. 7), points with lateral indentations (VIII–22) (*Ibid.*:Fig. 7:2–7), and scrapers with a stem (V–14) (Bandi 1969:Fig. 17:3). Finally, stemmed scrapers (V–14) (Giddings 1956:Fig. 17:3), as well as other Old Bering Sea forms of artifacts, are present in sites of the Denby Flint complex of the third millennium B.C. To the last belong—and are common also for the Ust'-Belaia (and in part North Chukotka) culture—leaf-shaped points carefully retouched on both sides (I–1, 5, 12) (Campbell 1962:Fig. 3:1), broad subtriangular points with a straight base (V–a) (Giddings 1964:Pls. 71-a:3, 7; 72:9) and with an indented base (V–bx) (*Ibid.*:Pl. 71-a:1, 2, 4); oblong triangular with an indented base (VI–cx) (*Ibid.*:Pl. 72:7); segmented biface knifes (IV–2) (*Ibid.*:Pl. 70-b:15);

long and narrow, segmented, lateral inset blades (I–11) (*Ibid.*:Fig. 56:a; Pl. 71-b:9, 16); pointed, oblong uniface knifes (VII–7) (*Ibid.*:Fig. 53:6, 9, 10; Pl. 69); possibly teardrop-shaped end scrapers-gravers (III–14) (*Ibid.*:Pl. 70-a:9); pear-shaped end scrapers with lateral projection (II–16) (McNeish 1959:Fig. 67:8); punches; and retouched knife-like lamellar blades (I–6) (Giddings 1964:Figs. 47; 53:5). It is notable that a significant part of the named artifacts are absent from the Neolithic complexes of Chukotka: laurel-leaf points (I–1a) and sharply pointed knives (VII–7). It must be considered that in the Denby complex, in distinction from the Ipiutak, Norton, and Choris cultures, labrets are entirely absent and that the earliest labret-using culture, Kachemak I, is located in southwestern Alaska and Cook Inlet, where it is dated to the end of the second–beginning of the first millennium B.C. (Bandi 1969:93). Chester Chard's well-known hypothesis is that precisely in southwestern Alaska, in the vicinity of Bristol Bay, rich in sea mammals, was the original location of formation of the Eskimos, who had separated, in Chard's opinion, approximately during the third millennium B.C. from the Esko-Aleuts (Chard 1962). It is presently impossible to oppose this hypothesis with any undisputed Old Eskimo sites of sufficiently deep antiquity on the Asiatic side of Bering Strait, except the Chertov Ovrag site (167) on Wrangel' Island. Therefore, it is possible that certain tools spread from the direction of southwestern Alaska, in particular from more distant British Columbia, and reached the Okvik and then the Old Bering Sea culture as early as the end of the second–beginning of the first millennium B.C. Some types are ground slate points (E–4, 6) (Borden 1962:Pls. 3:i; 4:f) and knives (VIII–1, 2, 12) (*Ibid.*:Pl. 4:a, j), which existed there (in the vicinity of the Fraser River delta) and are very uncharacteristic for the cultures of Denby, Old Whaling, Choris, Norton, and Ipiutak. However, the connections of the Old Bering Sea culture appear to be closer with Ipiutak and Norton.

An even stronger influence on the formation of the Old Bering Sea culture is felt, as we have already noted, from the Asiatic side of Bering Strait, from the labret-less North Chukotka and Ust'-Belaia cultures, and in some measure from some other Far East Asiatic cultures (Dikov 1971a, 1971b:367–377, 1972:112–115).[43]

Perhaps the largest collection of elements similar to Old Bering Sea is found in the Ust'-Belaia culture. Among its bone artifacts, foreshafts for arrow points are almost the same as in the Old Bering Sea culture (Fig. 59:3–5). Of course, an Ust'-Belaia one-holed toggling harpoon head is significantly more primitive than any belonging to Old Bering Sea, but this completely corresponds with the substantially older age of the Ust'-Belaia cemetery, as well as with the circumstance that the heads of toggling harpoons are the most variable form of artifacts in northeastern Siberia. The stone artifacts are more conservative here. Possibly, therefore, in spite of the notable chronological break in the stone inventory of the Ust'-Belaia culture, we see so many artifacts similar to Old Bering Sea. There are narrow, leaf-shaped arrow points (I–3c) and truncated/leaf-shaped uniface points (K–II–3b); larger stemmed points (VIII–9; X–13, 16); triangular, more or less broad, bifacially worked arrow points with a straight base (II–4b; V–a, b; VI–b) and with a symmetrically concave base (V–cy) or with lateral projections (VIII–22); as well as oblong points from incompletely retouched lamellar blades (O–2) and stemmed points of partially retouched flakes (O–5). There are knife-like lamellar blades, irregular and encountered in very small numbers, it is true, in sites of the Old Bering Sea culture in distinction from Ust'-Belaia (I–1, 7). There are also completely retouched, rectangular lateral insets from knife-like lamellar blades (I–9); long, segmented insets (I–11); short, triangular

[43] This conclusion was soon seconded by R. S. Vasil'evskii (1973:212).

ones (I–12), and small, oval ones (I–18). There are broad, bifacially retouched segmented knives (IV–2) and knives with the same working with a curved back (IV–16), knives on flakes (VII–2, 3), with a beveled back (VI–4) and triangular (VII–5), as well as broad, ground knives of slate (VIII–12). There are at times quite specific forms of scrapers or combination scraper-like tools, for example, scraper-gravers (III–12, 14; IV–7, 19) and scrapers with a haft-stem (V–14), as well as rather characteristic trapezoidal scrapers (II–1–12), almost round micro-scrapers (V–8; VII–5), and pear-shaped scrapers (I–16, 18; II–16), not to mention scrapers on regular flakes (VII–10; X–10; XII–4). Finally, there are polyhedral flint burins with a short, massive retouched haft (II–3); punches with the same kind of haft (I–4); and wedge-shaped chisels rectangular in cross section (VII–6). All the above-named analogs belong to the Ust'-Belaia cemetery and site proper. In addition, stemmed arrow points (X–15) and oblong, irregularly leaf-shaped, double-bladed knives belonging to the Ust'-Belaia culture and similar to Old Bering Sea, from a cache near Lake El'gygytgyn (II–6), should be noted.

The dominant part of all these Ust'-Belaia analogs (specifically 39 of 55) are not repeated in the Late Neolithic North Chukotkan culture or in the sites on the Amguema and Chirovoe Lake. The exceptions consist only of triangular arrow points with a straight base (V–a, b), with a symmetrically and asymmetrically concave base (V–bx, cy), elongated/leaf-shaped points (I–3c) and stemmed points (X–15), as well as polyhedral burins (II–3), punches (I–4), knives with a flattened back (VI–4), triangular knives (VII–5), ground slate knives (III–12), retouched knife-like lamellar blades (I–7), and some insignificant forms of scrapers (VII–3, 5, 10; X–10).

Nevertheless, in the North Chukotkan culture we also find a small number of analogs not encountered in the Ust'-Belaia culture: narrow, leaf-shaped arrow points pointed on both ends (I–9b); rhomboid/leaf-shaped (I–5b); oblong truncated/leaf-shaped (II–3b); broad lamellar blades retouched along the edges (II–1); narrower leaf-shaped knives (II–6); crudely worked, only partially ground trapezoidal adzes (V–3, 8); scrapers on flakes (IX–7; X–8; VII–4; IX–1); and unique end scrapers with a narrow transverse blade (II–19) and with lateral projections or "ears" along the edges of the blade (II–20; IV–1); as well as punches with a retouched haft (I–16).

More southern Far Eastern Asiatic influences on the Old Bering Sea culture evidently passed through northern Kamchatka from the central and southern part of the Kamchatka Peninsula and the Kurile Islands, as well as from the northern Okhotsk coast, Sakhalin, and Primor'e. They are reflected by the presence there during pre-Old Bering Sea times of items in part similar to Old Bering Sea artifacts that are not found in the Ust'-Belaia or North Chukotkan cultures, and in some cases not found in the early cultures of northwestern America.

In this regard we will examine in detail the Kamchatka (Tar'in) Late Neolithic culture of the end of the first millennium B.C. for which a hunting-fishing way of life was characteristic and which, in ethnic regard, is evidently proto-Itel'men, having probably still retained some proto-Eskimo-Aleut features, judging by the presence in its sites of stone labrets and labret pins.

In this culture are many stone artifacts that have analogs in the Old Bering Sea culture, which we noted above for the Ust'-Belaia and North Chukotkan cultures: leaf-shaped, stemmed, and triangular arrow points, including with an indented base (I–3c, 5b, 9b, 10bM; II–2a, 4b; V–a, b, bx; VI–b; O–5); segmented and triangular lateral insets (I–11, 13); segmented, leaf-shaped, and narrow curved biface knives (IV–2, 6; II–6); end scrapers (I–12; II–16, 18, 20), combination scrapers (IV–7), and spokeshaves (XII–4); and punches with a retouched haft (I–6).

In the Kamchatkan culture there is a significant number of stone artifacts not found in the Late Neolithic cultures of Chukotka, more precisely laurel-leaf biface points (I–a); triangular lateral insets (I–13); curved knives with a narrow blade (V–14) and with a broad blade (V–18), as well as sharp-pointed oblong knives (VII–7); some kinds of end scrapers (I–7, 16; II–13; III–1; V–1; VII–3); spokeshaves (XII–3); adzes rectangular in cross section and trapezoidal in plan (II–4), irregular in cross section and tapering toward the butt (V–2, 7, 9), the same but with a lenticular cross section (IV–3); as well as punches with a retouched haft (I–4); ground slate, pointed, double-bladed knives with a hole (VIII–39), without a hole (VIII–38), and slate single-bladed knives (VII–6, 23).

Finally, in the Kamchatka Late Neolithic complex of stone artifacts being examined, tools are represented that have not been found in the Late Neolithic either in Chukotka or northwestern America and are therefore convincing indicators of a South Kamchatka origin for several elements of the Old Bering Sea culture. To this group belong curved, narrow-bladed and broad-bladed stemmed knives (V–14; IV–12); narrow, sharp-pointed knives (VII–7); ground slate, double-bladed, sharp-pointed knives (VIII–38, 39); and slate single-bladed knives of the Eskimo women's type (VIII–6); various end scrapers (I–7, 16; III–1; XII–23); ground trapezoidal adzes with rectangular cross section (II–4) and partially ground adzes of lenticular cross section and pointed butt (IV–3); and punches with a retouched haft (I–4).

Some of the latter group of Kamchatka artifacts are distributed in even earlier sites in the Kurile Islands. To this collection belong, for example, almond-shaped adzes of lenticular cross section (IV–1), which are dated in the Kurile Islands to the end of the second millennium B.C. (Chubarova 1960b:Figs. 1–17, 19)

It is also appropriate to remember the accurately observed (by Arutiunov in one of the Old Bering Sea burials in the Uelen cemetery) stone imitation of a bronze sword or halberd, typical for the middle Yaei, that is, for the beginning of the New Era, as well as the etymology of the Eskimo name for copper "*kanuia,*" cited by the same author (Arutiunov and Sergeev 1961:124; Vorob'ev 1958:Fig. XX:1, 2, 6).

It is remarkable that both in Kamchatka at the end of the first millennium B.C. and in the Kuriles (on Shumshu Island), labrets were in use, but there they probably belong to the Okhotsk culture (Nakayama 1934). Unfortunately, the Kurile labrets have presently not been dated. However, the presence of labret pins allegedly among the Middle Jomon (Vorob'ev 1958:Fig. XXX) would permit assuming that the Kuriles were an intermediate region in the spread of these lip ornaments and that there they also existed probably somewhat later than in the Tar'in culture. However, the question of the presence of labrets in antiquity in the Japanese Islands is still unclear. Available trustworthy data do not permit solving the dilemma at present: either cultural influences from the south existed, which are reflected in the spread of labrets from Kamchatka in the first millennium B.C., and then these influences intensified the Eskimo-Aleut component of the Old Bering Sea culture, or the Eskimo elements of the culture, including labrets, were themselves spread at this time from north to south. The second assumption, in general suitable to Arutiunov's hypothesis about the influence of the Esko-Aleuts toward the south, may turn out more probable (Arutiunov and Sergeev 1969b).

The cultural origins of the Old Bering Sea culture, coming from a labret-less region in the south—from northern Priokhot'e—are connected with a completely different ethnic component, probably a Paleo-Asiatic one or, more precisely, Chukchi-Koryak. We have noted before that

labrets existed not only among the Eskimos, but among the Aleuts and Indians of northwestern America (Dikov 1971a, 1971b, 1974a:111). I. S. Gurvich (1975b) also noted this. However, as always, we use labrets not as an absolute ethnic marker, but only for delimiting Eskimo (or Eskimo-Aleut) antiquity from Chukchi (Chukchi-Koryak). Among the latter, as is well known, labrets are definitely not present, which is important to keep in mind.

Unfortunately, the northern Kamchatkan Old Koryak culture cannot at present be satisfactorily dated. But it is no accident that in this region, where influences must have intersected both from the southern Kamchatka Peninsula and from the northern coast of the Sea of Okhotsk, Sakhalin, and Primor'e, we have a series of stone artifacts typical for Old Bering Sea: truncated/leaf-shaped, oblong biface points (II–3c), triangular arrow points (II–4b; V–b), leaf-shaped biface knives (II–3, 6; IV–2), end scrapers (II–13, 16, 19), and crudely worked adzes that narrow toward the butt (V–2).

Finds in the Upper site on Zav'ialova Island near Magadan are dated more definitely—toward the end of the first millennium B.C.–beginning of the first millennium A.D. In their composition, just as in Old Bering Sea, are triangular lateral insets (I–13a),[44] segmented biface knives (IV–2) (Vasil'evskii 1965b:Fig. 2:8), triangular-stemmed and triangular indented arrow points (X–18; IV–cx) (*Ibid.*:Figs. 1:1; 2:9), and almond-shaped adzes slightly ground on the blade (IV–1) (*Ibid.*:Fig. 1:1). The real basis of this culture, which is characterized by Vasil'evskii's finds on Nedorazumeniia Island, includes, in addition to the same adzes (IV–1) (Vasil'evskii 1970a:Fig. 4:1) and bifaces (IV–2) (*Ibid.*:Fig. 7:1), other artifacts close to Old Bering Sea as well—curved knives (V–17) (*Ibid.*:Fig. 3:2), triangular (VII–5) (*Ibid.*:Fig. 2:9) and laurel-leaf small combination scrapers (IV–19) (*Ibid.*:Fig. 2:5), and various arrow points: teardrop-shaped (I–3a) (*Ibid.*:Fig. 1:17); subpentangular (II–3b) (Vasil'evskii, 1965:Fig. 3:9); truncated/leaf-shaped (II–3c) (Vasil'evskii 1970a:Fig. 2:10); triangular, subtriangular, (II–4b, V–a) (*Ibid.*:Fig. 1:22; 1:10), and triangular with an indented base (V–ax) (*Ibid.*:Fig. 1:4, 5), and among the latter those with weakly marked lateral indentations (V–bz) (*Ibid.*:Fig. 1:16). This cultural base is close in many ways to the Ust'-Belaia culture, but is differentiated from the latter by its almond-shaped adzes (IV–1), curved knives (V–17), and the absence of knife-like lamellar blades and ceramics, that is, features that bring it close to the Old Bering Sea culture, to which we have already turned our attention (Dikov 1971b).

In southern Sakhalin are such tools, similar to Old Bering Sea, deserving mention: truncated/leaf-shaped, oblong arrow points (II–3c) (Kozyreva 1960:39, Fig. 2:3), trapezoidal and almost triangular adzes from the Susuia site of the second half of the first millennium B.C. (V–2, 10) (Chubarova 1958:Fig. 42:6), and stemmed points with rounded end from the Starodubskii site of the end of the second–first millennium B.C. (V–15M) (Kozyreva 1967:Fig. 15:5). The remaining artifacts similar to those of Old Bering Sea—segmented biface knives (IV–2) (*Ibid.*:Fig. 4:7) and stemmed (X–15), leaf-shaped (I–9b), pentangular (II–3b), and triangular (V–a) (Kozyreva 1960:39, Fig. 6), including those with an indented base (V–bx, VIII–22x), arrow points (Kozyreva 1967:Fig. 4:5–10, 12, 15, 16)—are repeated in the Late Neolithic on the northern coast of the Sea of Okhotsk and in Chukotka. Thereby they show the interconnection and probably the succession of these cultures and the general direction of their spread to the north toward Chukotka.

[44]The collections of M. G. Levin in 1930 on Zav'ialova Island, Museum of Anthropology MGU, Coll. 475/110.

Finally, in light of the data available then, Okladnikov (1963) very convincingly assessed the maritime culture of the eleventh–ninth centuries B.C.—most clearly represented by the settlement on Cape Peschanyi near Vladivostok—as the extreme southern link of this chain of cultures oriented with their influence toward the north. Actually, here we find several artifacts similar to Old Bering Sea: ground slate points, triangular (E–2) (*Ibid.*:Pl. 66:8) and stemmed (E–6) (*Ibid.*:Pl. 90:8; Pl. 132:6); knives or, as Okladnikov supposes, end blades from the heads of toggling harpoons (VIII–39, 40) (*Ibid.*:Pl. 49:2; Pl. 66:4); and, typical for Old Bering Sea, retouched axes with lenticular cross section, almond-shaped (I–1) (*Ibid.*:Pl. 1:3) or trapezoidal (1–5) (*Ibid.*:Pl. 124:7) and ground, with rectangular cross section (II–4, 7) (*Ibid.*:Pl. 80:6). It is very remarkable that right on the coast in a site of the ninth–eleventh centuries B.C. in Tetiukha almost the same knife with "*perviura*" was found (VIII–48) (Okladnikov 1959:Fig. 46:2). It is like the fragment of one found at Uelen, which gave Arutiunov cause to speak of the southern connections of the Old Bering Sea culture, as we mentioned above.

Summing up all the above-noted analogies of the Old Bering Sea culture with surrounding older cultures, we conclude that it has the closest genetic connections with the Norton, Okvik, and Ust'-Belaia cultures. At the same time, we are convinced of the predominance of Asiatic sources for the Old Bering Sea culture over American ones.[45] It is expressed in the prevalence in its stone inventory of Ust'-Belaia elements, as well as some, more southern ones. The Old Bering Sea culture is thus a synthesis of labret-bearing Old Eskimo cultures (Okvik, Norton, and possibly Ipiutak) and the labret-less Ust'-Belaia culture, the ethnic determination of which cannot at present be made precise, but it is nevertheless thought to possess some Chukchi anthropological features.

The fact that the Old Bering Sea culture is labret-less, though it emerged in part on a base of labret-bearing Old Eskimo cultures (Norton, Okvik, and possibly Ipiutak), evidently testifies to the infiltration

[45]This conclusion was formed by the author earlier (Dikov 1971a, 1971b) and adopted by R. S. Vasil'evskii (1973).

Figure 81. Old Bering Sea man (reconstruction by G. V. Lebedinskaia based on a skull from Burial 4 of the Uelen cemetery).

Figure 82. Old Bering Sea woman (reconstruction by G. V. Lebedinskaia based on a skull from Burial 19 of the Uelen cemetery).

Figure 83. Reconstruction by G. V. Lebedinskaia of the face of an Old Bering Sea woman based on a skull from a burial in the Uelen cemetery.

Figure 84. Reconstruction by G. V. Lebedinskaia of the face of an Old Bering Sea man based on a skull from a burial in the Uelen cemetery.

into the Old Bering Sea ethnic sphere of a labret-less northeastern Paleo-Asiatic population, one probably connected with the Ust'-Belaia culture, most likely the ancestors of the Chukchi. It also testifies to their movement to the sea coast of Chukotka and their partial assimilation of labret-bearing Eskimo. We offer such a proposition as a working hypothesis that can, it seems to us, explain the above-noted combination of sources, as well as some other unintelligible peculiarities and features of the Old Bering Sea culture and the physical anthropology of its population.

In the area of material culture, this population is especially similar, as Sergeev and Arutiunov noted, in its crude, partially flaked skreblos (IX–1, 2; X–2, 4) to the Kanchalan and Krasin sites (Arutiunov and Sergeev 1969:166) and the site at Sed'moi Prichal (98), that is, judging by everything, not to the Eskimos but to the interior Chukchi.

The extreme deviation in orientation of burials in the Uelen cemetery becomes entirely understandable under the conditions of mixing of the native population with the new arrivals.

Meanwhile, in the area of still very scant physical anthropological data, based on the materials of the Uelen cemetery, as well as those of Ekven and Chini, anthropological mixture and a mosaic of traits peculiar to different groups of Eskimos and to the Chukchi can be observed (Zubov 1969:194). Interesting as well is the representation of the human face on the "winged object" from the Enmynytnyn cemetery (Dikov 1977b:color insert p. 160), sharply distinguished by an emphasized very broad nose, which is more typical not of Eskimos but of Chukchi (Debets 1960). A mask from the Ekven cemetery is similar (Arutiunov and Sergeev. 1975:Fig. 94). In this connection, it is probably no accident that on tiny Okvik bone masks, decorated with labrets, the face and nose are always substantially narrower (Arutiunov and Sergeev 1969:Fig. 99:1, 5) than on the famous Okvik madonna (Bandi 1969:Fig. 24). We noted these points as early as 1971 (Dikov 1971b). Later, Vasil'evskii (1973:97) pointed out that a representation of the face on a cobble in early Aleut Chaluka also has a long nose.

The complex ethnic processes that occurred among the population of the sea coast of Chukotka are corroborated quite evidently by the mixed character of the sites themselves. Old Bering Sea sites and cemeteries are seldom found in a "pure" state, without admixture of other cultures, especially Okvik. Perhaps this "pure" state applies only to the Enmynytnyn cemetery (115, 116) and the sites of Seshan (132) and Inchoun (120). In the larger part of the cemeteries both Okvik and Old Bering Sea burials are found, the mutual penetration of cultures and ethnic groups becoming even more pronounced, so that often within the bounds of one burial we run into a very close intertwining of Okvik and Old Bering Sea styles and a mixture of Okvik and Old Bering Sea types of harpoon heads and other items (for example, at the Uelen cemetery in burials excavated by M. G. Levin in 1958—Nos. 5, 6, 22; and in 1959—Nos. 2, 3, 18:a, 20, 22, 23) (Arutiunov and Sergeev 1969:42, 46, 51–60). This close inter-penetration of the Okvik and Old Bering Sea cultures is reflected in the presence of the following material elements common to them: arrow points retouched on both sides, with a truncated/leaf-shaped and elongatedly triangular form with a straight base, as well as stemmed; stemmed ground end blades for darts or harpoons (E–4); oval lateral inset blades (I–14); percussion flaked, rarely ground oblong adzes (IV–1; V–3); and finally, crystal quartz used as a burin (V–9).

The connections of Okvik and the Old Bering Sea culture can also be noted in the bone inventory and the ceramics, as is well known. An especially significant fact, in our view, is the presence in both places of "winged objects" (more archaic in Okvik), as well as relief furrowed ceramics (Bandi 1969:Fig. 23; Rudenko 1947:Pls. 21–26; 17, 15, 19).

All these Old Bering Sea-Okvik connections even further complicate a picture of ethnic relations in the area of Bering Strait and can be viewed, in our opinion, as the farthest spread of the ethnic influence that the Old Bering Sea people experienced somewhat earlier.

Consequently, the Old Bering Sea culture can no longer be viewed as the earliest Asiatic Eskimo culture, nor especially as a pure Eskimo culture, from which, in the opinion of some authors, emerged the cultures of the American Eskimos (Arutiunov and Sergeev 1969:30). It is possible that in earlier times only Eskimos actually lived on the coast of Bering Strait, but the fact that we cite remains of the Old Bering Sea culture that are marked by the imprint of early Chukchi influence indicates that the Old Bering Sea culture may be related not only to the early Eskimos but also to the ancestors of the Settled Chukchi, the genetic connections of which with the Old Bering Sea culture Okladnikov (1945) assumed.

We find corroboration for this also in the Pegtymel' petroglyphs which, as we indicated above, belong in substantial part to the early Eskimos, who underwent the influence of the ancestral Chukchi (Dikov 1971c).

At the same time, physical anthropological investigations should be taken into account. These data indicate that the Old Bering Sea populations possessed features of undifferentiated proto-Eskimo-Aleut type (Alekseeva and Alekseev 1973) and simultaneously had the same genes as the Chukchi, forming with the latter an identical serological type, in the formation of which the "founder effect," that is, the influence of the initial group, played a role (Movesian 1975:5). These investigations contribute to the affirmation of the opinion of the genetic unity of the Eskimos and Chukchi (Arutiunov and Sergeev 1975:194).

The Birnirk Culture

Approximately from the fifth to the ninth centuries A.D., when the climate in the Arctic was about the same as it is now (Borisov 1970:68) and then gradually began to become warmer, the new, so-called Birnirk culture spread onto the northern and partially the eastern shore of Chukotka. It has been rather well investigated in a whole series of sites: on Chetyrekhstolbov Island (406) (Beregovaia 1954), at Cape Baranov (402–405) (Beregovaia 1959), Chegitun, Enurmino (137), Neshkan (140), Ekichuverveem (125), Ikolivrunveem (133), Vankarem (148–152), and Nuniamo (109), as well as in Burials 10, 11, and 28, which we excavated in 1958 and 1963 at the Uelen cemetery (119) (Dikov 1967a:76–78), and in Burials 4, 6, and 17, excavated there in 1957 by Levin, Kozyreva, and Sergeev (Arutiunov and Sergeev 1969:40, 41). All these sites are characterized by toggling harpoons of a distinctive type: small dimensions, often equipped with one lateral stone inset, and notched or barbed on the opposite side (Fig. 85).

It is possible also that Burials 10 and 12 of the Uelen cemetery, excavated in 1959, are Birnirk. Judging by the illustrations, the burials preserved Birnirk ceramics along with harpoon heads of Old Bering Sea type, but unfortunately they are insufficiently published for definite judgement (Arutiunov and Sergeev 1969:40, 41). Some finds are also known in assemblages mixed with Old Bering Sea and Punuk remains on the southern Chukchi Peninsula, for example, a Birnirk harpoon head at Sireniki (Rudenko 1947:Pls. 13, 19).

The center of spread of this Birnirk Old Eskimo culture is the northern coast of Alaska, the region of Point Barrow (Ford 1959). This culture blossoms there after the Alaska Ipiutak and is characterized by hunting small pinnipeds and caribou, in distinction from Old Bering Sea and Punuk, which are connected with hunting large sea mammals: whales and walruses. It is characterized by large dwellings, often on spits and terraces lower than Old Bering Sea settlements. In the burials, together with an extended body position, bodies in the flexed position are often found, as excavations in the Uelen cemetery (11, 28) indicated to us, oriented precisely the same as in Okvik burials: head to the east.

The assortment of Birnirk bone artifacts was rich. In addition to toggling harpoons there are points of arrows and darts, picks, protective plates for the arm for shooting a bow, a variety of ornaments, and so forth.

The characteristic distinction of the stone inventory of the Birnirk culture in Chukotka is the sharp predominance of ground slate tools over flaked ones (Fig. 86). To the latter belong only stemmed points of darts or spears (X–16); broad, rectangular lamellar inset blades retouched on both sides (I–9); leaf-shaped biface knives (II–3, 6); scrapers on flakes (VII–4, VIII–4); and oblong lenticular axes with a lenticular cross section (I–5). Among the significantly more numerous ground slate tools are various stemmed points of spears and darts (VI–3, 4, 5, 6, 8) and various knives: stemless with a single working edge without a hole (VIII–1) and with a hole (VIII–46), stemless with two working edges, without a hole (VIII–38) and with a hole (VIII–39), stemmed two working edges symmetrical (VIII–41, 42) and asymmetrical (VIII–43, 44), as well as scraper-knives of the Eskimo "ulu" type with a wide single working edge (VIII–3, 4, 5, 6, 10, 11, 12, 16, 19, 20). We note that only knives with an asymmetrical blade (VIII–43) and rounded scrapers on cobble flakes (VIII–4), as at Krasino (67), Kanchalan (189), and Sed'moi Prichal (105), can evidently be considered innovations. The remaining artifacts named above are known both in Old Bering Sea and to some degree in the Okvik sites of Chukotka.

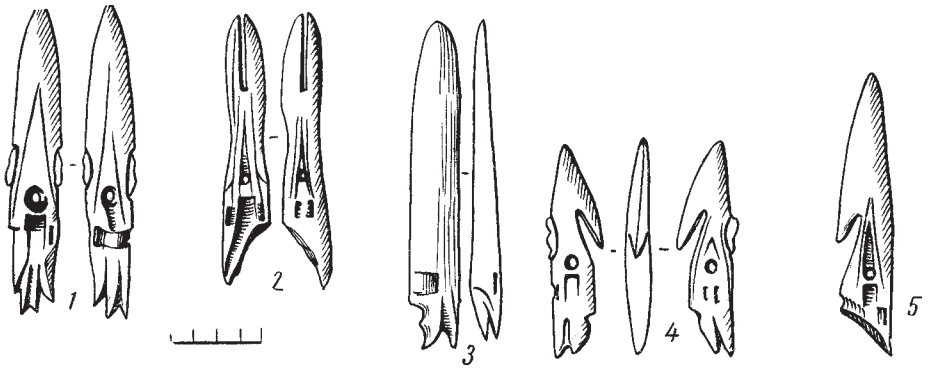

Figure 85. Birnirk toggling harpoon heads. 1—Vankarem (148); 2—Burial 11 of the Uelen Cemetery (119); 3—Neshkan (140), surface; 4, 5—Burial 10 of the Uelen Cemetery (119).

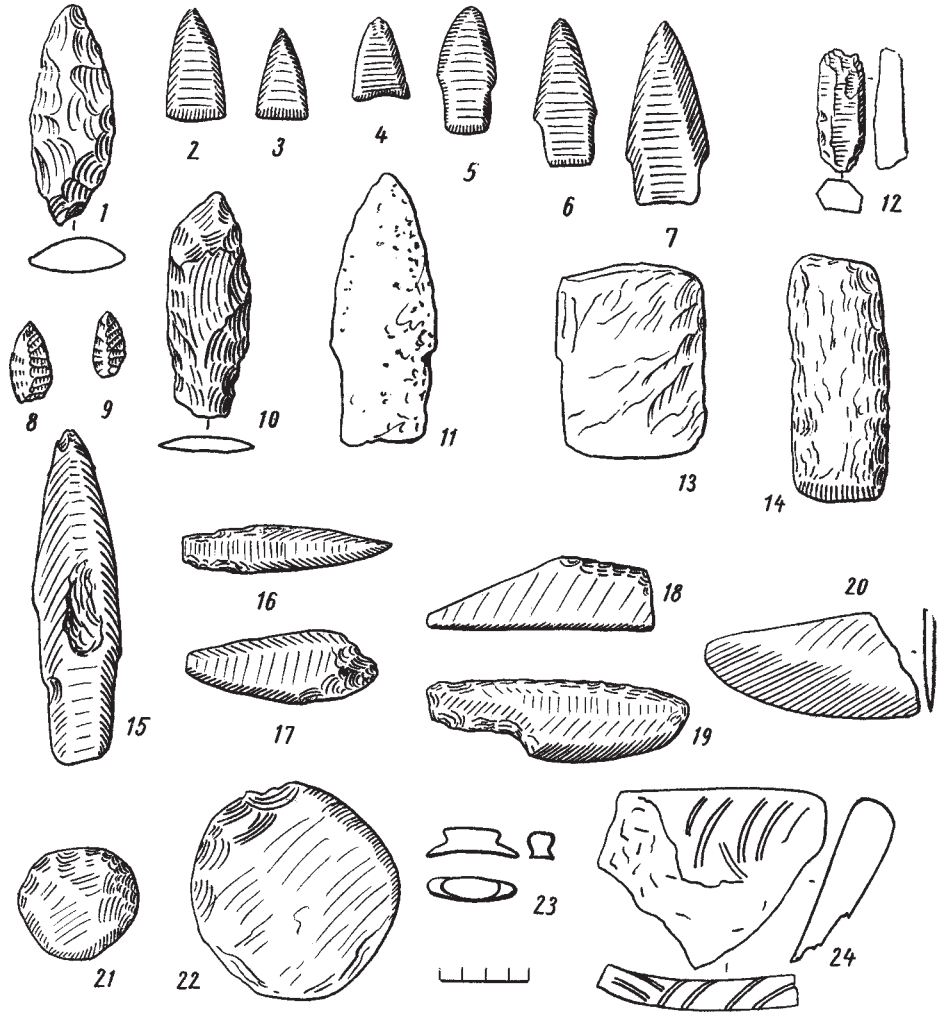

Figure 86. Birnirk stone tools (1–22), labret (23), ceramics (24). 1, 10, 20—Neshkan (140); 7, 11—Uelen cemetery (119), Burial 28, 11; 12—Vankarem (148); the remainder—Cape Baranov (402), after A. P. Okladnikov and N. A. Beregovaia.

The clay vessel, judging by finds of ceramic stamps, was decorated by a rich design of concentric circles (Fig. 86:24). The Birnirk culture coexists in northern Chukotka and Alaska with the late Old Bering Sea and early Punuk and, evidently, corresponds to a special ethnic group of Eskimos.

Very interesting as an ethnocultural feature are the distinctive lip ornaments of the Old Birnirk, the so-called labrets. One of them was found at the mouth of the Ikolivrunveem River (133) in northern Chukotka, which does not coincide with Vasil'evskii's view that there were no labrets in northern Chukotka (Vasil'evskii 1973:95).

The Ikolivrunveem labret was in a cultural layer together with two broken Punuk toggling harpoons heads, arrow points, knives of argillaceous slate, and a most original stamp in the form of a paddle of walrus tusk decorated in a clearly Birnirk concentric pattern.

The labret itself is a small thing made of walrus tusk resembling a plug flattened on the sides and with flanged edges, as on a hat (Fig. 86:23).

We remind the reader that the ancient custom of wearing labrets (*koliuzhiny*) was common until quite recently among the Eskimos of the western North American Arctic—from the Bering Sea to the Mackenzie River, into the Aleutian Islands and on St. Lawrence Island. Dezhnev saw "toothed Chukchi," that is, Eskimos adorned with labrets, during his voyage around Kamennyi Nos on one of the islands in Bering Strait (Belov 1955).

The Birnirk people, like the Okvik, who certainly used labrets, were undoubtedly Eskimos in ethnic regard. They underwent strong influence from the Thule Neo-Eskimo culture of the North American Arctic. But Birnirk was closest of all to Okvik, and this connection probably bears a genetic character. It is possible that Arutiunov and Sergeev are partially right, subjecting to question our somewhat exaggerated hypothesis that the Birnirk and Okvik make up a special evolutionary series in comparison with the Old Bering Sea-Punuk line (Arutiunov and Sergeev 1975:184, Dikov 1967a:78). However, ten pages later they contradict themselves, noting a still "somewhat greater inclination of Birnirk forms toward Okvik prototypes, and Punuk toward Old Bering Sea" (Arutiunov and Sergeev 1975:193).

Elements of Punuk, probably of Asiatic origin, are also noted among the Birnirk people in Chukotka. Assuming direct succession of the Punuk culture from Old Bering Sea, it can be supposed that a mixed Chukchi-Eskimo component in the Thule-Birnirk Old Eskimo ethnocultural commonality on the sea coast of Chukotka is connected with these Punuk elements.

The Punuk and Thule Cultures

On a large part of the eastern and southeastern coast of Chukotka the Old Bering Sea culture developed directly into Punuk. This process occured approximately in the sixth–eighth centuries. By the ninth century the Punuk culture had pushed out the Birnirk and remained there until the beginning of the sixteenth century.

Traces of settlements with the remains of material culture with Punuk appearance are presently known, owing to Rudenko's survey in 1946, at Uelen, Cape Dezhnev (173), Naukan (172), Cape Chaplino (177), Yandogai (107), Avan' (108), Plover Bay (181), Sireniki (106), Nunlingran (182), and Enmylen (183) (Rudenko 1947). In addition, we later found them opposite the city of Anadyr' at Sed'moi Prichal (105), as well as at Chegitun (126), Ekichuverveem (125), Vankarem (148–152), Ikolivrunveem (133), and on Ilitlen Island (139).

Judging by the most recent paleogeographical investigations, the climate was again significantly warmer during the eighth–twelfth centuries A.D. in the Arctic Ocean and on its coast. The iciness of the Arctic basin has been evaluated by P. M. Borisov for this period of so-called small climatic optimum as being two *bally* [points of valuation], which is two times less than at present (Borisov 1970:67). The average temperature during winter (September–May) was raised from –26° to –23° C (at the present time it is –25° C) (Chizhov 1970:74). According to Borisov's calculations, under such conditions the ice in the polar basin completely melted in summer (Borisov 1970:62). O. P. Chizhov contests this view, though he acknowledges that the iciness during the early medieval warming was significantly less than at present (Chizhov 1970:72). However that may be, even by the most moderate appraisals of Soviet investigators—paleogeographers, paleoclimatologists, and paleozoologists—during the eighth–twelfth centuries it was substantially warmer in the Arctic, the iciness of the ocean was insignificant, and in its seas a variety of sea mammals lived in abundance, including seals (Chapskii 1970:172) and, it must be supposed, whales.

An analogous, in principle, point of view is also adhered to by the well-known French researcher Jean Malaurie, who attaches great significance to the ecological factor in the development of Old Eskimo cultures. The periods he emphasizes for Greenland and northern Canada, of warming and cooling during the period of development of the Dorset and Thule cultures, do not coincide completely with the stages of changing climate that have been determined by Soviet paleogeographers, and the medieval period of warming continued, in his opinion, to approximately A.D. 1500.

However, it is with this period that he connects the rebirth and efflorescence of maritime hunting and sea travel among the Greenland Eskimos, and with the cooling in the sixteenth century—their relapse to land hunting and at the same time the disappearance of the colony of Greenland Vikings, which did not manage, like the Eskimos, to adapt quickly to new ecological conditions (Malaurie 1970:21, 22). It is interesting that Malaurie considers it possible to explain by this medieval warming the broad and, in his opinion, even original spread of kayaks and umiaks within the Thule culture. It is documented to this period archaeologically by finds of a boat and the remains of a kayak dated to the fifteenth century (*Ibid.*:22). It is, of course, unknown if they are the remains of the earliest boats of the eastern North American Arctic, but it can be confidently said that, judging by the Pegtymel' petroglyphs, the first appearance of similar umiaks and kayaks in northern Chukotka can be assigned to a substantially earlier time, and therefore Punuk navigation is only a subsequent development of very early skills in Chukotka.

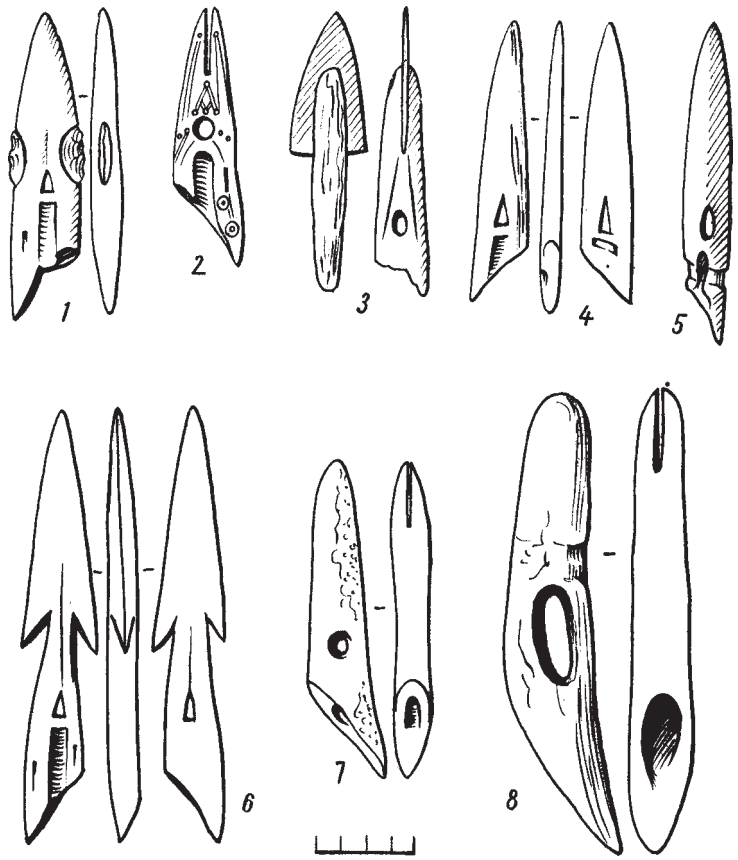

Figure 87. Punuk toggling harpoon heads. 1, 6, 7—Chegitun (129); 4—Chegitun (126); 2—Sireniki (106); 5—Sed'moi Prichal (105); 3, 8—Nuniamo (109).

It is evidently in connection with the warming that freed the sea from continuous ice sheets and broad coastal ice during the Punuk period, which coincides with a period of small climactic optimum, that whale hunting on the Arctic coast of Chukotka attained a genuine, hitherto unprecedented efflorescence. This is corroborated by the extensive use of whale bone during this time as a material for structures and artifacts. Large pit houses were constructed from skulls, ribs, and lower jaws of whales; high drying racks for storing the baidar and drying meat and fish were built from long whale bones. The villages and the populations in them grew: meat procured in abundance provided the stability for a more lasting settlement of the maritime hunters than previously. Toggling harpoons acquired a simple, more rational form, with large heads, specifically for whaling, being used more often than before (Fig. 87).

Ceramics now take on a somewhat different appearance than in Old Bering Sea. Now they do not as often have hatch marks, but rather are predominantly smooth-walled. External lugs for hanging appear on vessels.

Stone artifacts (Fig. 88) are less diverse in comparison with Old Bering Sea. New types of stone tools did not appear after Old Bering Sea. On the contrary, their assortment is significantly diminished. Predominating are roughly flaked and ground truncated-trapezoidal adzes with a pointed butt; ground slate skreblos; knives; and points of spears, darts, or harpoons (the foreparts of toggling whaling harpoon heads).

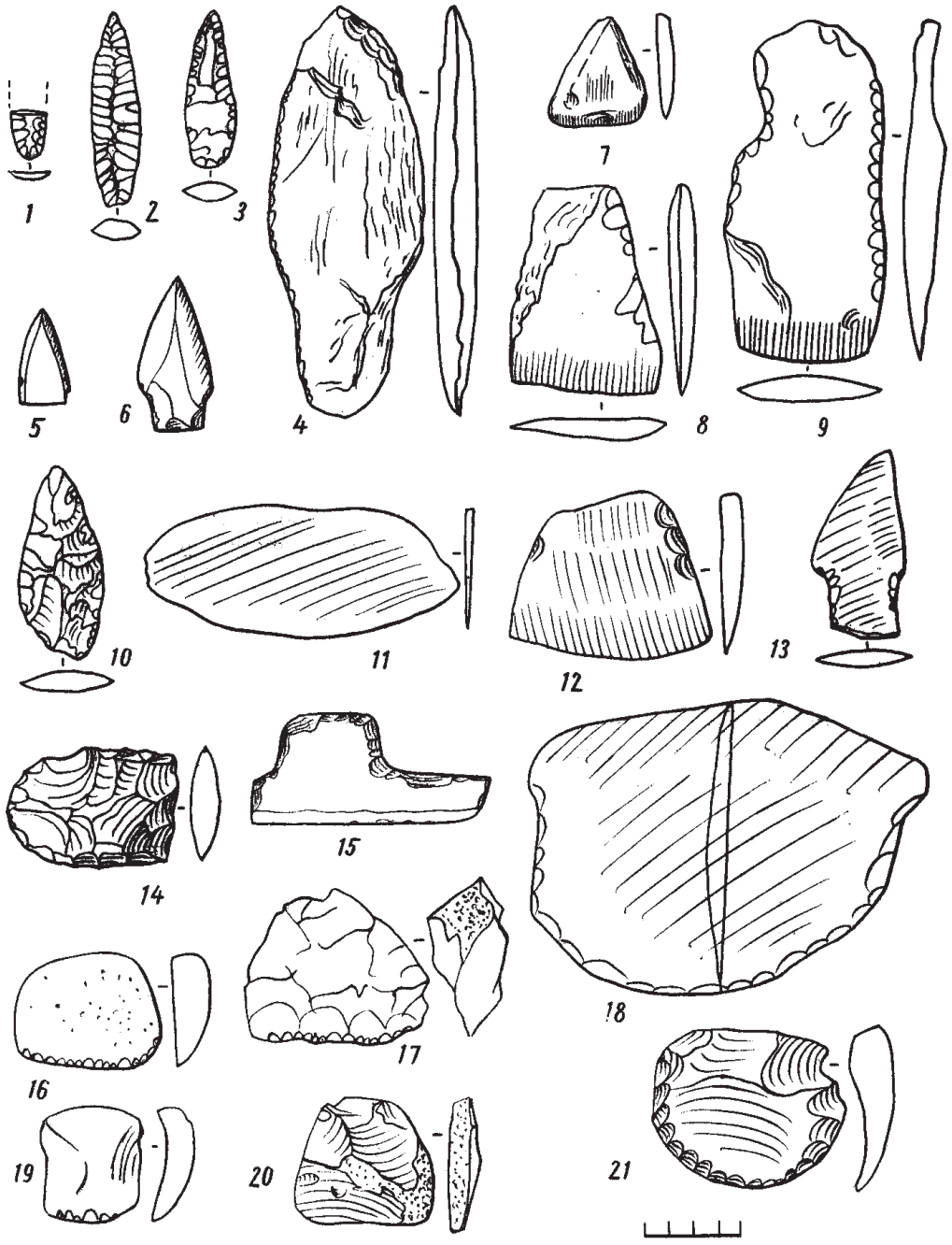

Figure 88. Punuk complex of stone tools. 1, 2, 8, 9, 12, 16–21—Sed'moi Prichal (105); 3, 10, 13—Vankarem (152); 4—Chegitun (129); 11—Chegitun (128); 7—Chegitun (126); 14—Ekichuverveem (125); the remainder after S. I. Rudenko.

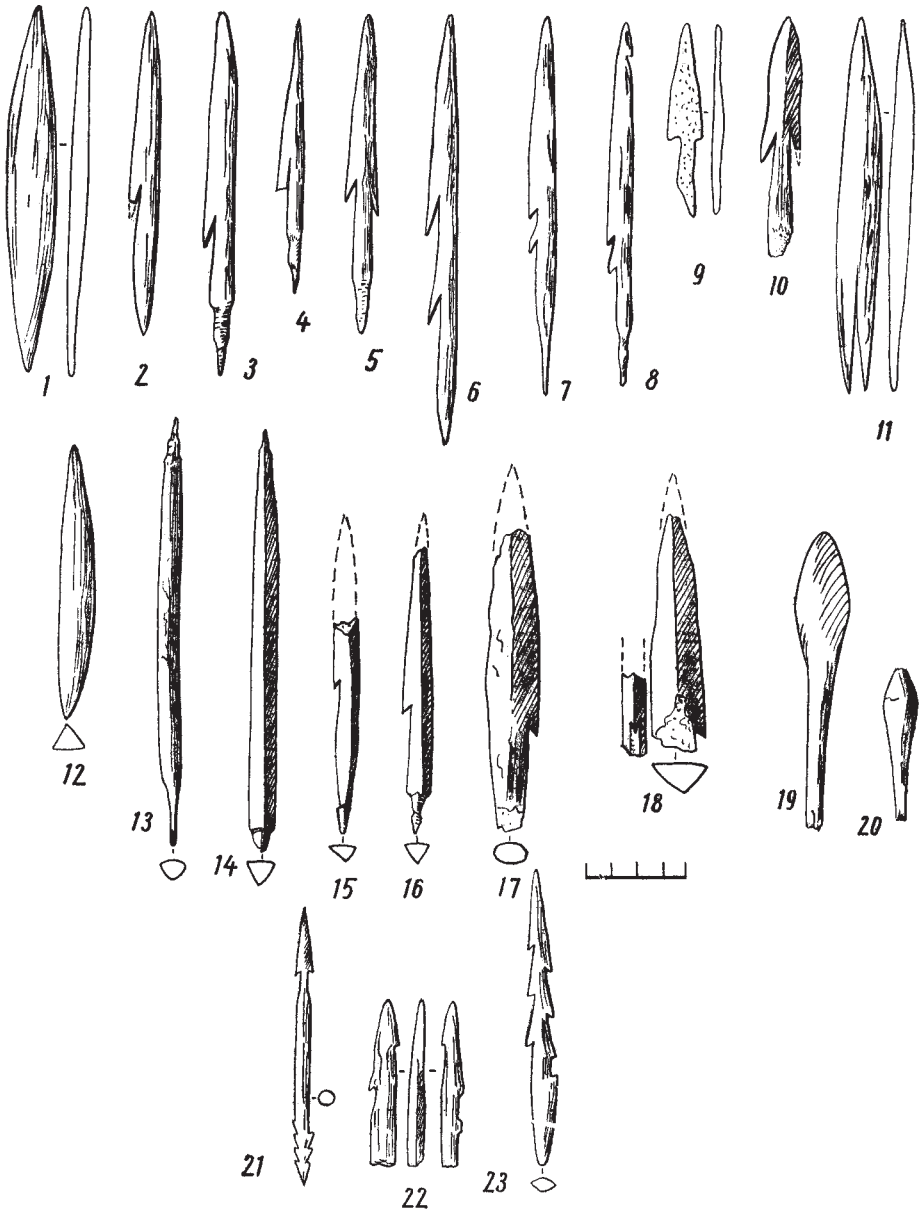

Figure 89. Punuk bone arrow points. 1–8, 11—Chegitun (127–129); 9, 10, 12–18—Sed'moi Prichal (105); 19–23—Sireniki (106).

The bone inventory is more diverse (Figs. 89, 90). In addition to toggling harpoons heads, always with a single hole and open socket (Rudenko 1947:Pl. 19:19, 22), the collection contains the most varied bone arrow points (with bifurcated and rod-like stems, flat leaf-shaped and three-sided, with lateral notches and without, with pointed and blunt ends) (*Ibid.*:Fig. 13:9–11; Pls. 19:19; 21:20); bone knives of walrus tusk with a lateral hole at the base (*Ibid.*:Pl. 33:26, 27); handles for iron and stone burins; picks; rods; sockets for stone adzes; bolas; bone spokeshaves for taking fat off hides;

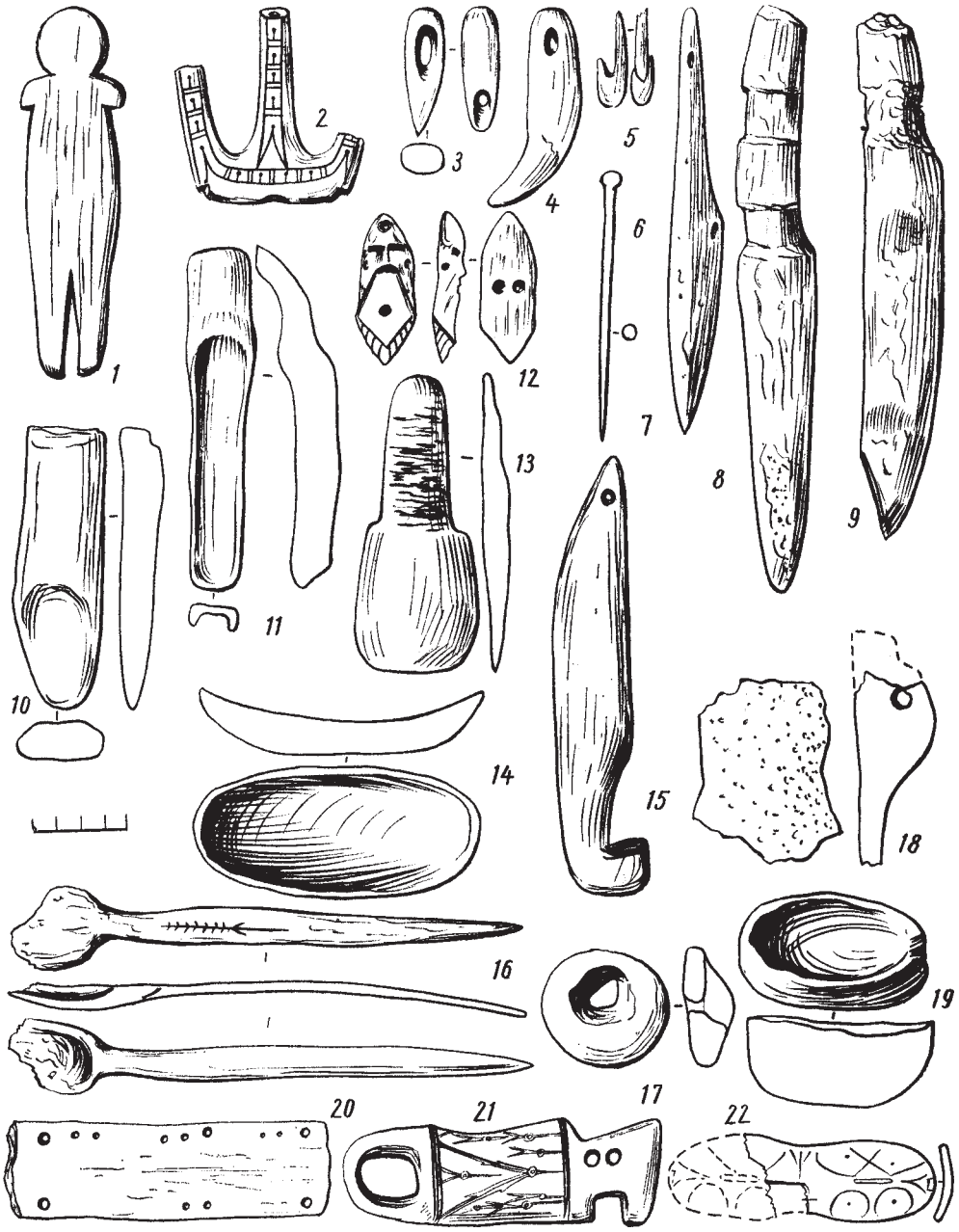

Figure 90. Punuk artifacts. 1, 12—Nuniamo; 7, 16—Sed'moi Prichal; the remainder after S. I. Rudenko; 1, 19—wood; 18—ceramics; the remainder of walrus tusk.

snow glasses; coat-of-mail slats for armor; wrist guards for shooting a bow; traction blocks from a dog harness; and statuettes of humans, whales, bears, and other animals or simply bear teeth with holes drilled in them for suspension (*Ibid.*:Pls. 6:17; 12:19; 16:4; 18:18; 21:5; 16:12, 20; 29:6–17). Thus, significant shifts in the development of transportation (dog harness) and war equipment (armor) can be seen in the bone assemblage. At the same time, the decline of graphic art strikes the eye. The representational style of the art of engraving bone is sharply simplified: patterns of straight

lines and circles with dots within begin to predominate. Typical ritual objects at this time are the rather mysterious tridents (*Ibid.*:Pl. 29:24) that replace the Okvik and Old Bering Sea "winged objects" (Fig. 90:2).

Judging by the list of elements in the Punuk culture cited here, a large part of them, that is, all of Punuk culture, is inherited from Old Bering Sea. In ethnic regard, the archaeological culture being examined is most probably a subsequent synthesis of Eskimo and Chukchi. It can be supposed, though more definite archaeological and especially anthropological evidence is necessary here, that the Punuk culture reflects a deepening of this assimilation of the ancestors of the Eskimos by the ancestors of the Chukchi, which began as long ago as the Old Bering Sea stage. Concerning this and meriting attention is the supposition expressed earlier that the simplification and geometrization of the Punuk representational style are connected with strong influence on the Punuk culture by the culture of interior Paleo-Asiatics of the Chukchi-Koryak group in connection with their transition to reindeer herding (Rudenko 1947:112). This essentially quite probable assumption can, in our view, be made more complete and precise by assigning the beginning of the origin of reindeer herding on the Chukotka tundras during the so-called first little ice age, which advanced after the early medieval climatic optimum and which lasted in its culmination phase from 1550 to 1850 (according to P. M. Borisov 1970:67) or from 1500 to 1800 (according to J. Malaurie 1970:21, 22). According to Borisov, the ice of the small glacial epoch is estimated at 6 points [*bally*] (in the small climatic optimum it was equal to 2 points [*bally*], and its present state is 2 points [*bally*]) (Borisov 1970:67). The maximum thickness of the ice was then two times greater than in the medieval warming (7 m instead of 3.5 m) (Chizhov 1970:74), and the dryness of the air was correspondingly higher.

The Eskimos of northern Greenland (in the Thule region) evolved at this time from a maritime Thule culture to a culture reminiscent of early Dorset with a predominance of hunting musk oxen. It is quite permissible to assume that the necessity of adaptation to new severe conditions, connected with the reduction of possibility of maritime hunting, also prompted the population in Chukotka to search for a solution to economic problems in the tundra, where the cold dryness of the climate creates the most favorable conditions for ungulates. Thus, consistently and further correlating the development of the economy with the development of natural conditions one can evidently arrive at a solution to the most complex problem of the origin of Chukchi reindeer herding, find the specific causes of its origin, specify a date, explain its comparatively later origin, and finally, eventually understand those unexpected changes and influences in the Punuk culture that were discussed above. We set forth this ecological hypothesis of the origin of large-herd reindeer breeding in Chukotka for the first time in 1971 (Dikov 1971b:395–396, 1974c:70, 71). This hypothesis was supported by I. S. Gurvich (1975b) and I. I. Krupnik (1975:28). Krupnik, on the basis of careful analysis of social and ecological factors, concluded that the formation in the Eurasian north of large-herd reindeer breeding "happens to be possible either in the short favorable period of 1570–1650, or (as it turned out) in the more lengthy favorable period of 1720–1830, when a sharp increase in the population of domestic deer actually begins in all regions of the Eurasian tundra" (*Ibid.*:40).

The cooling of the little ice age period and the search for less severe places to occupy evidently explain the clearly reflected western direction of the spread of the Greenland-Canadian Neo-Eskimo Thule culture. The very last Punuk sites and cemeteries of Chukotka attest to the strong influence of this culture. Such sites are Chegitun (119), Ekichuverveem (118), and

Vankarem (141–143), which we investigated in 1963. Others are more southern sites known earlier—as far as the mouth of the Anadyr' River, in particular at Sed'moi Prichal (98)—and the sites investigated by Rudenko at Uelen, Cape Dezhnev, Naukan, Cape Chaplino, Sireniki, Nunlingran, and Enmylen (Rudenko 1947:Pls. 7:19, 21; 19:26; 31:3; 33:13, 14). It is interesting that traces of this influence in the form of toggling harpoon heads typical of the Thule culture are also definitely present on the northern Okhotsk coast, for example at the P'iagino site, excavated by Vasil'evskii,[46] where they could easily have found their way by the shortest route across the narrow neck of northern Kamchatka, bypassing the Kamchatka Peninsula. Comparatively small harpoon heads of the Thule type are found in all the named sites of Chukotka and the northern Okhotsk coast. These have a specific form and are a good indicator of strong cultural influence from the western sector of the North American Arctic. It is very possible that the influence was connected with the strengthening in Chukotka of the ethnic Eskimo component, with the restoration by the Eskimos of their position, partially lost there under pressure of the maritime ancestors of the Chukchi.

At the end of the seventeenth century in Chukotka, according to the calculations of B. O. Dolgikh, about 4,000 Eskimos still lived there who were settled in four tribes, with different dialects (the Vuteen, Ainu, Peek, and Uelen), from Serdtse-Kamen' Mountain near Kresta Bay to Cape Ryrkaipiia (Cape Shmidta) (Dolgikh 1960:554). In accordance with C. Merck (end of the eighteenth century), part of them might have been associated with the Settled Chukchi (*Etnograficheskie materialy* . . ., 1978:98–100).

The Eskimo problem is still far from solved, and in this we agree entirely with Malaurie, who graphically compared the status of its study with an iceberg: the submerged part, that is, the largest, consists of the unstudied issues.

New materials that we have procured in recent years permit us to examine the origin and development of Old Eskimo cultures in Chukotka and their interaction with surrounding cultures somewhat broader and more deeply than was possible formerly. At the same time, they do not give the researcher complete satisfaction. The Eskimo problem is not yet solved. Because of the insufficiency of archaeological and anthropological materials we only have possible directions toward its solution even now. As before, the words of Knut Rasmussen, spoken in 1928, remain valid: "The Eskimos do not resemble any other people in the world . . . The more we know, the more we want to know about them, and each new expedition, successfully attaining new goals, leaves behind a whole series of new unresolved problems" (Rasmussen 1928).[47]

[46]The collection is preserved in the Magadan District Regional Museum.

[47]Rasmussen is cited here by the author, but reference is given in the bibliography.—*Trans.*

The Cultural Complexes of the Lower Anadyr' and Kanchalan Rivers and the Northeast Coastal Areas Adjoining Them

Archaeological sites are known on the lower reaches of the Anadyr' River, near the mouth of the Kanchalan River, on the northern shore of the Anadyr' estuary, and farther to the northeast along the coast of the Bering Sea as far as Cape Nizkii. These evidently do not consist of a single culture, but nevertheless they reveal definite historical interconnections. These are sites and workshops on the Osinovskaia and Krasnenskaia Spits (63, 64, 67–70), the Kanchalan site (189), the site at Sed'moi Prichal (101), and the very recently examined site at Cape Nizkii (Dikov 1978). Judging by the characteristics of their economic lifeway and the geographical location, they reflect a gradual movement toward the sea and a transition from an interior mode of life to a maritime one based on sea mammal hunting. Their ethnic group has not been definitively determined, but they are most probably predominantly Chukchi.

The earliest of these sites is evidently the finds on the Osinovskaia (63, 64) and Krasnenskaia (66–70) gravel spits. Here among a huge quantity of obsidian flakes, skreblos, scrapers, leaf-shaped biface knives, and arrow points are also three-sided blanks that are sometimes simply blanks of prismatic cores, which can be traced back to North Chukotkan three-sided points, as well as occasionally knife-like blades (a total of two pieces) (Dikov 1977b). McNeish (1959:18), as is well known, assigned these—then only partially published finds (Dikov 1958c)—to the Paleolithic. It is difficult to agree with this, since they were collected on spits that originated only in the early Holocene. As was noted above, we have here a case of finds of mixed age, among which are examples of large, broad biface knives, probably traceable to the relict Paleolithic, similar to Akmak in Alaska (Anderson 1970:Fig. 44). On the whole, however, later skreblos and scrapers from massive cobble flakes (often with remnants of cobble cortex) predominate. These are very characteristic for the cultural layer with the pit house on this same Osinovskaia Spit, where they were found together with crude smooth-walled ceramics, a lamp of the Chukchi-Eskimo type (with a longitudinal projection on the bottom for the wick), a leister prong, and a foreshaft from a toggling harpoon (Fig. 91:2, 4, 6, 7, 22–25) (Dikov 1977b:Pls. 90, 91).

The Kanchalan site with its same cobble skreblos and coarse, thick-walled ceramics (with external applied "ears"), as well as with a single-barbed harpoon head and points of picks-mattocks of walrus tusk (Fig. 91:3, 5, 8–21), reveals a definite closeness to the late finds from the Osinovskaia Spit (Dikov 1964; Okladnikov and Naryshkin 1955). Just as in the Osinovskaia cultural layer, bone of wild reindeer predominated here and the economy was therefore complex (hunting, fishing, and sea exploitation). The age of the site, judging by the ceramics, which are clearly of the Punuk type, cannot be older than the end of the first millennium A.D. The clearly expressed similarity of the Kanchalan complex and the Osinovskaia cultural layer permitted us some time ago to unite them in one so-called Kanchalan culture (Dikov 1971a, 1971b, 1974c:66).

A very recently found site of maritime hunters at Cape Nizkii, 120 km northeast of the community of Anadyr', is of special interest and in many ways still enigmatic. Its cultural remains, assigned to the 4 m terrace, turned out to be quite distinctive. A dwelling found there was very unusual for the known maritime cultures of Chukotka, as the excavations indicated. It is represented by a barely distinguishable depression of a pit house in the ground surface more than 10 m in

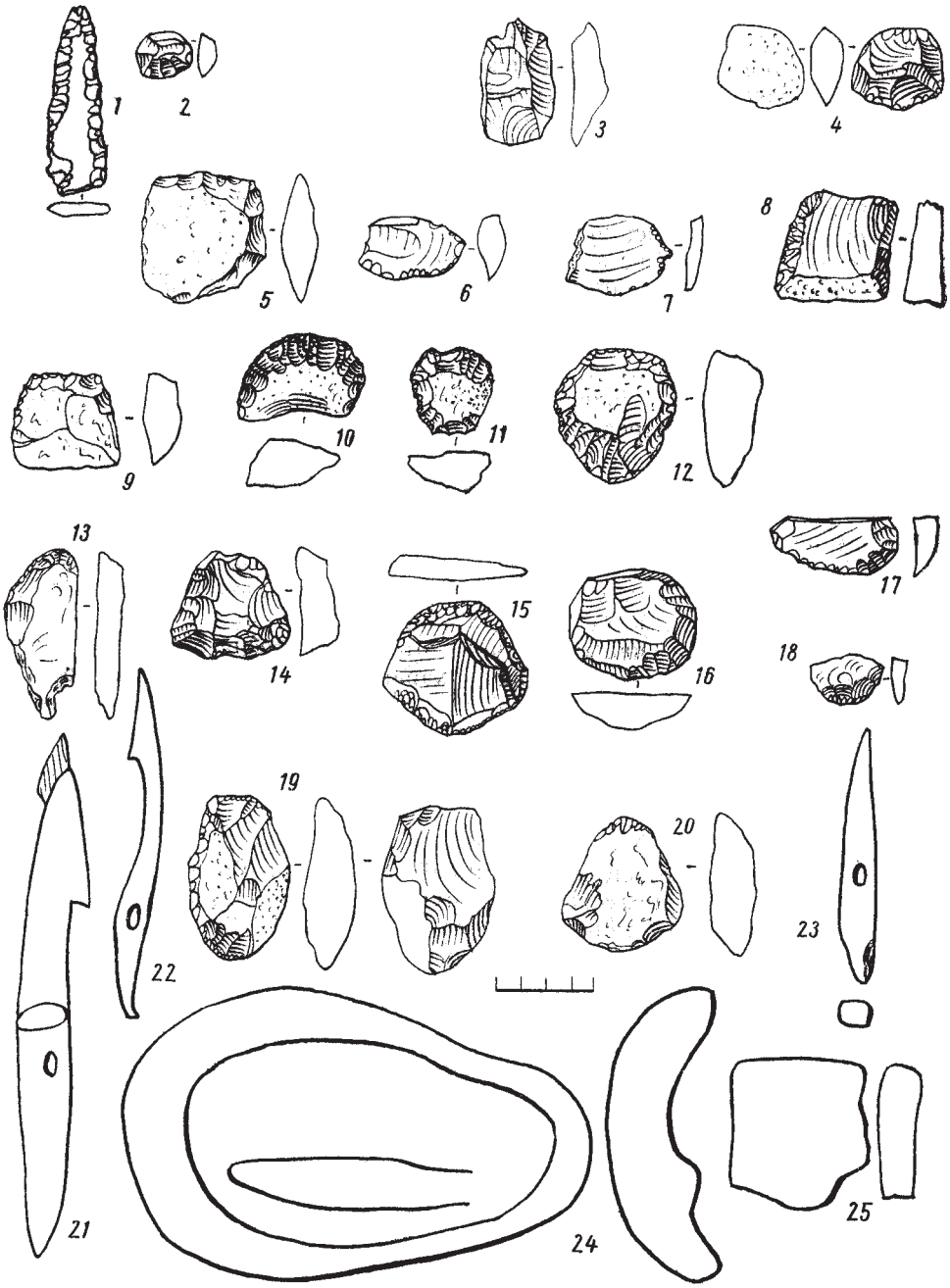

Figure 91. Stone and bone artifacts of the Kanchalan culture. 1–4, 6, 7, 16–18, 22–25—Osinovskaia Spit (64); 5, 9, 14, 15—Kanchalan (189), after T. M. Dikova; 8, 10–13, 19–21—Kanchalan (189), after A. P. Okladnikov and V. V. Naryshkin.

diameter, the floor of which was covered with slabs and boards. Above them a stone hearth had been constructed. The slab enclosure of the hearth was propped up on all four sides by four short logs laid on the floor around the hearth in a rectangular frame. Within the slab frame of the hearth three layers of horizontally laid stone slabs were preserved. These evidently served for separating the hearth from the wooden floor. In the dwelling were many bones, predominantly of sea mammals; shells of bivalve mollusks; various artifacts of bone, wood, and walrus tusk; coarsely flaked scrapers made from cobbles almost of the Kanchalan type; and some small ground slate

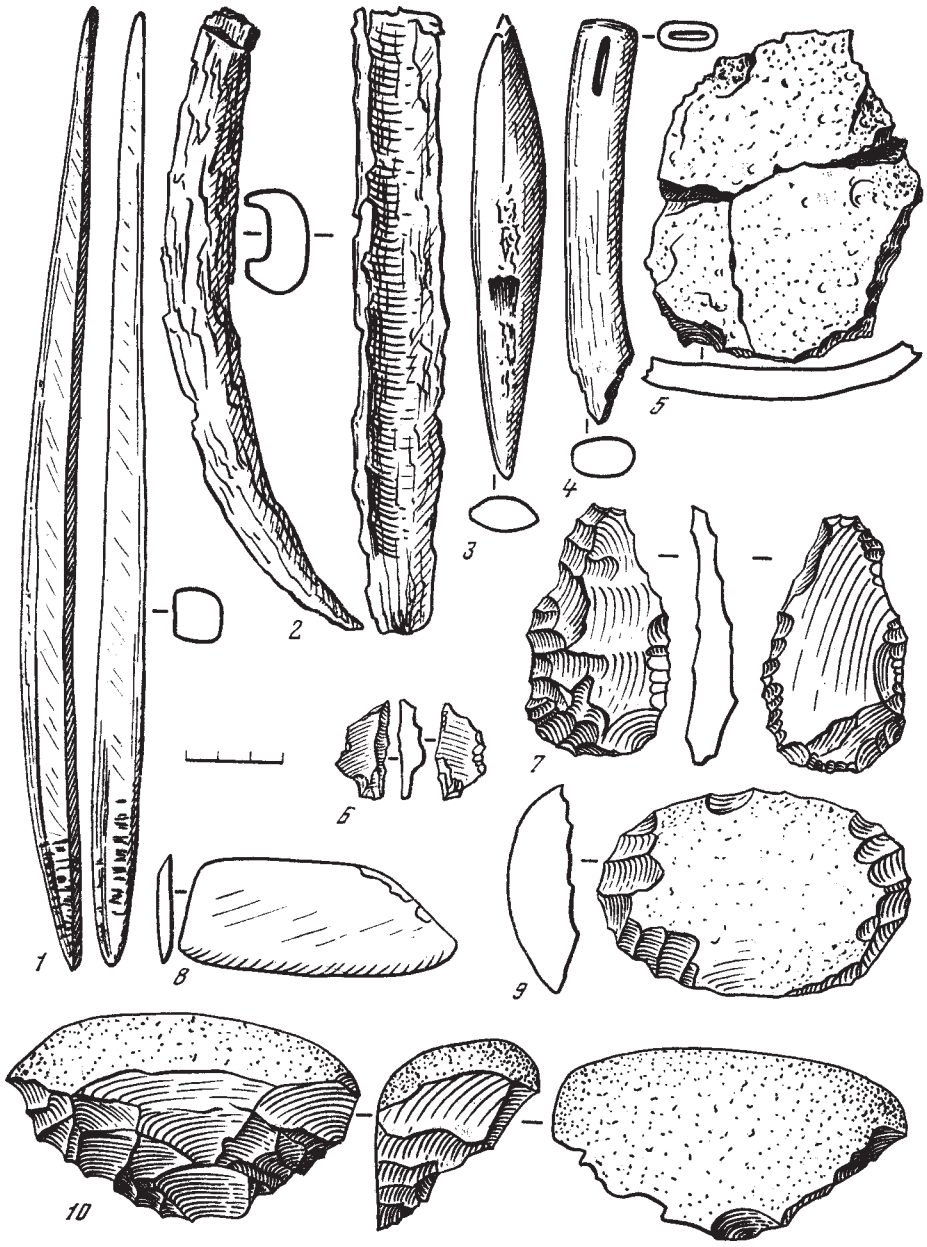

Figure 92. Artifacts from the early house at Cape Nizkii. 1, 3, 4—of bone and walrus tusk; 5—ceramics; 2—wood; 6–10—stone.

knives; as well as fragments of coarse, thick-walled, badly fired clay vessels and the wooden handle of a pressure flaker (Fig. 92). Radiocarbon dates were obtained on charcoal from the hearth in the dwelling and on wood from its floor and collapsed roof: 1605 ± 45 B.P. (MAG–387), 1505 ± 60 B.P. (MAG–389), 1800 ± 50 B.P. (MAG–388), 1880 ± 50 B.P. (MAG–386). A date of 2320 ± 100 B.P. (MAG–391) was obtained on wood from a pit containing bones, excavated to a deeper level than the dwelling. The pit also had small chalcedony flakes and was assigned to a cultural layer earlier than the dwelling.

Here, in a cutbank of the shoreline bluff, at the level of a house floor in 1976, before we conducted our excavations, geologist V. Kichanov found the remains of a human skeleton, including the skull, characterized, according to a preliminary determination by physical

anthropologist A. A. Zubov, as having non-specialized Mongoloid traits and thus sharply different from skulls of the Arctic race (Chukchi, Eskimo, and Koryak). Such an unexpected difference of the skull can probably be explained by it being relict and by its genetic connections to a very early ethnic stratum containing Paleo-Indian features that were characteristic, judging by later anthropological remains, for the large region of the Pacific Coast of Northeast Asia up to Cape Lopatka.[48]

In this connection it must be noted that Okladnikov has long expressed the conviction that the Kanchalan site, which is characterized by some features of genetic closeness with the site at Cape Nizkii (scrapers and ceramics), cannot be assigned to either the Eskimo or the Koryak culture (Okladnikov and Naryshkin 1955). Setting out from this postulate, Vdovin was inclined to consider the Kanchalan site as Old Chukchi,[49] with which we agreed (Dikov 1971a:35). It is interesting that Simchenko in his recent work, accenting the significance of the Old Yukagir stratum, is inclined to consider the Kanchalan settlement as Yukagir (Simchenko 1976:19). With respect to the physical anthropology, it seems to me more probable that both the dwelling at Osinovskaia Spit (more likely containing a Chukchi lamp, not Yukagir) and the Kanchalan site, which is close to it in the construction and character of the stone tools, are more connected with the Chukchi ethnic group. Regarding the earlier site on Cape Nizkii, it might be either Old Chukchi or Old Eskimo. The site at Sed'moi Prichal is rather indeterminate in ethnic association, unfortunately, though there is some basis for considering it Chukchi rather than Eskimo. Well dated by Thule-Punuk harpoon heads and Punuk ceramics with lateral lugs, and having a distinctly clear association to the Arctic race through its physical anthropological remains, this site is connected with the Osinovskaia and Kanchalan sites by having common stone-working technologies (identical scrapers and skreblos on cobble flakes) and, evidently, identical ceramics. The predominance at the Sed'moi Prichal site of split bone of wild reindeer is very characteristic, which also connects it with the named sites. At the same time, the bone industry and working of walrus tusk reaches a higher development here.

Thus, on the sea coast of Chukotka, bordering the mouth of the Anadyr' River on the northeast, from the middle or end of the first millennium A.D., a complex economy was developed, a rather complete representation of which is provided by the Kanchalan site and the site at Ced'moi Prichal. They are characterized by a wealth of split bone of deer and sea mammals—an obvious sign that the economy still had not succeeded in becoming as specialized as among the Coastal Chukchi of later times. Evidently, these two maritime sites belonged to people of the tundra, probably Chukchi, who went only gradually, and probably at the time still sporadically, to the sea, who began to abandon their remote sites on the spits of the Anadyr' River and at the deer crossings on the rivers for the sake of settling, like the Eskimos, on the sea coast in order to adapt to this new mode of life as sea mammal hunters.

If they really were the Chukchi, then this theory would conform well with historical sources on the settlement of the Chukchi in the seventeenth century, according to which the southeastern group of Chukchi, south of Kresta Bay, inhabited only the lower reaches of the Anadyr' River and the mouth of the Kanchalan River (Ogorodnikov 1922:270).

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[48]A. A. Zubov, who graciously acquainted himself with the anthropological remains of the northwestern Bering Sea and Cape Lopatka, arrived at this preliminary conclusion.

[49]Istoriia Dal'nego Vostoka [The History of the Far East], bk. 3 (draft), 1976, p. 110. (This citation does not appear in the reference section—*Trans.*)

The Anadyr'-Main (Vakarevo) Culture

In some inner regions of Chukotka during the Remnant Iron Age the former way of traditional life of deer hunters and fishermen was stable. At least this is the way the descendants of the early tribes of the tundra, the Yukagir, and on mainland North America, the Caribou Eskimo, still lived in the nineteenth–twentieth centuries.

A more definite picture of the life of the population of Chukotka of this time is given by sites found in the Anadyr' River valley and along the Main River: Vakernaia (53), lower Ust'-Belaia (56), Ust'-Mainskaia on the left bank (54-a), and Chikaevo (74). They are all located on spits. The last, however, is located on an 8–12 m terrace above a spit.

The first two of them (53, 56) are unmixed and, as was indicated above, may serve to delineate the culture being examined.

In the mixed sites of this culture were ground stone axes, "flaking adzes," retouched and ground knives (III–7; VIII–25), leaf-shaped arrow points, scrapers (VII–16, VIII–14, and others), and numerous flakes (Fig. 93). The ceramics here were represented by round-bottomed vessels, smooth-walled or with a rich design of rectangular-pectinate stamp (Fig. 94), similar to decorations characteristic of the late culture of the Bronze Age in Yakutia (Okladnikov 1955a).

In the cultural layer of the early site, located on a low bank at Ust'-Belaia (56), the richness is striking, demonstrating the almost absolute predominance of bone as the material for the preparation of tools and weapons (Figs. 95, 96), which is very characteristic for the Yukagir (*Narody Sibiri*, 1956:891). These included principally bone adzes (Fig. 96:5, 9), mattocks (Fig. 96:1, 10), knives specially adapted for cutting up fish (Fig. 96:2), and broad blade-like needles with an eye, destined for piercing and stringing caught fish (Fig. 96:3). With the aid of such a clever device the fisherman could have easily borne his heavy catch.

The excavations of the Chikaevo site provided especially plentiful material, though unfortunately mixed. Its rather thick cultural layer enclosed a multitude of artifacts of stone and bone, including flaking adzes (Dikov 1977b:Pls. 105, 106). Some iron things were found there also: steel for kindling fire and leister prongs (Fig. 96:6, 7).

For dating the Anadyr'-Main culture, the so-called flaking adzes (Fig. 93:10) have decisive significance. It has already been noted that such stone adzes, rounded in cross section with a conical pointed end and a girdle in relief for attachment to a handle, were distributed not only in Chukotka but both in Alaska and in the Okhotsk region (De Laguna et al. 1964:Pl. 5; McNeish 1964:Fig. 95:11).[50] In the Okhotsk region they were found by V. E. Lipovskii in 1950 in Old Koryak pit houses at Cape Trekh Brat'ev,[51] later assigned by Vasil'evskii to the Atargan stage (Vasil'evskii 1966). Accompanying them are very distinctive bone knives with two holes for attachment to a handle. We excavated similar knives, together with toggling harpoons heads of the Thule type, at the Sed'moi Prichal site (98) on the north shore of the Anadyr' estuary. With the aid of these harpoon heads the date of "the culture of the flaking adzes" in Chukotka can be determined. They are certainly related to one of the types of Thule-Punuk culture. The latter is assigned approximately to the tenth–fifteenth centuries A.D., which conforms well chronologically with the presence of these artifacts in

[50]In the Magadan District Regional Museum there is a flaking adze from the site of Atargan (see Vasil'evskii 1964b:Fig. 3).
[51]V. E. Lipovskii's report on excavations on the Okhotsk coast (preserved in the Magadan Regional Museum).

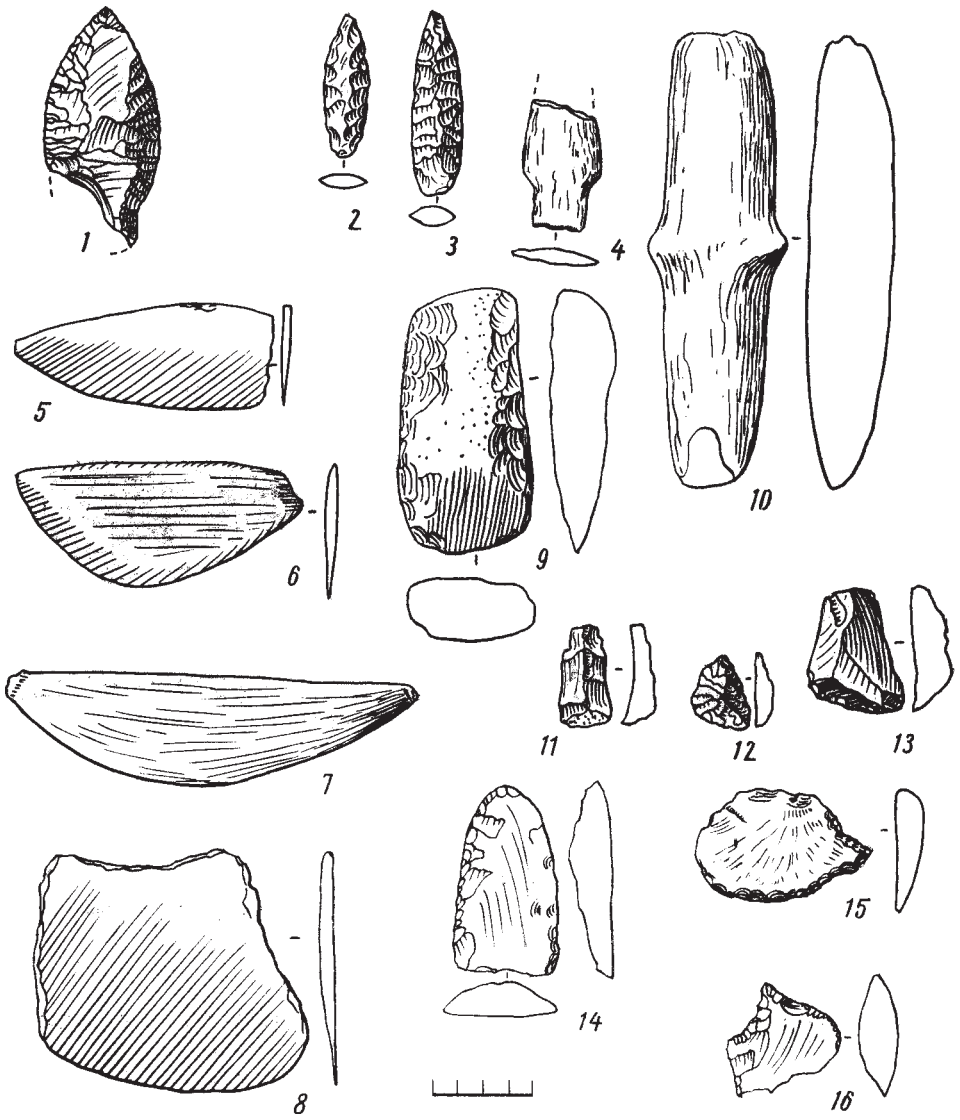

Figure 93. Stone artifacts of the Vakarevo culture. 1, 4, 6, 7, 9, 14–16—Vakarevo site (53), after A. P. Okladnikov and I. A. Nekrasov; 2, 3, 5, 8, 10–13—Ust'-Belaia (lower) site (56).

the Atargan culture of the thirteenth century A.D. and to a certain extent determines their age in Chukotka. A radiocarbon date on charcoal from the Vakarevo cultural layer of 500 ± 50 B.P. (LE–674) restricts the date to being toward the very end of the Atargan and Thule-Punuk stages. Thus, the Anadyr'-Main culture should generally be assigned to the middle of the second millennium A.D.

The Punuk look (see Fig. 89) of some bone arrow points, three-sided with a stemmed base (Fig. 95:16–19) and flattened two-barbed or one-barbed with the same kind of base (Fig. 95:12, 13), corroborates such a date, just as some bilaterally barbed flat-stemmed points (Fig. 95:6, 7) are similar to Atargan ones (Fig. 101:14). In general it must be said that with the Koryak, and even more so with the Kerek, points (excepting two, see Fig. 95:21, 28), similarity is found in an

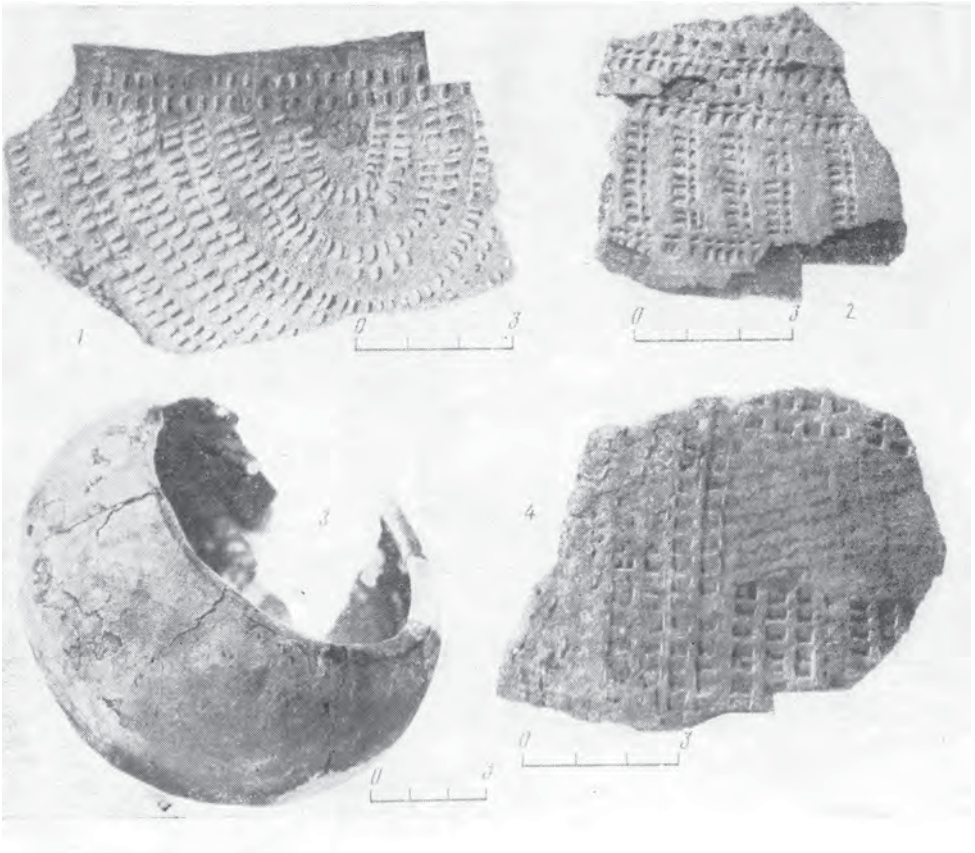

Figure 94. Ceramics of the Vakarevo culture. 1—Ust'-Main (54-a); 2, 4—Vakarevo (53); 3—Ust'-Belaia (lower) site (56).

incomparably smaller number of bone points in this culture. The very distinctive points here are few (Fig. 95:22, 27).

All these numerous arrow points and the wealth of split deer bone in the cultural layers of the Anadyr'-Main sites being examined affirm that their inhabitants occupied themselves a great deal with hunting on land. But they occupied themselves even more with fishing. Their heavy flaking adzes are very convenient for primary work on tree trunks, for flaking them into boards. With the aid of these tools they, like the Tlingit (De Laguna et al. 1964:90–92), were able to prepare tree trunks for the subsequent making of boats, so necessary for fishing in the tundra-forest zone—which is what the Yukagir were doing. Set in a longer handle these stone adzes could also serve as a weapon similar to the Tlingit tomahawk and to "axes seated on long handles," which were employed by the Yukagir-Anaul (Stepanov 1937:220).

Ground slate knives (VIII–25) from the Vakernaia site, in A. P. Okladnikov's opinion, are, by their form, also precise prototypes of the most recent Yukagir knives (Okladnikov and Nekrasov 1960). It is interesting that one of the burial grounds that we found near Markovo can probably be viewed as being associated with this culture. It is located on a hill that is named Yukagirskaia Sopka (71).

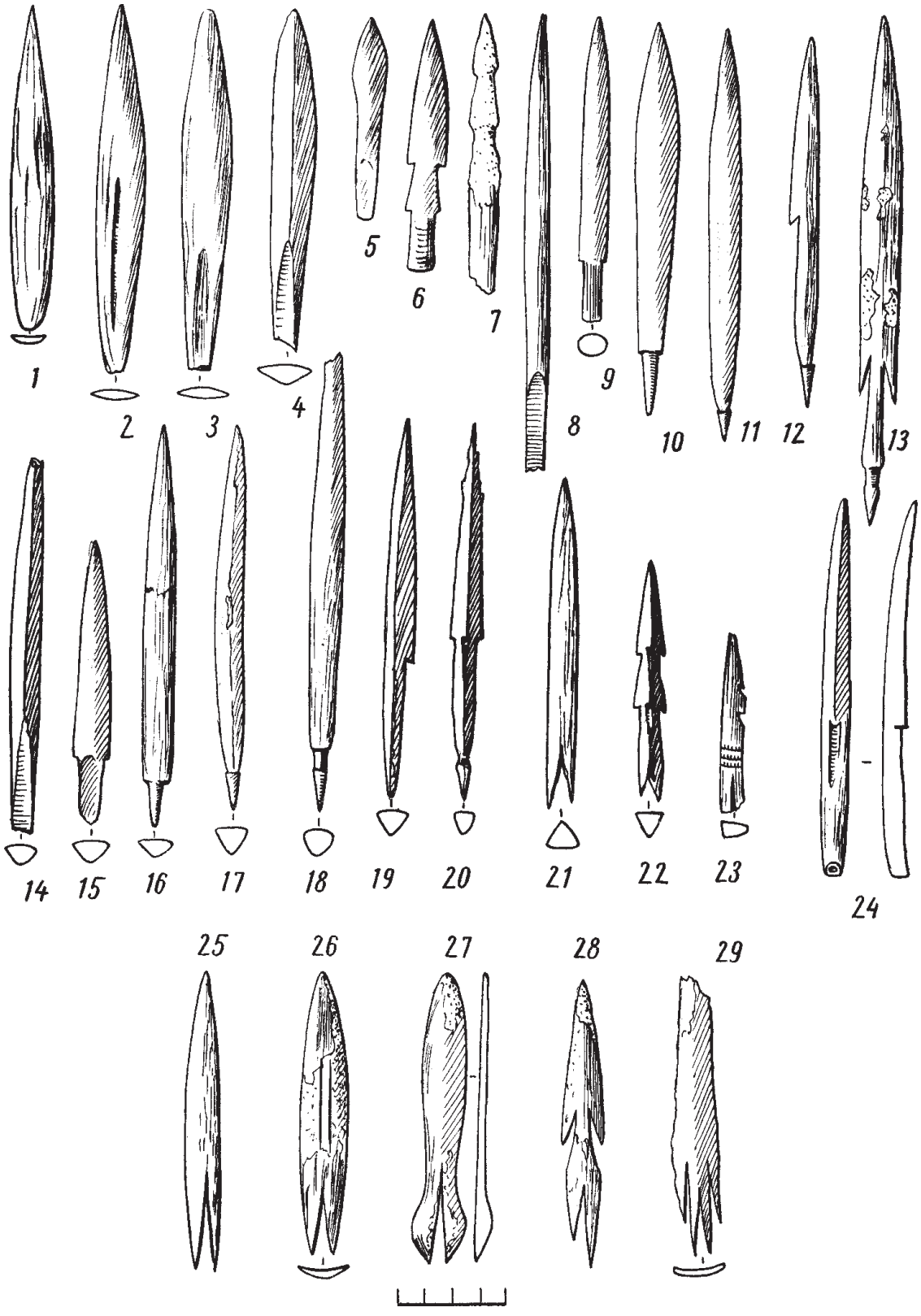

Figure 95. Bone arrow points of the Vakarevo culture. 1–3, 5–11, 13, 15, 16, 18, 21–23, 25–29—Ust'-Belaia (lower) site (56); 4, 12, 14, 17, 19, 20, 24—Yukagirskaia Sopka (71).

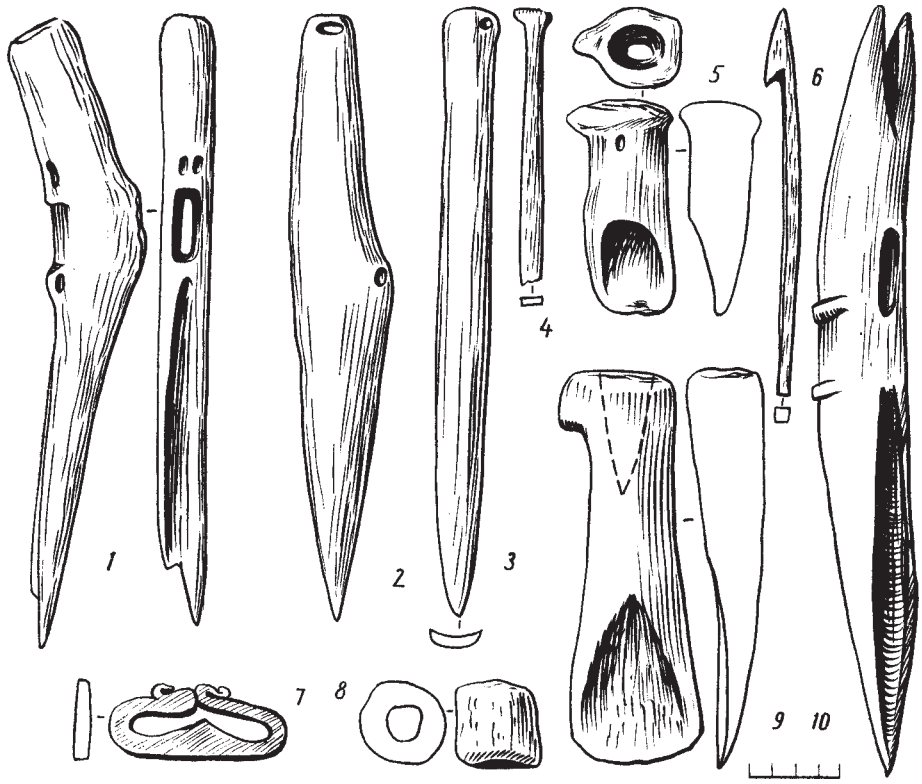

Figure 96. Bone (1–5, 8–10) and iron (6, 7) tools of the Vakarevo culture. 1–5, 8–10—Ust'-Belaia (lower) site (56); 6, 7—Chikaevo (74).

It is very probable that the early Yukagir lived in the sites of the original culture. They appeared in the basin of the Anadyr' and Main Rivers at this time, taking everything into account, for the first time wedging themselves between the Chukchi and the Koryak, having driven them into the northeastern and northwestern regions of Chukotka, where Russian explorers encountered them in the seventeenth century. This hypothesis (Dikov 1964a, 1964b:22), which we proposed as long ago as 1964, is emphasized at present by Vdovin (1973:257, 1972). Following E. A. Kreinovich (1958:245–246) and S. V. Ivanov (1954:531), he stresses the isolation of the Yukagir in relation to the northeastern Paleo-Asiatics in language, art, and, in particular, in that only among them, in distinction from the Chukchi, Koryak, and other peoples of the Northeast, a special pictographic writing was developed.

The Anadyr' Yukagir, later assimilated by the Koryak, were, in Vdovin's opinion, transformed into the Chuvan people (Vdovin 1973:269, 270). The fact cannot be excluded that the Anadyr'-Main archaeological culture with its quite noticeable Koryak elements (flaking adzes, bone knives, arrow points, and ceramics) marks the beginning of this assimilation.

However, another hypothesis is possible. The Vakarevo culture might be Koryak, which was exposed to the influence of Yukagir culture, which at this time had pushed from the west into the valley of the Anadyr' River, settling its spits as far as the mouth.

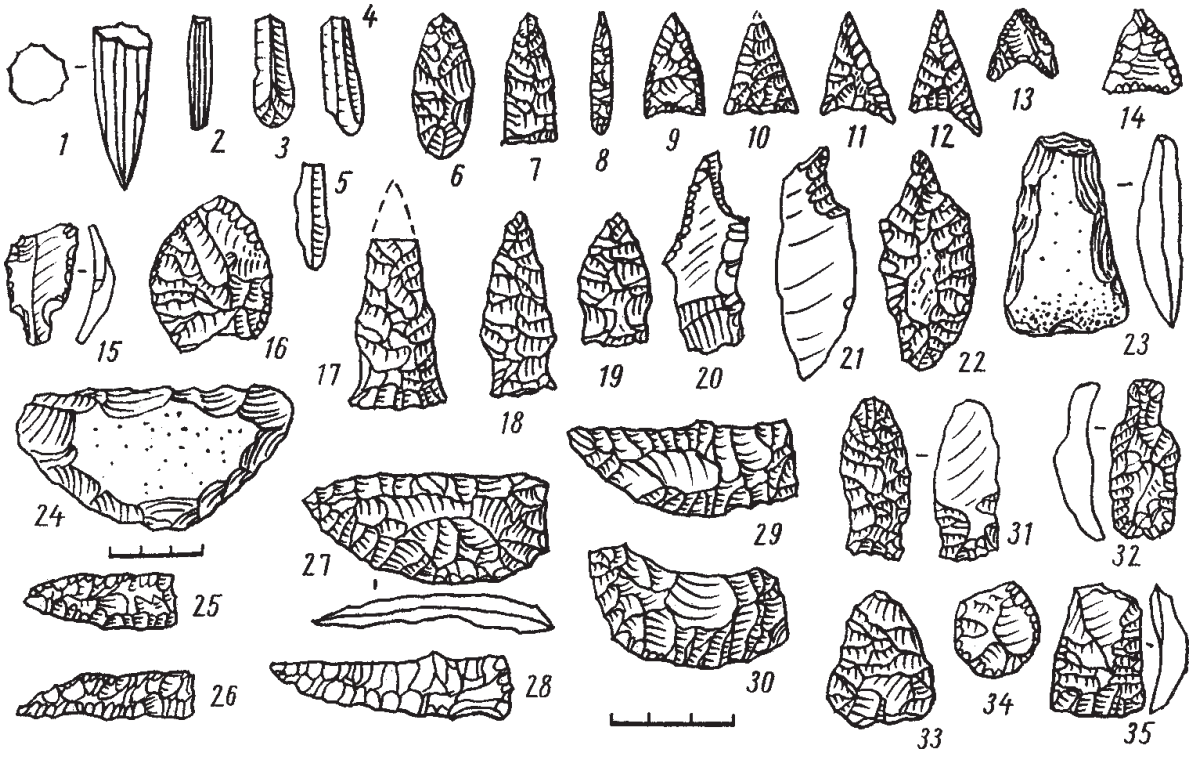

Figure 97. Neolithic stone artifacts from Kavran and Ust'-Palana (1–34). 1, 2—Kavran; the remainder—Ust'-Palana, after A. V. Semenov.

The Old Koryak Culture

Since this culture has been examined in recent times by Vasil'evskii, who published a special work about it, we will confine ourselves to its most general characteristics, devoting primary attention to interpretational conclusions, and for the details we direct the reader to the book of the indicated author (Vasil'evskii 1971).

According to Vasil'evskii, the region of the Old Koryak culture extended from Largab'en Ravine, opposite Nedorazumeniia Island (in the present region of Magadan), to the Kavran River on the western shore of Kamchatka and, crossing to its eastern shore, reached the Anadyr' River in the north and the Uka River in the south (*Ibid.*:48).

Vasil'evskii isolated several stages of development of pre-Koryak and Old Koryak culture on the northern Okhotsk coast on the basis of excavated materials that he procured there.

To the first two stages, belonging to the Neolithic period, he ascribed as synchronic to the north Kamchatka Ust'-Palana complex (Fig. 97) the sites on Nedorazumeniia Island (387, Fig. 98) and Oiru (388), having dated them to the second millennium B.C., as well as the Upper site on Zav'ialova Island (381, Fig. 99), which belongs, he suggests, to the first millennium B.C.

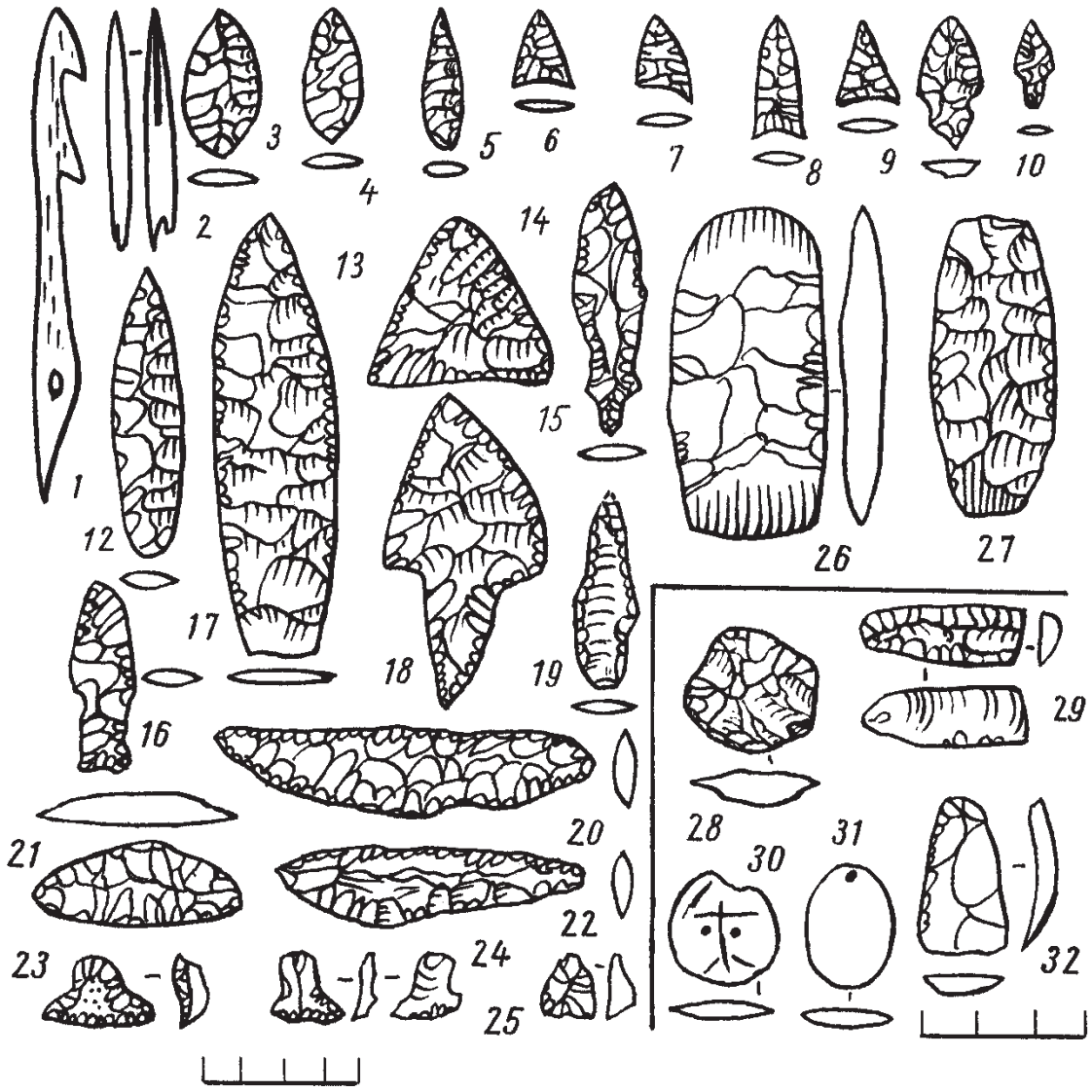

Figure 98. Bone and stone artifacts from the site on Nedorazumeniia Island.

The following five stages are characterized by sites with semisubterranean dwellings. These, according to Vasil'evskii, make up Old Koryak history proper of the Remnant Neolithic and Iron Age. They are distinguished by the arrangement of sites and dwellings, by the types of bone objects, and in particular by the heads of toggling and non-toggling harpoons, as well as by the look of the stone tools and ceramics. Since Vasil'evskii does not give summaries of the artifact assemblages in these stages, we did this ourselves on the basis of his illustrations of some of the sites. These complexes, by stages (Figs. 100–102), help to more graphically represent the stages of Old Koryak culture outlined by Vasil'evskii. We enumerate them here with indications of the sites assigned to them by Vasil'evskii:

Zav'ialova stage (500–800 A.D.)—the sites of Orochan (374) and one on the terrace of the left bank of Rassvet Bay on Zav'ialova Island (382).

Bogurchan stage (approximately 1000 A.D.)—the sites of Bogurchan (378), Nargab'en (375), and Naidenov Bay (379).

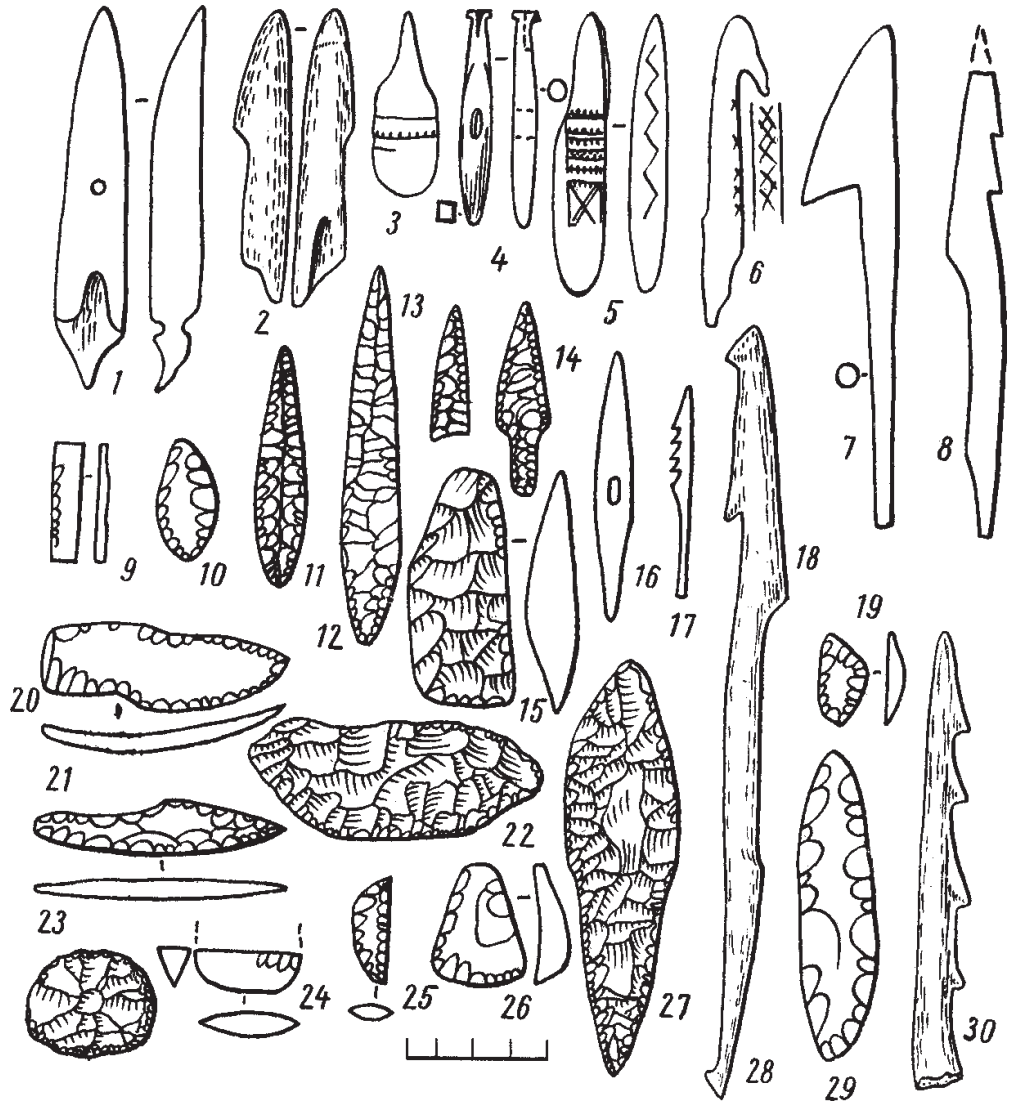

Figure 99. Bone and stone artifacts from the upper site on Zav'ialova Island (1–30).

Atargan stage (tenth–thirteenth centuries A.D.)—the sites of Atargan (380), one on the terrace of the right bank of Rassvet Bay (382), Cape Trekh Brat'ev (369), the cape of Astronomicheskaia Bay (367), Astronomicheskaia Bay (368), Cape Alevina (377), Avara (376), Sivuch (372), and Naiakhan (354).

Lengel'val' stage (thirteenth–fifteenth centuries A.D.)—Sredniaia Bay (365), some of the dwellings at Siglan (373), Nantandzha (366), Kip-Kich (364), Itkilan (363), Varganchik (361), Bokidzhakchan (371), Kushka (356), Impoveem (351), Nerivdan (370), Kulka (328), and Kavran (323).[52]

Sites of the fifteenth–seventeenth centuries A.D.—Cape Travianoi (359), some of the dwellings in Siglan (373), and on the lower terrace in Sredniaia Bay (365).

[52]Items from the Kulka and Kavran sites are not included in Figures 100–102.

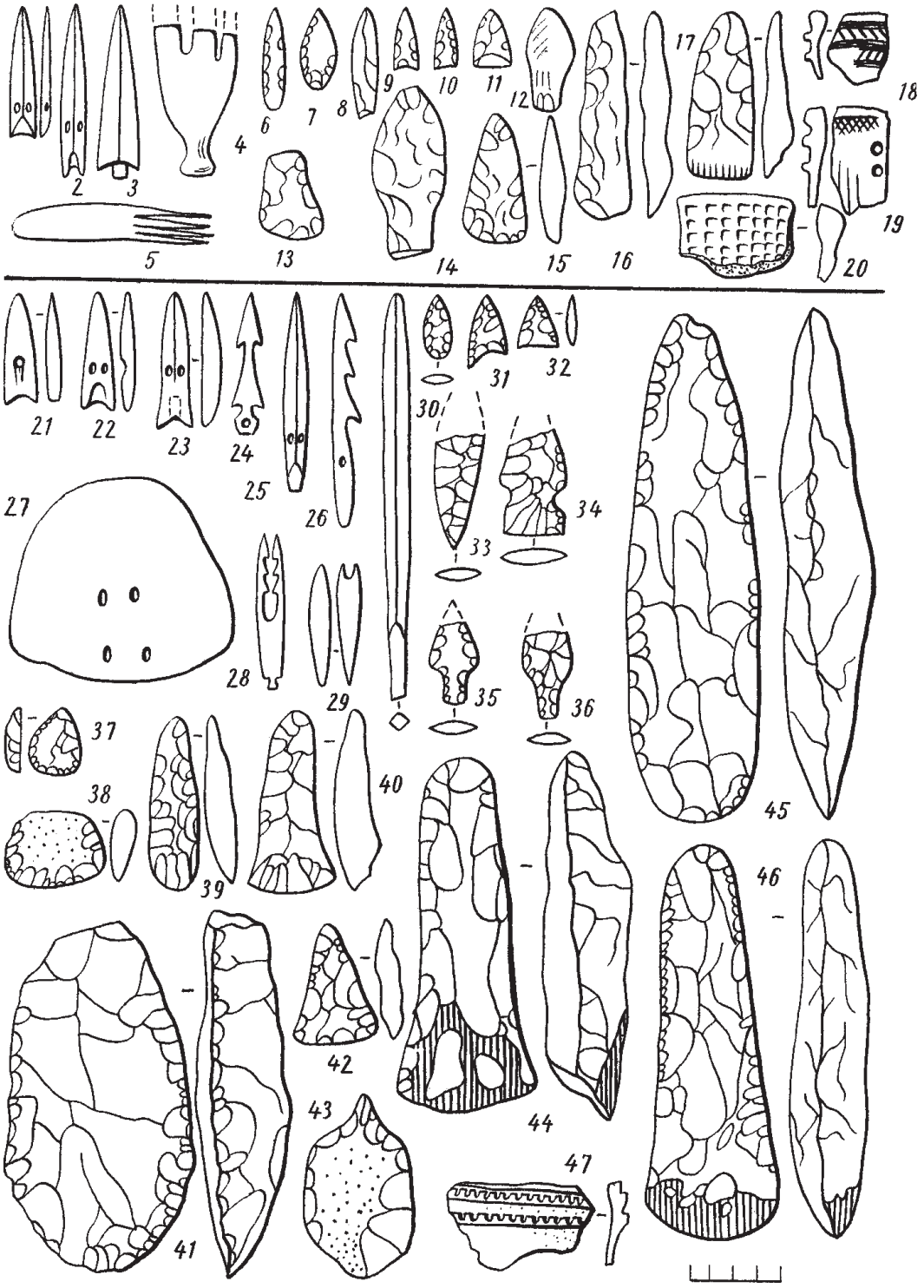

Figure 100. Stone and bone artifacts and ceramics of the Old Koryak culture. Lower section (21–47)—Zav'ialova stage; upper section (1–20)—Bogurchan stage.

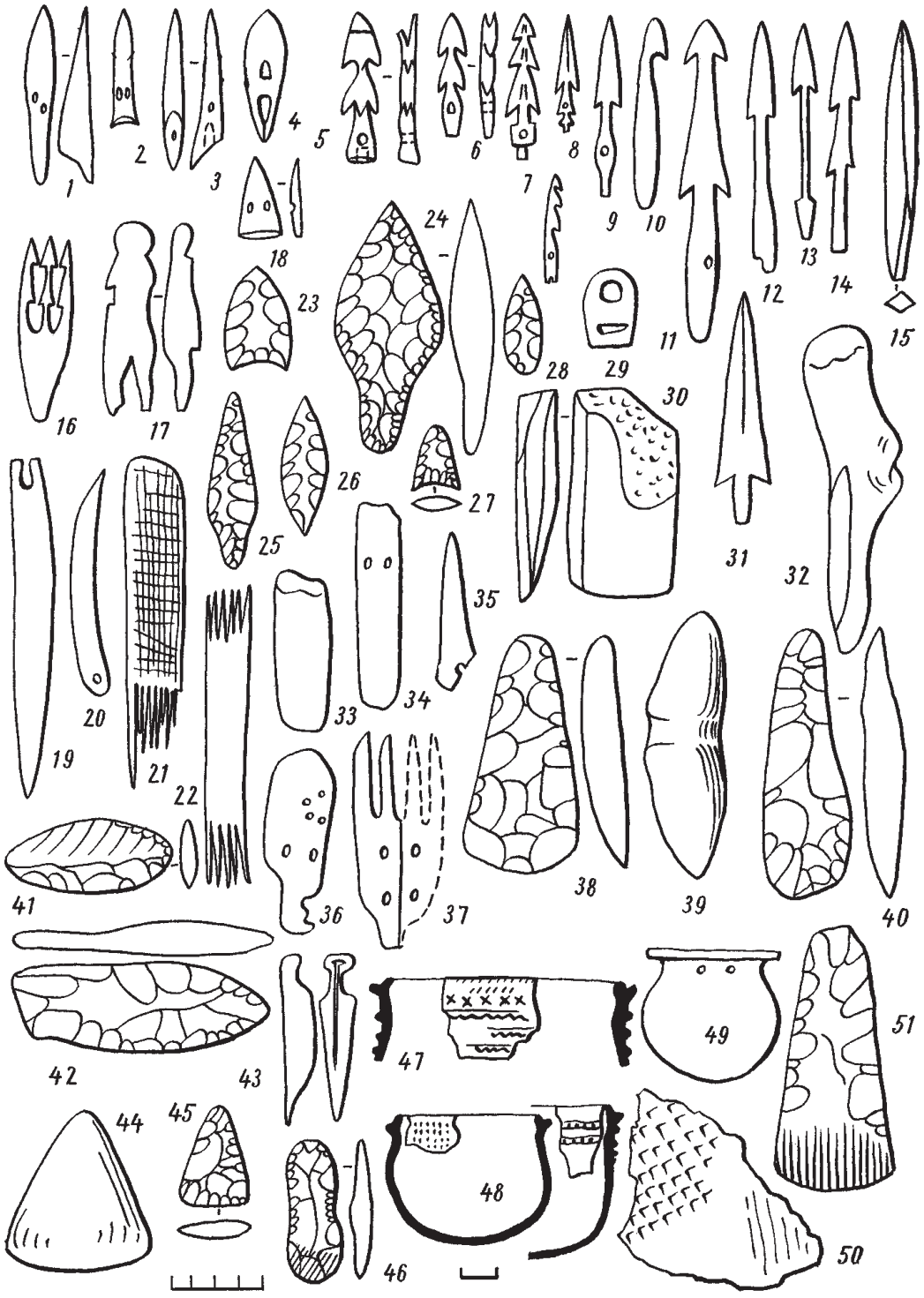

Figure 101. Bone and stone artifacts and ceramics of the Atargan stage of the Old Koryak culture (1–50).

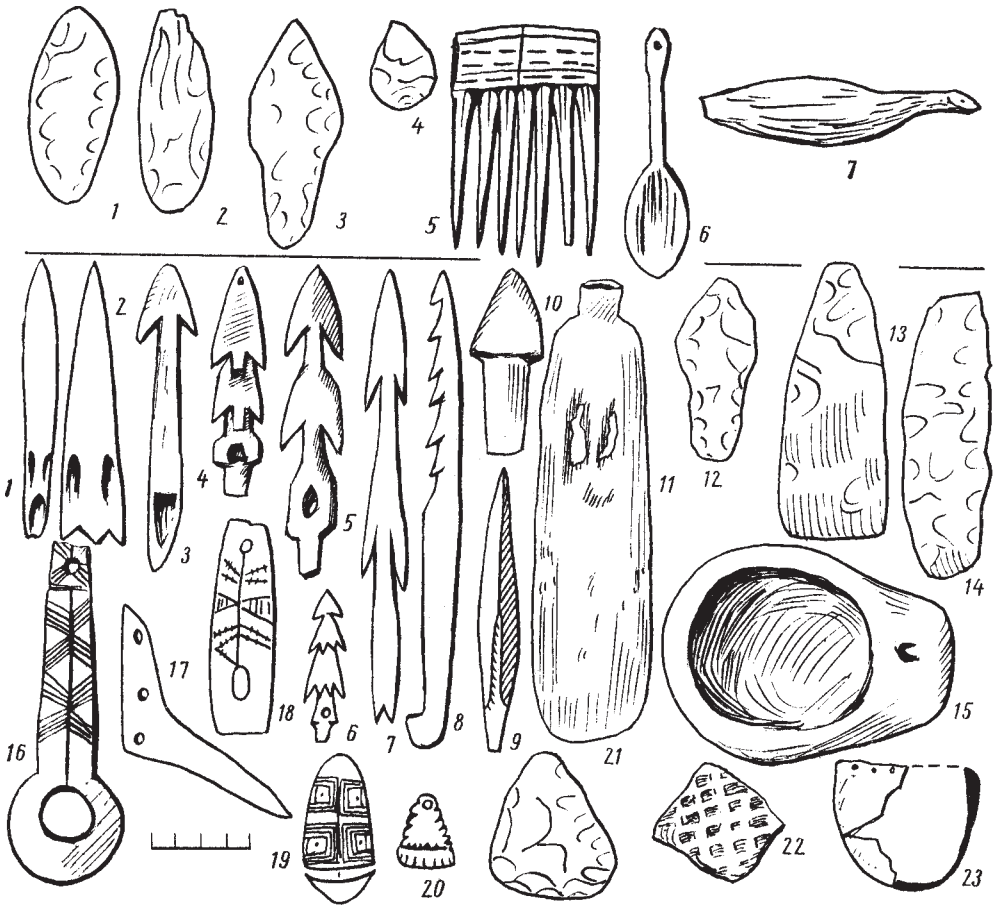

Figure 102. Bone, stone, and ceramic artifacts of the Old Koryak culture. Lower section (1–23)—Lengel'val' stage; upper section (1–7)—sites of the sixteenth century.

There are still more than 20 Old Koryak sites known in the eastern part of the Old Koryak area, which (except for Kulka and Kavran) are not mentioned by Vasil'evskii in this chronology.

Many of them were discovered on the western coast of Penzhina Bay and on the Okhotsk coast of Kamchatka by Jochelson (Kulka—328, Kavran—323), A. V. Semenov (Lyvat—344, Kamenka—342, Mikino—347, Anadyrka—334, Palana—332, Ornochiki—345, Ol'khovka—346), V. I. Ruban (Ust'-Kavran right—324) and by us (at the mouth of the Penzhina River on Cape Zelenyi—47 and Cape Bol'shoi—49). Also an early Koryak site is known at Pervorechensk (343), as well as at the mouth of the Penzhina River, discovered by V. P. Pokhialainen, and at Rekiniki (340), discovered by V. I. Zaiarnov. The basic types of stone artifacts from these sites are represented in a table (Fig. 103) that we created based on unpublished materials, as well as on the first published complex of stone and bone items from Rekiniki (Fig. 104),[53] probably related to the Atargan stage.

In the summarized complex of stone artifacts from the western Kamchatkan Old Koryak sites of Kulka (328), Kavran (323), Pervorechensk (343), Manily (49), Cape Zelenyi (47), and Cape

[53]Stored at the Kamchatka District Regional Museum.

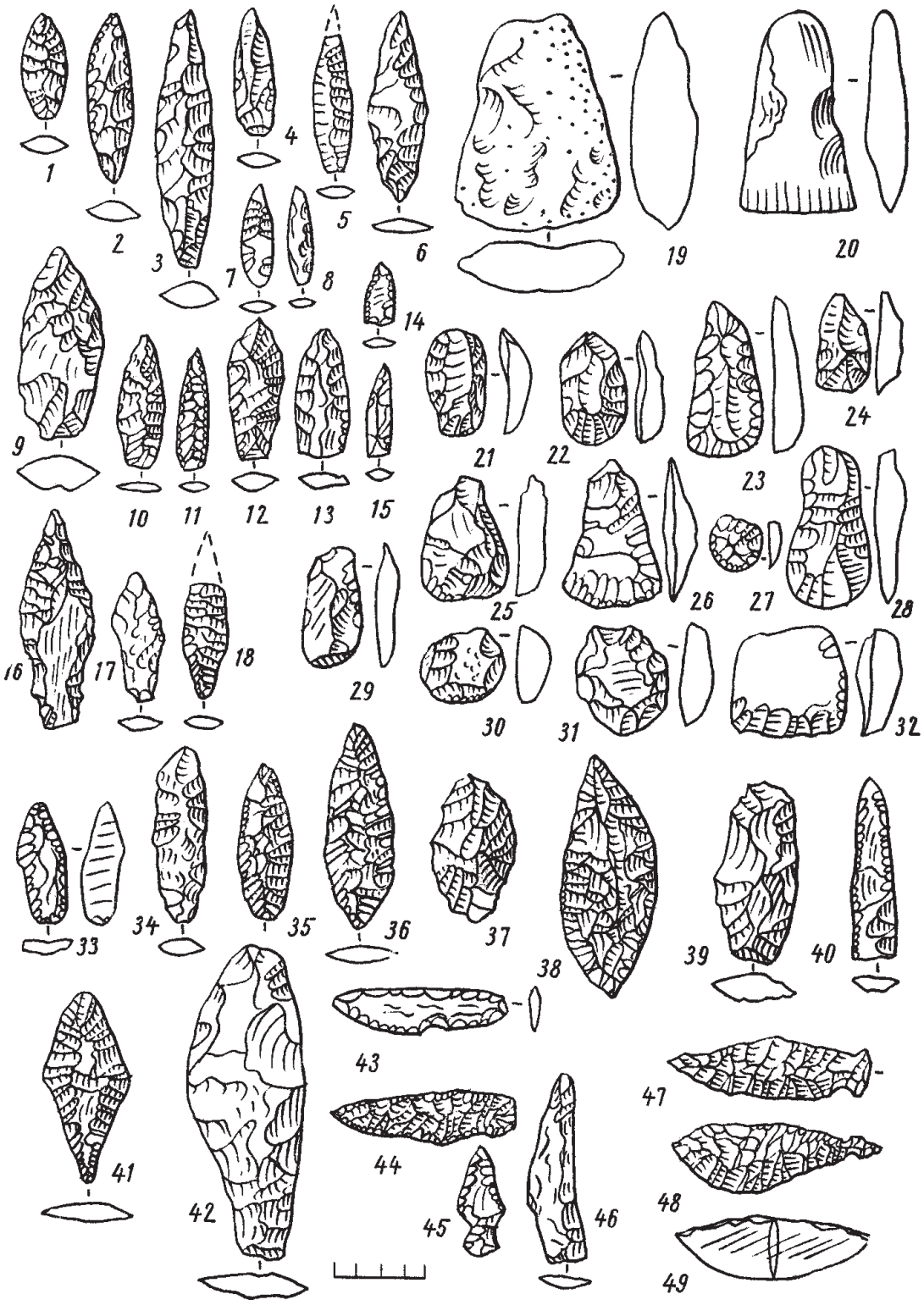

Figure 103. Complex of stone artifacts of the Old Koryak culture from the northwest coast of Kamchatka. 1, 3–5, 9, 18, 19, 29, 32, 39, 40—Manily (49); 2, 6, 10, 34, 42, 46—Pervorechensk (343); Cape Bol'shoi (46); 14, 15, 25—Cape Zelenyi (47); 7, 8, 12, 13, 17, 20–23, 24, 26, 28, 30, 33, 36, 37, 43–45, 48, 49—Kavran (323); 10, 16, 27, 31, 35, 38, 41, 47—Kulka (328).

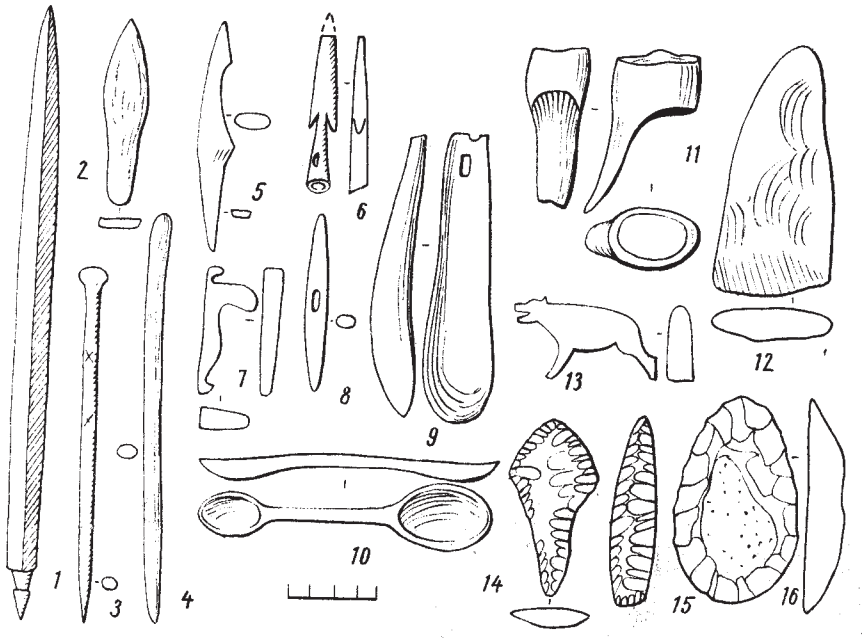

Figure 104. Old Koryak bone artifacts from Rekiniki (340) on the northwest coast of Kamchatka (1–16).

Bol'shoi (48) are large trapezoidal axes and adzes (I–3, III–6) and smaller ones (IV–8, VI–3); leaf-shaped projectile points (I–1a, 1b, 1c, 3b, 3c, 4a, 9b), truncated leaf-shaped points (II–1a, 1b, 1c, 3b, 4a, 4b), and stemmed points (VIII–9, X–3, VIII–22—with constricted neck); leaf-shaped, stemless biface knives (II–2, 3, 4), stemmed knives with a straight axis (III–1), knives with a lateral projection (V–7) and curved (V–6), stemmed knives with a constricted neck (V–13), with button stems (V–16, 20), and ground slate knives with a convex blade (VIII–3); end scrapers (I–6, 11, 23; II–6, 11, 16, 19), stemmed scrapers (II–26), round micro-scrapers (I–23, II–23), bifacial end scrapers (IV–2, V–1, 2, 3), side scrapers (VII–6), and more or less large, crudely made skreblos of various types (VIII–29, IX–2, 6, 7, 10, 12; X–6, 9). For an adequate chronological breakdown of this summarized complex there is at present no satisfactorily stratified and well-documented data. It is possible only to express the supposition that a significant part of the material, assigned by Vasil'evskii to the Lengel'val' stage of the sites of Kulka (328) and Kavran (323), for example, stemmed and button-stemmed stone knives (Fig. 103:16, 41, 43, 44), belongs to a substantially earlier time, at least to the Atargan stage and possibly to even earlier periods. To clarify this question on these sites, investigations were conducted by the Western Kamchatka Division of the Northeast Asian Archaeological Expedition (Ruban 1977).

On the eastern coast of northern Kamchatka, Old Koryak sites are known in several places from Kavachi to the Ozernyi Peninsula (203–221), but they are still inadequately investigated and finds from them, particularly those belonging to V. N. Maliukovich (203, 204, 205, 207, 211, 214, 215, 216, 218, 219), have not yet been introduced to scientific circulation. The most interesting of them are the obsidian biface points, a scraper, and fragments of ceramics (lined and with applied ribs), found by Iu. M. Stefanov on the Ozernyi Peninsula near the Uka River (221, Fig. 105:2–8), as well as a simple bone socketed harpoon head from Tilichiki (208, Fig. 105:1) with one opening, similar to harpoons of the Zav'ialova stage (Dikov 1964b:Fig. 10:2).

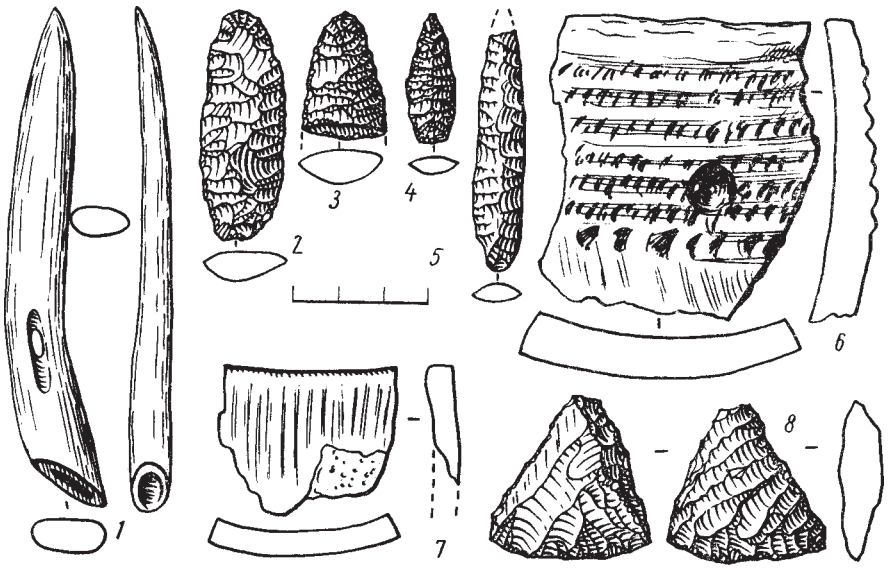

Figure 105. Toggling harpoon head from Tilichiki (208) and stone projectile points, a piece of a biface, and a fragment of ceramics from Ozernovskii Peninsula (221).

This harpoon head, typical for the early stage of the Old Koryak culture of the Okhotsk coast, permitted us in due course to conclude that the Koryak, already at that time hunting sea mammals, lived on both shores of Kamchatka, that is, that their culture had spread not only along the shores of the Sea of Okhotsk, but even of the Bering Sea (Dikov 1971a:35, 1971b:407–408).[54] And this circumstance, as we noted above, must have contributed to the development of cultural connections between the early Koryak and the early Eskimos, which can be seen if only in the similarity of this type of harpoon head with some heads from the Old Eskimo cultural level on Cape Denby in Alaska (Giddings 1964:Pl.6:16–17). The earliest prototype of this kind is probably the simple socketed head with one opening, found at Choris, an even earlier Eskimo culture (the beginning of the first millennium B.C.) also in Alaska (Bandi 1969:Fig. 22).

In Vasil'evskii's (1971:46, 190, 192, 200) opinion, the early Koryak culture is distinguished by "highly eclectic" heterogeneous elements. It emerged as a result of the synthesis or alloying of cultures of interior Neolithic reindeer hunters, who had gone to the sea, with influences from coastal cultures of the southern Far East (predominantly the left bank of the lower Amur). This point of view is formed not without the influence of our hypothesis on the origin of the coastal culture in northern Chukotka. The coastal culture of northern Chukotka also emerged, judging by the character of the sites on Aion Island, on a foundation of cultures of interior reindeer hunters who systematically went each summer to the sea, finally settling on it (Dikov 1961b). Actually, a similar Neolithic culture of reindeer hunters was probably the base of cultural development on the sea coasts of Northeast Asia. Although, looking beyond such a base in light of the most recent ideas on the antiquity of sea exploitation here, there could still be a coastal sea ecosystem (mollusks,

[54]Vasil'evskii (1971:48, 1973:147, 1974:23, 29) also concluded this.

seaweed, and the like) to which Paleolithic hunters of mammoths had been forced to turn in consequence of extinction of the latter at the end of the Pleistocene. Such a point of view is held, for example, by Malaurie (1970, 1972).

Be that as it may, available archaeological materials attest to the development in the early Holocene on the upper Kolyma of the Siberdik and Maltan industries of knife-like blades, as well as to the subsequent spread of similar technology to the northern coast of the Sea of Okhotsk, including Kamchatka. This is indicated by the Late Neolithic complex of stone implements with knife-like blades at Ust'-Palana discovered by A. V. Semenov (Fig. 97, except the first two cores) (Vasil'evskii 1973:Fig. 17; Pl. XXII–XXV), a single knife-like microblade that we found in 1962 on the surface of the terrace on the right bank of the Dukcha River at kilometer 9 of the Kolyma Road, and possibly a microblade from the Kony Peninsula, which Vasil'evskii cursorily mentions (*Ibid.*:146; Vasil'evskii 1975a), as well as prismatic and conical cores found in 1911 by Jochelson in Kavran (323). Investigations undertaken by Ruban on the western coast of Kamchatka attest to the presence there, in Kavran, on Cape Andreevskii I (326) by the mouth of the Tigil' River, and on the right bank of the Kulka River (329) (Ruban 1977:238) of definite traces of a pre-Koryak non-ceramic Neolithic culture with knife-like blades, probably related to the second–beginning of the first millennium B.C.

Vasil'evskii attaches special significance, in connection with his search for the origins of Old Koryak culture, to the complex of stone and bone objects from Nedorazumeniia Island, assigning this complex to the second millennium B.C. Vasil'evskii thoroughly explains the etymology of the name of the island, but unfortunately writes almost nothing about the circumstances of discovery of this early site. In fact, builders of a fish processing plant were the first to discover stone implements here. When Vasil'evskii, after receiving the collection from them at the Magadan District Regional Museum, arrived at their invitation on the island in the winter of 1960 from Magadan, the ancient site was already so damaged and built over that interpretation of its stratigraphy was rather difficult.

A close examination of the complex of stone implements from Nedorazumeniia Island (Fig. 98) does not permit us to agree completely with the dates given to it by Vasil'evskii. Their so-called Neolithic character is extremely deceptive. Small arrow points in the Northeast are still not a conclusive sign of the Neolithic. They are also characteristic for the Bronze Age of neighboring Yakutia (*Istoriia Sibiri. . .*, 1968) and Chukotka and for the Remnant Neolithic of the Kurile Islands.[55] They are also found in later stages of Old Koryak culture in the Iron Age (Figs. 100, 101).

The complete lack of knife-like blades (and cores, from which they had been flaked) in the complex of Nedorazumeniia Island, so typical for the Neolithic of Northeast Asia, is, in our view, decisive for dating it.

Regarding the Neolithic form of knives from Nedorazumeniia Island, the stemmed knives, sometimes found even in the Atargan stage of Old Koryak culture (Fig. 101), are widespread in the Upper site on Zav'ialova Island (381), which is dated, according to Vasil'evskii, to the first millennium B.C. (Fig. 99), though in fact, it is probably associated with a later time, which will be further discussed below. Knives with lateral constriction above the shoulders (Fig. 98:15) are often found in Kamchatka at the Domashnee Lake site (Fig. 7), which, judging by radiocarbon dates of

[55]Storage of MAE, Coll. 6032—stone points of Iturup Island.

the Kultuk site (5) (covered by ash layer IVa), can be assigned to the second half of the first millennium B.C.

Thus, only through misunderstanding [*nedorazumenie*] is the Nedorazumeniia Island site assigned to the second millennium B.C. It can be more correctly assigned not to the second millennium B.C., as we indicated based on Vasil'evskii's data in the summary table (Dikov 1977b:242, Table 4), but to the second half, or probably even to the very end of the first millennium B.C.

For the second and beginning of the first millennia in Northeast Asia, a developed industry of knife-like blades is very characteristic, which is clearly reflected in the materials of the North Chukotka and Ust'-Belaia cultures and Cultural Layers III and IV of the Ushki sites in Kamchatka and is corroborated by the Ust'-Palana complex, as well as the above-mentioned finds of knife-like blades on the northern and northeastern coast of the Sea of Okhotsk. And there is no basis at all to think that on the northern coast of the Sea of Okhotsk, simultaneously with this well-developed technology of knife-like blades, a bladeless culture emerged similar to that present on Nedorazumeniia Island.

The early cultural complex of Nedorazumeniia Island belongs primarily to the same culture as the probably somewhat later Upper site of Zav'ialova Island (381). They have much in common. In the Upper site of Zav'ialova Island we find elongate/leaf-shaped, thick arrow points, as well as stemmed and triangular points with a concave base, just as on Nedorazumeniia Island. Of course, such small points are significantly fewer there, but a knife-like blade (Fig. 99) has been discovered, as well as two segmented, uniformly retouched, lateral insets. Thus, on Zav'ialova Island (Fig. 381) there are even more Neolithic signs than on Nedorazumeniia, though of course they could have existed there until the Remnant Neolithic. The presence of an iron chisel (Fig. 99:4) in the complex of Zav'ialova Island (381) convincingly attests to this. Of course, this complex of the Undeveloped Iron Age and the Remnant Neolithic can be assigned, taking everything into account, either to the end of the first millennium B.C. or, more probably, to the beginning of the first millennium A.D. (its broad date within the boundaries of the first millennium A.D. set by Vasil'evskii [1971:133] appears entirely unjustified to us).

It is interesting and very significant that at the Nedorazumeniia Island site a double-barbed harpoon head (Fig. 98:1) was found, almost the same as occurs in the later Zav'ialova stage (Fig. 100), and in the complex of the Upper site of Zav'ialova Island (381) there are heads of toggling harpoons: single-holed, with an open socket (Fig. 99:1), as well as a blank (Fig. 99:2). They still look very primitive, which attests to a significant lag in harpoon development here on the Okhotsk coast in comparison with the Eskimo region, where harpoons almost like this appear in the Kachemak I culture in southern Alaska by the first millennium B.C., as they do in the Dorset culture in Canada (Bandi 1969:Figs. 31:1; 56; 59), not to mention earlier (second millennium B.C.) rather well-developed toggling harpoon heads, with a single-hole, in the northern Greenland Independence II culture (Bandi 1969:Fig. 64) and on Wrangel Island (Fig. 67:1).

In light of these data, the hypothesis maintained by Vasil'evskii about two independent locations for the original formation of sea mammal exploitation appears entirely unconvincing: one with barbed non-toggling harpoon heads (early cultures of the Koryak and Aleuts, as well as the Okhotsk culture), and one with almost no non-toggling but with well-developed toggling harpoons (the Old Eskimo culture) (Vasil'evskii 1971:196, 199). The facts support the idea that both these

complexes of hunting equipment go back to a single common base—the earliest stage of sea mammal hunting, noted by toggling harpoon heads with a single-hole. The southern complex (including Old Koryak), going back to the named common base, developed under perceptible Eskimo, predominantly Dorset, influence, to which some researchers have already turned their attention (Befu and Chard 1964; Kozyreva 1967:112). Finds of the Zav'ialova stage of Old Koryak culture (Fig. 100) eloquently attest to this. Here we also find small stone arrow points, almost like those in the Nedorazumeniia site (387), while toggling harpoon heads are very close to Dorset types (Fig. 100)—barbed points being still completely nonspecific (Bandi 1969:Fig. 57, 59). These same types of toggling harpoons are found in the Bogurchan stage (Fig. 100). Only in the Atargan stage do harpoon heads of the Old Koryak culture acquire sufficient distinctiveness so that we can talk of some special location for their development. During this time, instead of the previous widespread, common, unilaterally and bilaterally barbed non-toggling harpoon heads, very specific types of them often begin to be encountered—stemmed or socketed with two or three pairs of symmetrically placed annulations, often with a stone point at the end (Types 1, 2, and 3 according to Vasil'evskii 1971:153, Pl. LXVIII:1–6). Some of them survive into the Lengel'val' stage along with simpler forms. One of the earliest prototypes of these specific barbed heads can probably be seen in the stemmed and barbed head with a chalcedony end blade in the assemblage of the Choris Paleo-Eskimo culture, found in Alaska north of Bering Strait and dating to the first half of the first millennium B.C. (Bandi 1969:Fig. 22; Giddings 1967:Fig. 77:a). Toggling harpoon heads also begin to become more distinctive only in the Atargan stage and are now significantly different from Dorset (Types 6 and 7 according to Vasil'evskii—with one basal spur and with a V-shaped slot for the end blade; and type 11—with two barbs and stemmed) (Vasil'evskii 1971:150, Pl. LXVII:8, 9). The distinctness of these harpoons is also evoked in significant measure by the fact that they were made not from walrus tusk, as those of the Eskimos, but from bone, which Arutiunov and Sergeev (1975:187) point out.

Thus, only from the Atargan stage, that is, from the tenth century A.D., is it possible to speak of some kind of significant difference in Old Koryak harpoons from those of the Eskimos. Now they are more similar to harpoons of the Okhotsk culture and comprise with them, as well as with early Aleut harpoons, a well-expressed typological commonality.

Leroi-Gourhan (1946) turned his attention to localizing barbed harpoons in the northern zone of the Pacific Ocean and to investigating the culture to which he dedicated his work. Vasil'evskii uses his distribution map (*Ibid.*:Map 29) of barbed harpoons when arguing for two primary locations in the formation of sea mammal hunting (with barbed harpoons and without them). However, in his reproduction of this map, Vasil'evskii (1971:Fig. 49) does not have marked on it Leroi-Gourhan's barbed harpoons on the coast of the Arctic Ocean north of Bering Strait—in which there are now other well-known finds of barbed harpoons: in the Choris culture (Bandi 1969:Fig. 22) and in other later Eskimo sites (at Sireniki and in the Uelen and Ekven cemeteries) (Arutiunov and Sergeev 1969:Fig. 67:1, 1975:Fig. 46:2; Rudenko 1947:Pls. 22–31, 32).

Defending the idea of two independent locations of origin of coastal adaptation, Vasil'evskii attempts to find support in the spread of distinctive stone knives, curved, with an waist anterior to the shoulders, and a "handle." In his opinion, the area of these knives coincides with the area of barbed harpoons (Vasil'evskii 1973:201). However, this is far from being so. The map of distribution of these knives (*Ibid.*:Fig. 25) created by Vasil'evskii is far from being complete. Similar types have been known for a long time in the zone of the early Eskimos—in the Ipiutak and Uelen

cemeteries (Fig. 77:35) (Arutiunov and Sergeev 1969:Fig. 91:19; Larsen and Rainey 1948:Pls. 13:19, 20; 14:17), in Old Eskimo sites on the Chukchi Peninsula (Rudenko 1947:Pls. 17:8, 37:13), and in the Canadian Arctic, which is also quite apparent on the distribution maps of these knives created by Leroi-Gourhan (1946:Maps 24, 25). They were also recently discovered on Wrangel Island, in the Paleo-Eskimo Chertov Ovrag site (167) (Tein 1978). Moreover, a series of typical implements, for example scrapers with stems (Larsen and Rainey 1948:Pl. 18:3, 5) or simple single-holed harpoon heads with an end blade (Types H, I, J, K, L, M in Leroi-Gourhan's classification), are spread evenly both in the Arctic Eskimo zone and in the more southern zone—in the northern Pacific Ocean (Leroi-Gourhan 1946:Maps 32, 33).

Nor can we agree with Vasil'evskii's conclusions that the single-holed Ust'-Belaia toggling harpoon head (Pl. 95:13) of the beginning of the first millennium B.C., supposedly the earliest in Asia and America, is associated with the area of formation of only the northeastern Paleo-Asiatics (including the Koryak), and that the Eskimos began to spread into Chukotka only since the Okvik stage (Vasil'evskii 1971:197, 198). The discovery of an earlier (second half of the second millennium B.C.) single-holed harpoon head (Fig. 67:1) on Wrangel' Island in a Paleo-Eskimo complex once more indicates in our view the presence of a common tradition in the harpoon equipment for sea mammal hunting in the second and first millennia B.C., both among the ancestors of the northeastern Paleo-Asiatics and among the early Eskimos.

The dissimilarity of Old Koryak toggling harpoon heads, stressed by Vasil'evskii, with the developed forms of the early Eskimos (with lateral insets) (*Ibid*.:176, 177) can be explained by their later indigenous development and the peculiarity of the material from which they were made, which was discussed above.

Thus, Vasil'evskii's distinction of two independent centers for the initial formation of sea mammal hunting cultures is not sufficiently substantiated. Here, a more profound and comprehensive approach is demanded. The formation of two cultural traditions (with predominance of barbed or toggling harpoons) could have been brought about by the later dynamics of ecological conditions, which, on the one hand, separated the Eskimos at a certain stage by the methods of hunting sea mammals in the north (ice hunting) and the south (hunting on the open sea) and, on the other, unified other ethnic groups, not connected genetically in linguistic regard (Koryak, Aleuts, and the mysterious bearers of the Okhotsk culture), by hunting on the open sea.

Thus, one cannot speak of an initial, independent origin of sea mammal hunting among the ancestors of the Koryak on the Okhotsk coast, that is, not connected with a common (for Eskimos) cultural-economic substratum, nor about its distribution from this center into the islands of the Pacific Ocean (Sakhalin, the Kuriles, and the Aleutians) (Vasil'evskii 1971:199).

It is possible to speak only of their divergent development, beginning approximately in the middle of the first millennium A.D., primarily since the Atargan stage or somewhat earlier, but in any case, not from the first or second millennium B.C., as Vasil'evskii asserts (Vasil'evskii 1971:196, 1973:209, 1974:29).

It is since the Atargan stage that the Old Koryak culture attains full bloom both in domestic and in socioeconomic respect, which is very well indicated by Vasil'evskii in his interesting and detailed outline of the domestic and social life of the early Koryak (Vasil'evskii 1973:139–173). In sea mammal hunting, the hunt for whales begins to acquire more significance, together with

continuing procurement of sea lions and seals, the collection of sea mollusks, fishing, and the use of dogs both as meat and as draught animals. The communities were large and composed, in Vasil'evskii's opinion, of big families. Semisubterranean dwellings, previously not large (6–10 m in diameter) and round, now become more square (22–30 m) with rectangular stone hearths and built not only of wood but of whale bone as well (later Koryak pit houses became octagonal and adopted special funnel-shaped snow-protection structure on the roof around the entrance-smoke hole). Highly developed sea mammal hunting, whale hunting in particular, provided a stable settlement and later played, with the origin in the tundra of wandering reindeer herders, a substantial role in the appearance of the first large social division in labor. Stressing this progressive role in sea mammal hunting, Vasil'evskii thereby adopts a point of view that we expressed earlier on sea mammal hunting as a distinctive substitute for farming in the process of social division of labor in the Northeast, and in particular in Chukotka (Dikov 1969a:235; Vasil'evskii 1971:139). During the Atargan stage the primitive society of the Koryak apparently enters a period of military democracy. Implements of these new relations are now noticed in sites of this stage—for example, armor plates and fortified towns enclosed by ditches and ramparts on the rivers of Kulka and Kavran and in other places—territories bordering the Itel'men.

It is evidently possible to agree with several researchers about the great significance of cultural connections of the early Koryak with Old Nivkhi tribes. These connections are reflected in similarities of mythology, semisubterranean dwellings, and even harpoons (Taksami 1977:28, 29; Vasil'evskii 1971:191, 192; Pl. LXX). In addition, some similar elements of culture, for example, toggling harpoon heads, could have passed either from there to the Okhotsk coast or in the opposite direction. However, archaeological investigations in intermediate regions are still required, as many researchers correctly note (between the lower Amur and the northern coast of the Sea of Okhotsk, in the territory inhabited by the Nivkhi) (*Ibid.*:201; Arutiunov and Sergeev 1975).

There is no doubt about the connections, which have been noted by Vasil'evskii, of the Old Koryak culture with the so-called Okhotsk culture, which are reflected in the similarity of dwellings, harpoon heads, tubular bone needle-cases, ceramics, and other things (Vasil'evskii 1971:186). The explanation for this similarity is seen in a southwestern migration to the Okhotsk area by a generalized Eskimo-Aleut complex (Befu and Chard 1964), or in an Esko-Aleut substrate (Arutiunov and Sergeev 1975), or in a counter movement of hunters into the Northeast at the beginning of the first millennium B.C. or earlier (Vasil'evskii 1971:198), or in an early indigenous component (*Ibid.*:187). It should, however, be noted that these connections of the Old Koryak culture with the Okhotsk took place mainly in its later stages, beginning basically with the Atargan, and therefore cannot be considered only as an early component.

The question about the connections of Old Koryak culture with early Aleut culture is very complex. One cannot think of Vasil'evskii's (1973:202) hypothesis about a late—from the end of the first millennium A.D.—migration of Aleuts through the Commander Islands to Kamchatka in connection with a warming trend and farther to the north across its narrow isthmus to the Okhotsk coast, as well as to the south into the northern Kuriles, as being correct. This proposition relies on the too scanty and insignificant finds of E. P. Orlova in the Commanders: some flakes and a trapezoidal adze, very common to later cultures, which Vasil'evskii arbitrarily interpreted as Tar'in (*Ibid.*:202, Fig. 24). More probable is the settlement of the Kuriles from the south by bearers of Okhotsk culture, the mysterious Tonchi—inhabitants of early Sakhalin (Kozyreva 1960, 1967:113).

Vasil'evskii does not see genetic connections of the North Okhotsk culture with earlier Eskimo cultures, though he does not deny the presence in these cultures of similar elements (for example, almost identical Dorset harpoons) (Vasil'evskii 1971:152). More significance is given to these connections by Vdovin, who showed the principal similarity of North Okhotsk sea hunting tools with those of the Eskimos, having demonstrated the presence of traces of Eskimo substrate in the language of the Koryak-Aliutor people and in the toponymy of eastern Kamchatka and Tauisk Bay, as well as in physical anthropological features of the coastal Koryak (Vdovin 1961; 1973:262, 264–266).

The idea of a broad Esko-Aleut substrate, forced out by northeastern Paleo-Asiatics, including the Koryak, is chief in the ethnogenetic construction of Arutiunov and Sergeev (1975). They suggest as well that Old Koryak culture was formed in the first centuries A.D. under strong Old Bering Sea influence and that its distinctiveness, in particular the distinctiveness of Old Koryak harpoons, is not real. They explain the difference of Old Bering Sea and Okhotsk (including North Okhotsk) harpoons by the use of different materials in their manufacture (walrus tusk among the Eskimos and tubular bone in the Okhotsk culture) (*Ibid.*:187, 190, 191).

Thus, the early Koryak created their own original culture, which by no means developed in isolation from other cultures. However, as we have shown, there is no basis to say that there was a special center for the original formation of sea mammal hunting on the north coast of the Sea of Okhotsk in the area of the Old Koryak culture, which spread from there to the North Pacific islands (Vasil'evskii 1971:199).[56] The psychological pressure of his material has apparently adversely affected Vasil'evskii's view—the psychological factor, the role of which many scholars recognize, including Vasil'evskii himself (Dikov 1971b:272–273; Vasil'evskii 1973:7).

The Old Koryak culture, which we examined, has still been studied in only a very superficial and generalized way. Judging by the physical anthropological, linguistic, and ethnographic investigations of the Koryak (Debets 1951:114; Skorik and Vdovin 1973), of this most heterogeneous (in the aspects mentioned) Paleo-Asiatic people, the Old Koryak culture certainly must be very complex in structural respect and must consist of various indigenous archaeological cultures, which at present have still not been entirely revealed. The presence of indigenous ethnographic groups of Koryak—the people of Karagin, Aliutor, Apuka, Palana, the Settled Koryak of the northwestern coast of the Sea of Okhotsk, and the Koryak reindeer herders (Vdovin 1973)—clearly differing by dialect and in several cases by the peculiarity of economy (for example, the hunting of walrus only among the Bering Sea Koryak) obliges archaeologists to trace their origin in the archaeological material. Special detachments of the Northeast Asian Archaeological Expedition began research in this direction, both in Okhotsk and on the Bering Sea coast.

Below we will characterize one such indigenous culture—of the northwestern Bering Sea—which at present is revealed most clearly and coincides essentially with the area of the Kerek and partially with the Apuka Koryak.

[56] American archaeologists are also categorically opposed to this concept (see McCartney 1974).

The Northwestern Bering Sea (Old Kerek) Culture

In the extreme northeast of the Old Koryak area, on the northwestern coast of the Bering Sea, approximately between Cape Oliutorskii and the Anadyr estuary, traces of a separate indigenous or even independent archaeological culture are preserved that has recently been interpreted as Old Kerek (Beliaeva 1968; Dikov 1974c:67, 68; Leont'ev 1976). It was investigated by one of the divisions of the SVKNII DVNTs AN SSSR (Orekhov 1976, 1977), and at present—before the publication of the new archaeological materials—only the most general preliminary judgements can be made about this interesting culture.

The base on which the culture emerged, just as everywhere in Northeast Asia, is characterized by a technology of knife-like blades, to which a prismatic core attests, discovered in 1973 by I. Ivtegin on the Rytkyl'veem River (200).

The earliest stage of this culture, Beringovsk (or Lakhtina), recorded right on the sea coast, is represented by a non-ceramic site near the village of Beringovsk on the shore of Lakhtina Bay (104).

Only flaked stone tools were discovered in this dispersed dune site (104), if one does not count a partially ground adze. They have a crude skreblo-like form and were made predominantly of siliceous slate. Only two of the end scrapers of finer manufacture were made of flint (Dikov 1977b:Pls. 120, 121).

The technologically archaic nature of these tools is very evident. They cannot be compared at all with well-manufactured implements, chiefly finely ground tools of Neo-Eskimo cultures—Okvik and Old Bering Sea—to say nothing of later ones. The somewhat Paleo-Eskimo radiocarbon age—2330 ± 225 B.P. (MAG–197)—determined on charcoal that we took from a fire place at the Lakhtina site (104) in 1975 corresponds to the archaic appearance of the tools.

The economy of the inhabitants of this site was composite. Fishing is attested to by the comparative abundance among the finds of stone net sinkers. Sea mammal hunting is indicated by the remains of whale bones in the site, but the complete absence of tools of a harpoon complex meanwhile speaks of a lack of development of sea mammal hunting.

Later sites of the northwestern Bering Sea contain ceramics; stone knives and adzes with ground edges; screblos, knives, points of arrows and spears (including obsidian leaf-shaped ones) manufactured by percussion and pressure flaking; stone sinkers; and lamps, as well as bone points of arrows and spears of a very distinctive type—with a socketed stem—which have been encountered here for a long time and are the most characteristic implements of the Kerek (Fig. 106). These sites contain numerous settlements of pit houses, which were preserved from a more developed stage of the northwestern Bering Sea culture (or even from several of its stages) at Cape Otvesnyi (194), in Amaam Lagoon (195), in Gavriila or Kanyiun Bay (196), on Vaamochka Lake (198), at the mouth of the Khatyrka River (199), on Capes Lagunnyi and Rifovyi, at the entrance to Opuka Lagoon, on Anna Lagoon, in Nataliia Bay, and others (Orekhov 1976b, 1977). Then there are those sacrificial places marked, as a rule, by lower jaws of whales set vertically in the ground and surrounded by walrus skulls—at Etchun, on Cape Otvesnyi, at Kammakynot Mountain, at the entrance of Opuka Lagoon, at Gavriila Bay, at Nataliia Bay, and in other places, generally at early settlements, which in some cases, for example at Etchun, have simulated traces of the feet of the "spirit master," like the large (about 40 cm) notorious traces of Bigfoot (Orekhov 1976b, 1977). Finally, there are caves, for example, the one known for a long time in Omaian Bay (202).

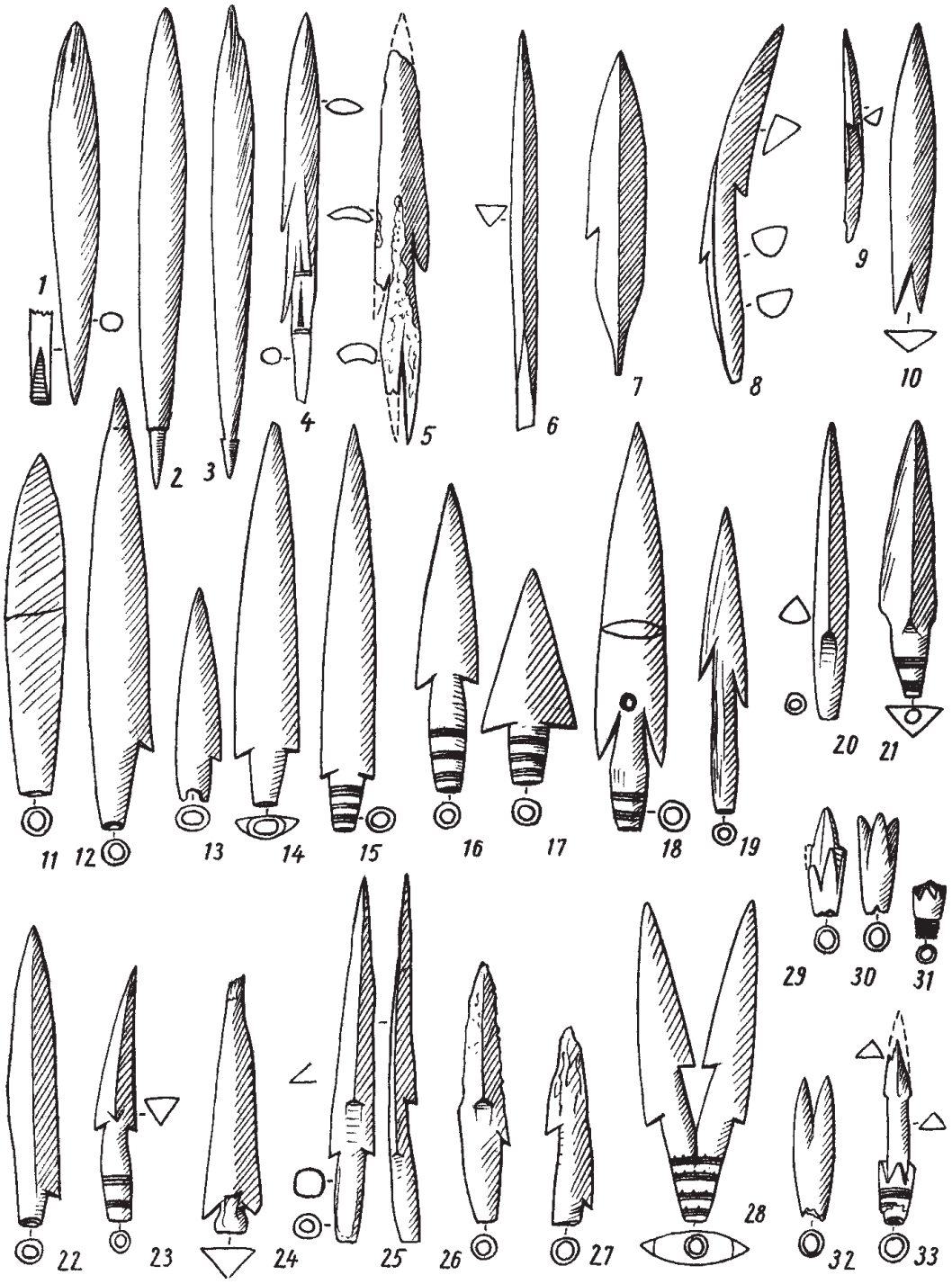

Figure 106. Kerek bone arrow points. 1–3, 5–11, 13, 20–22, 25–27, 32, 33—Omaian Cave (202), in the depository of the Primor'e Regional Museum in Vladivostok, Coll. 401; 4, 14–16, 18, 19, 23, 24, 28—in the depository of the Chukotka Regional Museum in Anadyr', Coll. 1487–41 (1–18); 12—Ugol'naia Bay (192), in the depository of the Hermitage, Coll. 5135; 17—Ugol'naia Bay (192), in the depository of the Primor'e Regional Museum in Vladivostok; 29–31—shrine at Vetvei River (209), after I. S. Vdovin (1/5 actual size).

These sites, of course, by no means outline the entire area of the coastal Kerek culture. Surveys have still not been conducted south of Nataliia and Omaian Bays, though meanwhile the presence of Kerek toponymy (for example, Aiin River) on the south side of Cape Oliutorskii permits suggesting a settlement there of early Kerek.

The enumerated sites attest to the profound distinctiveness of the archaeological culture of northwestern Bering Sea and to its genetic connection with ethnographic material and spiritual culture, successfully revealed recently by Leont'ev (1976b:223).

Especially characteristic are the dwellings of this culture—semisubterranean, built with a wooden rectangular framework (with sides to 2 and 4 m), resting, judging by the preliminary data, on four posts and having a leaning support on all sides. On the outside this structure was solidly covered with sod, so that the dwellings appeared as scarcely noticeable earthen hills. Their rectangular hearths of vertically embedded stone slabs—such hearths were found in Gavriila Bay (Leont'ev 1976b:84, 224)—are similar to hearths in Old Kerek pit houses of the northern coast of the Sea of Okhotsk. But in distinction from the latter, the entrance here was evidently not through the smoke hole in the roof, but rather by a short corridor, which, judging from ethnographic data, might have been longer and made of snow, as at an Eskimo igloo (Leont'ev 1976b.:145). In Leont'ev's opinion, near the dwellings that he investigated in the eroded areas on Gavriila Bay (196), special external fire pits were built, paved with stones and served for baking and stewing meat and fish by the Kerek method of *puialk'yn* (Leont'ev 1976b:110, 111).

Earlier settlements are probably represented by a complex system (*kuimaiaan'a*) of several pit houses grouped around the largest communal pit house, connected by corridors, and occupied by several families of the genetic community. Later, the Kerek possibly began to live in individual common, large pit houses with three or four families in each (Leont'ev 1976a:160, 161).

The economy during this stage was, as before, complex, but sea mammal hunting had already begun to play a more significant role. Some investigators evidently underestimate it when they point out that the Kerek were not true sea mammal hunters (Leont'ev 1976b:205). Probably closer to the truth is Bogoras who notes that the Kerek formerly had skin baidars and lived by hunting walrus (Bogoras 1934:41). The largest socketed bone points with prominent barbs (Fig. 106:17) might be considered as archaeological evidence of sea mammal hunting. Some of them were probably "whaling arrows" (Leont'ev 1976b); others might have been used for hunting walruses. The presence of distinctive toggling harpoon heads (Leont'ev 1976b) in ethnographic collections from Kerek territory permits one to think that early Kerek harpoon heads simply have not been found at present, just as "bear cudgels"—the well-known *kaluvianan*, which served to dispatch sea mammals at their hauling grounds, have not been found (Leont'ev 1976b:146, 147). However that may be, the abundance of walrus skulls at the shrines and the bones of a variety of sea mammals, including whales, in the cultural levels clearly indicate an intensity of sea mammal hunting among the early Kerek. Bird hunting, to which they also quite actively applied themselves using special nets (Leont'ev 1976b:89–90) and special blunt points of arrows (bunts*),* could not, of course, be the basic source either of food or especially of skins for clothing, nor could hunting ground squirrels and hares or even sheep and wild goats, which they shot with a special kind of arrow (*chutchum*) (Leont'ev 1976b:218, 146). Nevertheless, these kinds of hunting on land are very characteristic of the complex economy of the early Kerek, as is, by the way, hunting large fish with leisters (*atchina*) (Leont'ev 1976b:218, 146), for which two-pronged socketed points could be used (Fig. 106:28).

Burials related to the culture under examination have at present not been investigated, though it is known that the deceased were sometimes buried in the ground (head to the west) (Leont'ev 1976b:218, 146). It is also known that another rite, burial at sea, was widespread among the Kerek (Jochelson 1908:104).

Among artistic items, the enigmatic sculptural representation of an "owl with a seal's head" (Leont'ev's interpretation) merits special attention. It is probably of a mythological personage and has no analogy in other early or ethnographic cultures. This bone figurine was found by Leont'ev in the cultural layer of a site in Gavriila Bay, which, judging by the hatch-marked ceramics (analogous to that of Old Bering Sea) found there by Orekhov, is evidently one of the earliest in the post-Lakhtina period being examined (sites with crude, smooth-walled ceramics are probably the latest). It is consequently possible to speak of the stable artistic tradition of the Old Kerek culture inasmuch as Kerek figurines of N. Gondatti's ethnographic collection were made in a similar style. Leont'ev cited the similarity of the Kerek figurines (from Gondatti's collection) with the "owl" (Coll. MAE, No. 442–28; Leont'ev 1966b). Thus, the clear ethnic connection of the early culture with the modern Kerek should be recognized as well.

The sacrificial place found by Vdovin on the Vetvei River, in which bone bunts with socketed shafts were encountered (Vdovin 1971:Pl. I), points to either a connection of the Old Kerek coastal culture with a neighboring indigenous group of Koryaks or to its vast, though not investigated, early hinterland.

Its northern contact zone is marked by sites in Geka Land (190) and on the Tumanskaia River (191), which differ by a well-expressed Eskimo cultural influence, that is, having vessels typical of Punuk with external attached "ears" and no Kerek vessels at all, but with Koryak-Chukchi-Eskimo arrow points with stemmed hafts (Orekhov 1976). Orekhov was probably correct when he suggested that the Kerek here were subjected to Eskimo influence, but it is also possible that the Koryak in Geka Land and on the Tumanskaia River underwent this influence and that their descendants were encountered here in a "korg" by S. Dezhnev in 1652 (*Russkie arkticheskie ekspeditsii* . . ., p. 139).

The origin of Old Kerek culture cannot yet be definitively comprehended. It is probably a relict of a very archaic ethnocultural stratum, perhaps even similar to Paleo-Indian, and the same for proto-Eskimo-Aleuts and the earliest Itel'men, which we talked about earlier (Dikov 1973b, 1974b).[57] Influence is noted in the Old Kerek culture of Koryak culture and especially of Itel'men and Eskimo, and ethnographer U. G. Popova finds in it some connection with the culture of the mysterious "Foot Tungus" of the Okhotsk coast (Leont'ev 1976b:227). In this instance of Old Kerek culture, the manifestation of the tendency toward ethnocultural differentiation is quite clear—from a broad, earliest ethnic community to narrow, indigenous, ethnographic groups, which we have repeatedly discussed (Dikov 1964b).

[57]Such a proposition agrees well with the tentative conclusion of the physical anthropologist A. A. Zubov about the unusual gracility and softened, almost Paleo-Indian Mongoloid features of the skulls he examined from Cape Lopatka, from the early site at Cape Nizkii, and from the Kerek burial at Opukha, representing, in his opinion, a relict of a very early common initial ethnic stratum.

The Middle Kamchatkan (Nikul'skaia) Variant of the Old Itel'men Culture

Vdovin's ethnolinguistic research has indicated the isolated position and independent origin of the Itel'men in relation to the Koryak and, at the same time, close mutually penetrating connections between them at the frontier contact zones (Vdovin 1973:271). It was also ascertained that on the western shore of Kamchatka live Kamchadalized sedentary Koryak (Vdovin 1973:276), and on the eastern shore the Koryakized Itel'men, and that the Itel'men were consequently still spread to the north there in the eighteenth century, significantly farther than they were later, up to Karaginskii Island inclusive and possibly farther toward the area of the Kerek (Vdovin 1973:21, 274).

It is also known that at the beginning of the eighteenth century the middle and southern parts of Kamchatka were occupied by a few indigenous groups and tribes of Itel'men (the northern Itel'men, Chuiagzhu, Avacha Itel'men or Suaachiu-ai, Kykshai-ai, Lingurin, Kules, and others) (Dolgikh 1960:563–568).

But the archaeological materials begin to reveal the essential differences in the Old Itel'men culture, which, on the whole, correspond to the indigenous groups of Itel'men, though much is still unclear and problematic here. The most substantial differences can be seen between early Itel'men culture in the Kamchatka River valley and in the south of the peninsula, where Itel'men culture was subjected to Ainu influence. Cultural variants are also noted on the western and eastern shores of Kamchatka, where special crews of the Northeast Asiatic Archaeological Expedition carried out special research to expose local differences in the Old Itel'men culture.

Considering the complex structure of Old Itel'men culture as a whole, it is expedient to view it not as a unit, but on the basis of its indigenous variants, at the same time limiting ourselves to focusing on only two of its variants: Middle Kamchatkan (Nikul'skaia) and South Kamchatkan (Nalychevo), which probably go back to the local subdivisions of the Tar'in culture.

We will assign to the indigenous Middle Kamchatkan (Nikul'skaia) variant of the Old Itel'men culture[58] archaeological sites in the Kamchatka River valley discovered and investigated by our expedition in 1961–1966: the first layer of the second Ushki site (2), the lower site at Doiarki (10), Sites 1 and 2 at Kliuchi (12, 13), the cultural layers and burials at Kamaki (17, 18, 19), and the Nikul'skaia fortified site (16). We will combine in one local group all the named sites on the basis of their chronological closeness, determined by a series of radiocarbon dates, and on the basis of similarity of the complexes of stone artifacts preserved in them.

The radiocarbon dates from the type sites at Ushki (1 and 2), as well as Doiarki (10), permit assigning the cultural commonality being examined to the end of the first millennium and a substantial part of the second millennium A.D., evidently up to the sixteenth–seventeenth centuries. At the end of this period, for example, in the twelfth century A.D., along with fishing sites (1, 2, 10, 12), fortified villages of predominantly rectangular pit houses, often surrounded by berms and ditches, also appear in the Kamchatka River valley. We excavated one of them,

[58]Below, for brevity, we will call it the indigenous Middle Kamchatkan culture, and the second variant, the indigenous South Kamchatkan culture.

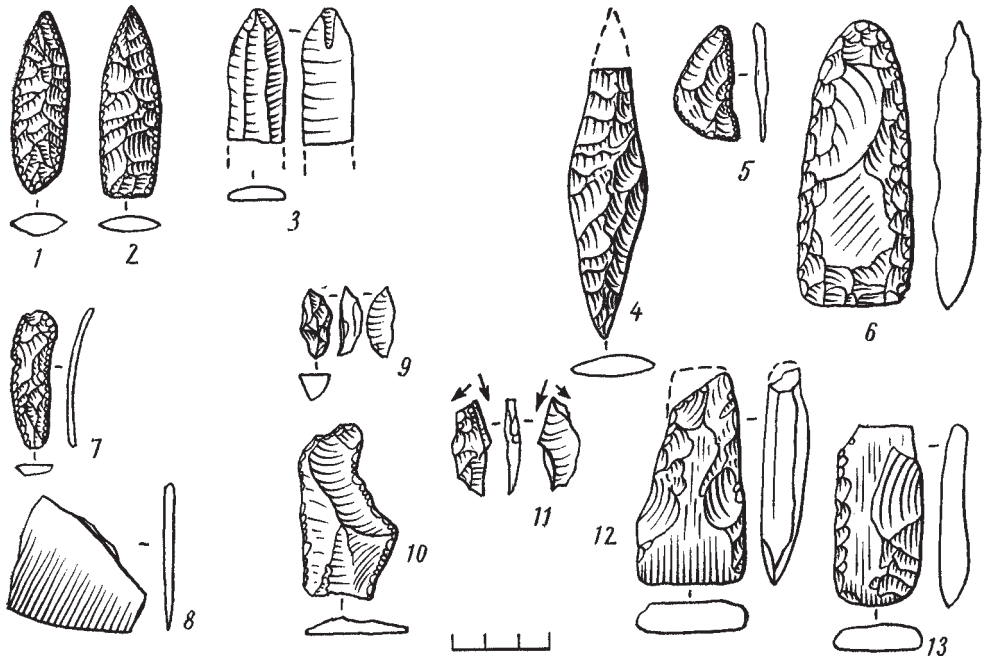

Figure 107. Complex of traditional stone artifacts from the Middle Kamchatkan (Nikul'skaia) variant of the Old Itel'men culture. 1, 3, 5–7, 10, 13, 14—Nikul'skaia fortified site (16); 2, 8—Kamaki (18); 4, 9—Doiarki (10), under Ash Layer 2; 11, 12—Kliuchi (12).

Nikul'skaia (16), almost completely. It provided a wealth of material, while from others site plans were made (1, 18, 20–37) and only insignificant artifacts were extracted from the trenches. However, they all, judging by tephra-stratigraphic data, belong precisely to the final stage of development of this indigenous culture, evidently going up to the appearance in the Kamchatka River valley of the first Russian settlers.

The physical remains from all these sites and fortified villages are typically Neolithic. But no ceramics were discovered in them. Almost all the tools are of stone, more rarely of bone, and no iron tools were found at all, though it is possible that they were already used in insignificant numbers, which can be guessed from Krasheninnikov's description of the life of the Itel'men, as well as from the aggregate of archaeological information on the spread of iron during the Remnant Neolithic on the Okhotsk coast and in Chukotka and southern Kamchatka.

Of 88 types of stone artifacts from the Middle Kamchatkan variant of the Old Itel'men culture only 38 can be considered as traditional, that is, inherited from the earlier Tar'in culture. Of these, 25 are directly associated with sites in the Kamchatka River valley, 28 are connected with the South Kamchatkan group of sites of the Tar'in culture, and 16 are common for both.

To the first group of traditional elements (Fig. 107), dating to the Neolithic of the Kamchatka River valley, belong unifacially convex (III–6) and trapezoidal (V–7) adzes; large leaf-shaped biface points (I–5b) and smaller ones (I–4b, 6b; II–4b); triangular arrow points (V–a, b), stemmed ones on flakes (V–4); unretouched knife-like blades (I–2) and retouched along the edges (I–6, 7), curved, stemless biface knives (IV–6), knives on flakes (VII–3, 4, 6, 9); subtriangular and pear-shaped end scrapers with a rounded working edge (I–11, 16, 18); grooved spokeshaves (XII–4); and lateral and angle burins carelessly made on flakes (IV–3, 5).

The dominant place in the structure of the complex of stone artifacts belongs, as we have already said, to innovations and new elements, to 44 types of artifacts that are absent in the Tar'in culture or, at least, have not yet been found in it (Fig. 108).

An exceptionally large number of the new types of artifacts turned out to be axes and adzes. Their number is almost twice as great as the number of tools of this category inherited from the preceding culture. These are axes of varied trapezoidal and rectangular outline with an irregular lenticular or rectangular cross section (I–4, 5, 6, 7, 8), adzes with a rectangular cross section of very different dimensions (II–2, 3, 6, 9, 10), small, thin adzes of lenticular cross section (IV–5, 7, 9), small adzes of geometrically irregular cross section (V–5, 8), and rectangular chisels (VII–7).

Among the new types of projectile points, leaf-shaped (I–3c, 2b) predominate, but there are also triangular ones with lateral indentations (VIII–22x) and without them (O–8).

New are two types of inset blades (I–8, 9); truncated leaf-shaped (II–9) and triangular (II–8) biface knives, ground knives of slate (VIII–4, 25, 26); trapezoidal end scrapers (I–2, 12, 18), varied combination scrapers (III–9, 16, 22, 23; IV–6, 19, 24), biface scrapers (V–7, 12), lateral and rounded scrapers on flakes (VII–11,13, 14); and massive adze-like and pentangular skreblos (VIII–30, 31; IX–6).

Finally, we must assign some dihedral burins (III–5; IV–6) and punches (I–2, 3) to the innovations in this complex.

The complex of artifacts with which we just became acquainted introduces us to an early indigenous culture, until now completely unknown in the Northeast, though very close to the one that Jochelson, Okladnikov, and then Rudenko distinguished based on finds on Kuril'skoe Lake in southern Kamchatka. Even with all the similarity, they differ substantially by the composition of the stone artifacts. The most distinguishing difference of the two indigenous cultures is that ceramics are not at all characteristic of the Middle Kamchatkan, whereas for the South Kamchatkan culture ceramics are very characteristic and moreover the ceramics are extremely distinctive—with internal lugs.

It should be noted that the term "Middle Kamchatkan variant of Old Itel'men culture" does not correspond in the territorial or chronological sense with the "Middle Kamchatkan culture," which, along with the South Kamchatkan, was distinguished by Jochelson, Okladnikov, and Rudenko. These authors understood the Middle Kamchatkan as the earliest of the Neolithic cultures then known in Kamchatka, which was represented by finds at Tar'ia near Petropavlovsk-Kamchatki. We, ourselves, assigning sites of the Remnant Neolithic in the Kamchatka River valley to the indigenous Middle Kamchatkan culture, connect with the synchronic indigenous South Kamchatkan culture sites not only in the vicinity of Kuril'skoe Lake, but also those somewhat to the north of Petropavlovsk-Kamchatki, for example in Nalychevo (253–255). Thus, we picture the indigenous South Kamchatkan culture of the Remnant Neolithic significantly broader in territorial regard, occupying an expanse of southern Kamchatka possibly from Cape Lopatka to Nalychevo, and possibly even farther to the north, thus entirely occupying the territory of both the South Kamchatkan and the Middle Kamchatkan cultures (according to Jochelson, Okladnikov, and Rudenko).

Following the principle of Occam's Razor, we do not have to search for genetic connections of the indigenous Middle Kamchatkan culture to find analogies to all types of artifacts of this

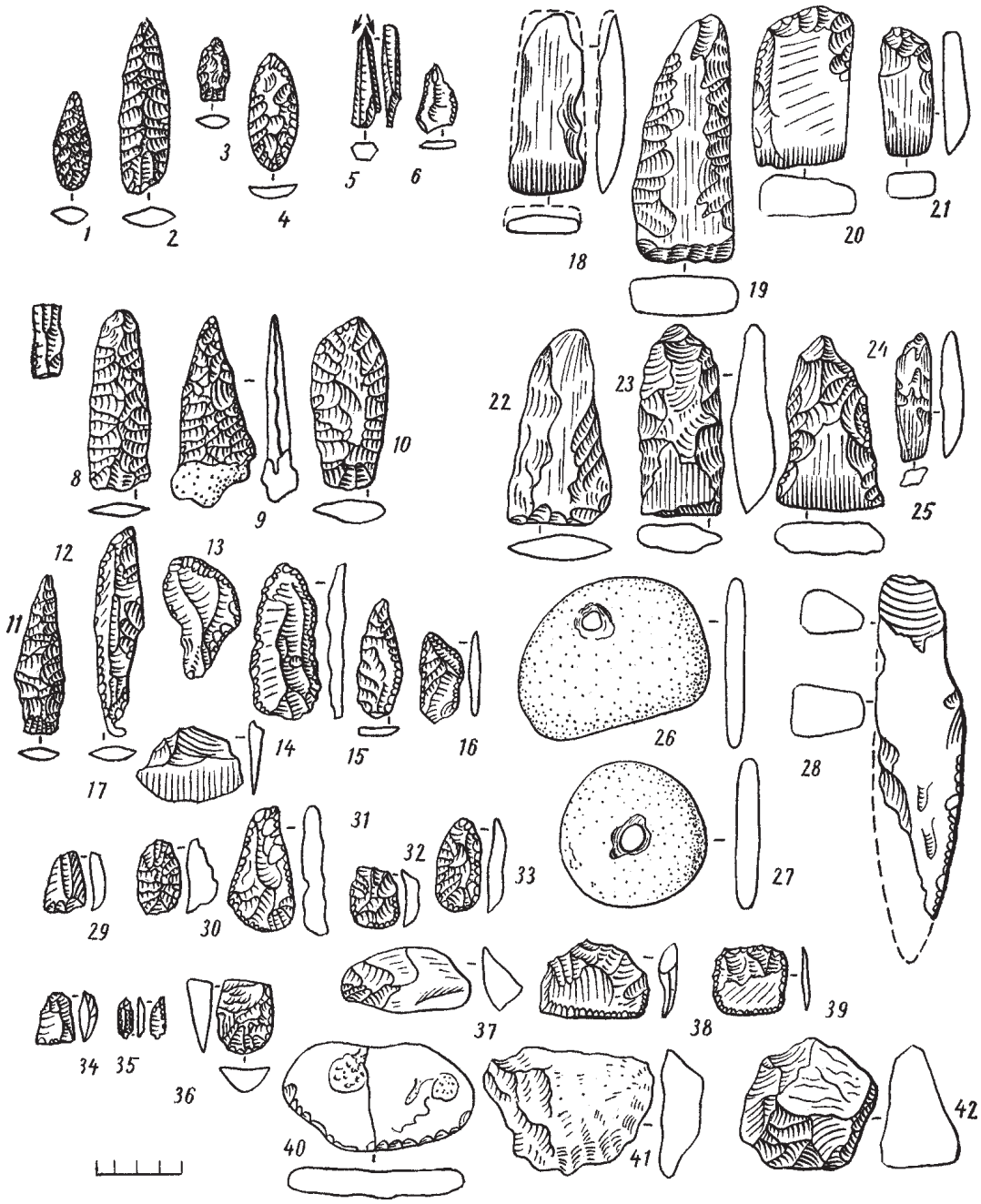

Figure 108. Complex of innovations in the stone inventory of the Middle Kamchatkan (Nikul'skaia) variant of the Old Itel'men culture. 1, 4, 6, 8, 9, 12, 14, 16, 18–20, 22, 24, 25, 27, 28, 30–33, 36, 37, 39, 40—Nikul'skaia fortified site (16); 2, 29, 34, 42—Ushki II (2), Cultural Layer 1; 3, 5, 7, 10, 15, 21, 23, 26, 35, 41—Doiarki (10), under Ash Layer 2; 11—Kliuchi 1 (12); 13—Ushki III (Kultuk) (5); 17, 38—Kamaki (18).

culture known to us. It is sufficient to analyze the similarity only of its innovations with artifacts of other cultures.

In doing this it is found that of 42 types of innovations only 16 have analogies in surrounding cultures of the first millennium B.C.–second millennium A.D. The remaining analogies are earlier and by virtue of their incommensurable chronological separation from the culture being examined are of no interest to us.

Of the 16 types of artifacts that we find of interest, the largest quantity—15 types—we note in the Ust'-Belaia culture in Chukotka, 8 in North America (predominantly in Alaska), 3 on the northern Okhotsk coast, 2 on Sakhalin, 4 in Primorye, and 1 each in the Kurile Islands, on the Amur, and in Zabaikalye. In general, analogies have not been found anywhere at present for 6, and thus they are probably purely endogenic innovations (tiny adzes [II–12; IV–5, 9; V–5] and combination micro-scrapers/gravers [III–23; IV–24]).

Among the Ust'-Belaia analogies we note adzes (rectangular in cross section) that are rectangular (II–9), with a pointed butt (II–3), and stepped (II–6), as well as tiny ones with a lenticular cross section (IV–7); triangular arrow points with lateral grooves (VIII–22x) and unifacially worked leaf-shaped ones (O–1); lateral insets (I–8, 9); knives on flakes (III–16); trapezoidal end scrapers (II–12) and combination scrapers (III–22; IV–19); as well as bifacially retouched leaf-shaped burins (V–12) and lateral burins (VII–11). A large number of parallels in the Ust'-Belaia culture can probably be explained not only by a commonality that underlies the two cultures, but also by significant cultural infiltration from the Ust'-Belaia culture, which was earlier than the Middle Kamchatkan.

Among the North American Arctic analogies are several known Ust'-Belaia ones (grooved points [VIII–22x] in the Old Whaling culture at Cape Krusenstern and scrapers in the Aleutian Islands [II–12] and at Ipiutak [V–12]) (Giddings 1961:Fig. 7:2–7; Larsen and Rainey 1948:Fig. 23, Pl. 15:13–16), as well as trapezoidal adzes of amorphous cross section (V–8) at Ipiutak (Larsen and Rainey 1948:Pl. 10:2), leaf-shaped arrow points (I–2b) on the southwestern Yukon in the first millennium A.D. (McNeish 1964:Fig. 88:3), biface scrapers (V–7), and punches (I–2; II–3) in the Norton and Ipiutak cultures (Larsen and Rainey 1948:Fig. 26:d; Giddings 1964:Pls. 57:11, 12; 53:20).

Into the number of northern Okhotsk parallels fall elongated leaf-shaped points (I–3c), end scrapers (I–2), and tiny combination scrapers (III–22), all found in the Upper site on Zav'ialova Island dating to the end of the first millennium B.C. (Vasil'evskii 1965:No. 1, Fig. 1:25; Museum of Anthropology of MGU, Coll. No. 475–104, 106).

Things that are probably of Sakhalin origin are elongated trapezoidal axes of lenticular and amorphous cross section (I–5, 6), found at the Susuia and Nevel'skaia sites of the first millennium A.D. (Kozyreva 1967:Fig. 15:3, 9).

The same axes (I–5, 6) are characteristic in Primorye—of course in earlier (second half of the first millennium B.C.) sites than on Sakhalin—at Zaisanovka I and in the shell middens at Pos'et I and on Peschanyi Peninsula (Andreev 1957:Fig. 4:1, 4; 1960:Fig. 11:3; Okladnikov 1963:Pl. 124:7). In the last site, as well as in a later (end of the first millennium B.C.) one on Cape Sedlovidnyi and at the earlier (third–second millennia B.C.) Primoryan site of Pkhusun, rectangular adzes of Type II–2 were encountered (Okladnikov 1963:Pls. 1:1; 5:2; 1964:Fig. 8; Andreev 1959:Fig. 52:1, 2, 6, 7). Adzes

similar to them also turned up in the Voikovskaia culture on the middle Amur at the Osinovoe Lake site (Okladnikov 1966a:Fig. 2:2). "American-like" triangular arrow points with lateral indentations (VIII–22x) also take us toward Primor'e. They are encountered there at Tetiukha (third millennium B.C.) (Okladnikov 1959:Fig. 15:9). We mention that they were also recorded later, at the end of the second–beginning of the first millennium B.C. on Sakhalin in the Starodubskoe II site (Kozyreva 1967:Fig. 4:1). These characteristic points, just like the rectangular adzes, may serve as indicators of cultural influences from Primor'e to Sakhalin and farther to the north, including Kamchatka and Alaska, where they were found in the Ipiutak complex (Larsen and Rainey 1948:Pls. 36–37).

Still fewer analogies are known in the Kurile Islands, which include only leaf-shaped arrow points I–3c from the Bol'shaia site on Shumshu Island.[59]

Thus, the largest number of the exogenic innovations of the Middle Kamchatkan culture occur in Chukotka, the Okhotsk coast, and Sakhalin. Judging by everything, their path of penetration into Kamchatka was Chukotka and the mainland Okhotsk coast. Very few cultural elements are known from the Kurile Islands. These islands evidently did not play a significant role in the formation of the Middle Kamchatkan culture of the Remnant Neolithic.

If we turn to cultural connections proper, that is, to connections of a contact character, we again see a large number of similarities with Middle Kamchatkan types of artifacts in the Ust'-Belaia culture. However, they were also all widespread in the preceding Tar'in culture, and therefore there is no need to interpret them as synchronic connections with the Chukchi culture. The mentioned types of artifacts most probably have an autochthonous origin and their similarity with Ust'-Belaia comes through tradition from the Tar'in culture.

It is possible to judge more definitely the more or less synchronic and therefore probably diffusional connections with the northern Okhotsk coast (at Kip Kich we find adzes II–4 and curved knives IV–6 in Rassvet Bay on Zav'ialova Island) (Vasil'evskii 1959:Fig. 14:1, 22; 1960:Fig. 4:8), Sakhalin (adzes II–4, 6, and V–2 at the Nevel'skaia site) (Kozyreva 1965:Fig. 5:2, 1967:Fig. 15:5), the Kurile Islands (adzes III–6; IV–3; knives IV–1; punches I–6 at the Kuibyshevskaia site on Iturup Island and on Shumshu Island (Chubarova 1960b:Fig. 4:3, 13),[60] and the Aleutian Islands (adzes V–2; knives IV–1) (Jochelson 1925:Pls. 15:38; 47:6).

The life of the population of Central Kamchatka during the Remnant Neolithic is reconstructed mostly on the basis of data from excavations from the upper layer of the Ushki I site (1), which reveal the characteristic picture of a fishing camp. In its huge area were a multitude of pits for preserving fish that had been dug around a comparatively small (about 12 m^2) pit house reminiscent in appearance of an Old Itel'men dwelling with a lateral corridor and an entryway through the smoke hole in the roof (Dikov 1977b:63, Figs. 17, 18).

Thick layers of burned fish bones in the pit house fireplace attest to the long duration of occupation at this rich fishing spot. Here supplies of chum, coho, and other kinds of large salmon were prepared for future use. Here also sacrifices were brought for the deity—patron of fishermen, evidently very similar to the Itel'men Khantai, who, according to Krasheninnikov's description, had a half fish-half human appearance. The remains of such a scorched wooden

[59]Museum of Anthropology MGU, Coll. No. 503–15.

[60]Museum of Anthropology of MGU, Coll. 503–1 (Podkovyrkin's collections).

image of the deity in the form of a fish, composed of pieces of wood and birch bark, were apparently discovered in a special pit under the ruins of a tent that had been constructed over it. Under and over this fish-like image were traces of sacrificial fires, and in its head part were the small bones of fish heads brought to the sacrifice.

It can hardly be doubted that the upper layer of the Ushki site and sites similar to it at Doiarki and Kliuchi belong to the ancestors of Itel'men fishermen who had densely settled the coasts of Kamchatka in the eighteenth century.

It is evident that the numerous, in some cases even younger, fortified villages along the banks of the Kamchatka River (17–18, 20–37) also belong to the ancestors of the Itel'men. We have already noted that pit houses at these sites have a rectangular, sometimes almost square, form with rounded corners.

The occupants of these fortified sites used wooden or birchbark vessels instead of clay. They boiled water in such vessels by putting in hot rocks. The fortified sites were often reinforced with ditches and walls, frequently two or even three. One of the pit houses, as on Cape Sivuiskii, had larger dimensions.

All this shows that at least by the beginning of the first millennium A.D. the lifeway of the Itel'men had been completely formed, which Krasheninnikov colorfully describes in his well-known book *A Description of the Land of Kamchatka*.

"They made yurts (that is, the Itel'men—N.D.)," we read in Krasheninnikov, "by the following method: they dig out the earth to a depth of two arshin,[61] and in length and width depending on the number of occupants. Almost in the middle of the pit they place four thick support posts, and on them they lay out the ceiling, installing a rectangular opening almost in the middle, which served as a window, door, and chimney. They lean logs from the ground up against the mentioned crossbeams. The lower ends of the logs are buttressed on the ground surface with a latticing of poles between them. They cover this with grass and heap on earth so that the yurts have the appearance on the outside of small round mounds, but inside they are rectangular, with two sides almost always longer and two shorter. By one long wall, between the upright posts, is usually the fireplace and from it is the exit, the external opening of which is significantly lower than the one just mentioned. This exit was made so that the air entering through it would expel the smoke from the yurt through the upper opening.

"Within the yurt, by the wall, they make shelves on which families sleep side by side. But there are no shelves opposite the hearth since the household vessels are usually there, the wooden bowls and troughs in which they cook food both for themselves and the dogs, while in some yurts there are no shelves; there logs are arranged around the places where they sleep, and the places themselves are covered with matting.

"There is no decoration in the yurts except that on some walls are hung mats woven of grass, or *chirela*, as they call them" (Krasheninnikov 1949:374).

Excavations in 1962 at the Nikul'skaia fortified site (16) revealed a picture very close to the description by Krasheninnikov cited above. Nikul'skaia pit houses, as we have indicated (Dikov

[61] An arshin equals 28 inches or 71.12 cm.—*Trans.*

1977b:95–101), were built very much like those of the Itel'men, having central support posts and an additional entryway through the smoke hole above the hearth; on the floor and walls the remains of charred mats were preserved, and stones (volcanic bombs) for boiling water were found.

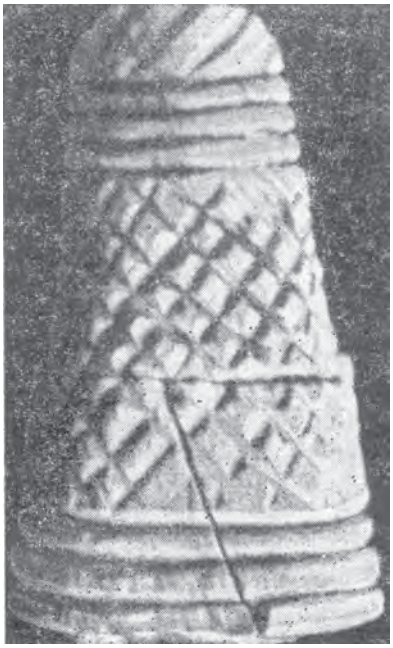

Figure Figure 109. Fragment of a bone needle case from a Nikul'skaia dwelling (16).

At the very beginning of the excavations, human remains were found at a depth of 15 cm in the peat among the roofing (which had fallen into the fire as the result of a conflagration) of the smaller of two paired pit houses (No. 2). The remains were a part of a skull and long bones. Taking everything into account, this was a burial in the Itel'men ceremonial tradition. Based on Itel'men custom, described by Krasheninnikov, the deceased were placed out on the roof of the pit house, after which the occupants built themselves a dwelling elsewhere.

Before the entryway into the corridor leading from the small pit house (No. 2), a piece of charred wood was found on the floor—half of a short (20 cm long) poplar block split lengthwise, with traces of having been worked with a stone axe. The block of wood stood exactly perpendicular to the floor, the flat side toward the first pit house. Its lower end was conical, evidently having been pointed for ease of driving into the ground. It looks as if the preserved piece of wood is the lower part of an idol, possibly similar to the Itel'man Khantai or Azhushak, burnt in the pit house during the conflagration. Krasheninnikov gives the following evidence for the worship of idols:

"The northern Kamchadal have two idols in each yurt, one of which is called Khantai, the other Azhushak. The Khantai is like a mermaid, that is, the upper body is like a human and the rest like a fish, and it ordinarily stands near the hearth, but why and why its form, no other reason could be elicited aside from the fact that there is a spirit by this name. This Khantai idol is made new annually during the purification of sins and stands next to the old one. By the number of these it is possible to determine the number of years since the construction of the yurt.

"The Azhushak is a small post with a trimmed upper part similar to a human head. It is set above the household vessels and worshiped as a watchman that drives forest spirits from the yurt. The Kamchadal feed it every day and anoint its head and face with boiled sarana or fish" (Krasheninnikov 1949:376).

The occupants of the Nikul'skaia fortified site, just as those of other Kamchatkan fortifications, underwent the last phases of clan structure and entered into a stormy time of military democracy. Krasheninnikov illustrates a true and clear picture of the internecine warfare so characteristic for disintegrating clan relations. "The Kamchadal," he writes, "waged war so often among themselves that a year did not pass in which there would not be some fortified sites destroyed.

"The main intent of their clashes consisted of acquiring captives, whom they used in heavy work, and especially women, whom they took as concubines and as wives, and they did not argue

much whether one or the other was the reason and whether it was legitimate or not. Sometimes neighboring forts were stirred up against each other because their children were quarreling, or if whomever, having been invited, was not entertained as was required, then it was considered such an offence that revenge had to be carried out on them, such as the destruction of the entire fort in which the enemy act occurred.

"They rushed into the enemy fortifications at night, which they were able to do without hindrance since the latter had no guards. Thus, with a small number of people they destroyed a substantial part of the enemy without any danger and opposition to themselves. All the difficulty of winning the victory consisted of running up to the yurt quickly and not allowing anyone out of it by standing over the window with a club or *chekushaiu*, since by the nature of the structure the beleaguered occupants had to climb up out of the yurt through the window one at a time, where the besiegers were able to both strike them and take them in small numbers" (Krasheninnikov 1949).

Taking everything into account, the creators of the indigenous Middle Kamchatkan culture were the northern Kamchadal (Itel'men), in Krasheninnikov's terminology, which differ, as this scholar noted, by dialect from the southern. We were able to note the tendency toward separation of the two groups already in the preceding, Tar'in, culture, formed by two local complexes: in the north, without ceramics, and in the south, with ceramics.

The South Kamchatkan (Nalychevo) Variant of the Old Itel'men Culture

At several points in southern Kamchatka—on the shore of Lake Nalychevo, on Cape Nalychevo, on the shore of Listvennichnyi Strait, in the upper layer of the site on Mishennaia Sopka (43), at Tar'ia (28), at the source of the Ozernaia River (302), and on Cape Sivuiskii in Kuril'skoe Lake (303)—Jochelson, Orlova, and Shnell often found in pit houses, generally like those on the Kamchatka River, fragments of very distinct clay vessels, with so-called internal ears, together with iron artifacts. The author had occasion to find a fragment of such ceramics at Petropavlovsk in the upper layer of the site on Kirpichnaia Street (44), and in 1975 similar ceramics were found at the site of Bol'shaia Medvezhka I (248) by A. K. Ponomarenko (Antropova 1949; Jochelson 1928; Ponomarenko 1978; Shnell 1932).

The presence in the mentioned "fortified yurts" of these very characteristic ceramics, typical, as is well known, for the late Ainu Neidzi culture, prompts examining this group of sites separately, though in the complex of its stone artifacts no significant differences are seen from the indigenous Middle Kamchatkan culture, which we just analyzed.

In genetic regard, the structure of this complex includes elements common (1) for the preceding Tar'in culture on the whole, (2) for its southern Kamchatkan zone, (3) for its central Kamchatkan zone, and finally, (4) for the central Kamchatkan culture synchronic with the indigenous Old Itel'men.

In common with the preceding Tar'in culture, both in the southern peninsula and in the Kamchatka River valley, are flat trapezoidal adzes (V–7), unifacially convex adzes (III–6), points (I–18), and scrapers (I–11).

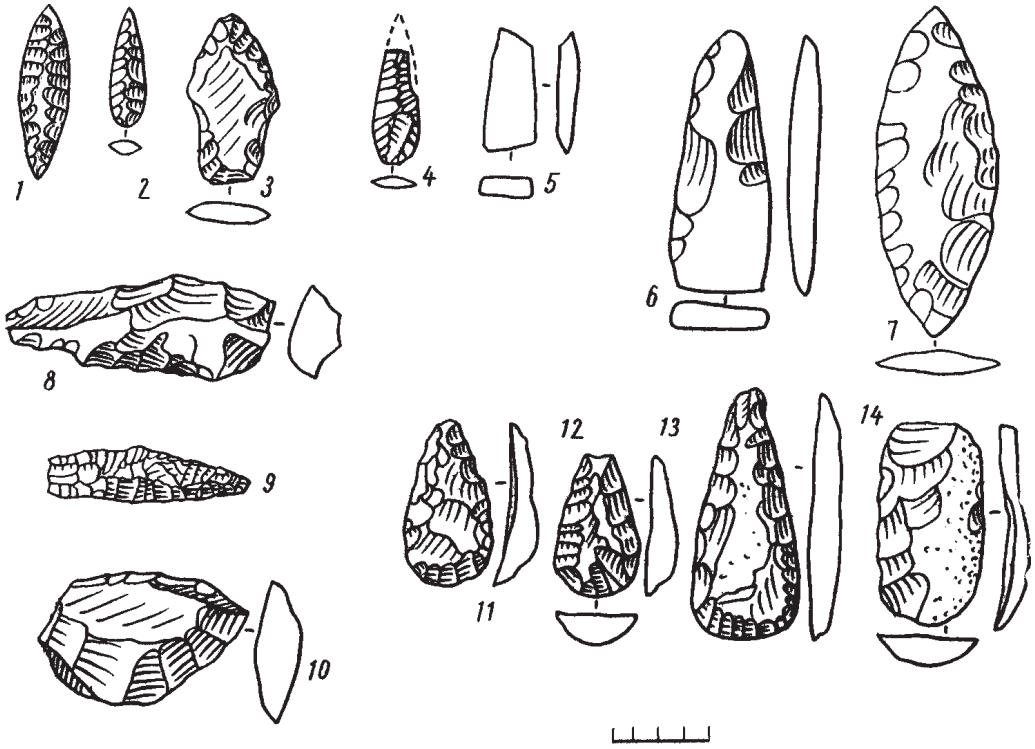

Figure 110. Complex of stone artifacts from the South Kamchatkan (Nalychevo) variant of the Old Itel'men culture, also common for the Middle Kamchatkan (Nikul'skaia) variant. 9—Nalychevo (254), after S. I. Rudenko; the remainder—Cape Sivuiskii (303), in the depository of GIM, W. I. Jochelson's collection.

Inherited only from the southern Kamchatkan group of sites of the Tar'in culture are adzes (II–4; IV–3; V–1, 2); narrow leaf-shaped points (I–1c), stemmed (X–10); stemmed knives (V–6; X–14); almost round micro-scrapers (I–23; II–23), pear-shaped and trapezoidal scrapers (II–11, 24), scrapers with "ears" (IV–2); and punches (I–6).

Into the group of sites of the Tar'in culture, located on the Kamchatka River, fall truncated leaf-shaped points (II–1b), end scrapers on blades (I–1), and subtriangular and pear-shaped scrapers, including biface scrapers (I–6; II–16; V–1).

Twenty-one of 48 types of artifacts (Fig. 110) can be classified as innovations characteristic for the synchronic indigenous Old Itel'men culture of the Remnant Neolithic in the Kamchatka River valley: adzes that are elongated-triangular and unifacially convex (III–5, 6), trapezoidal with a rectangular cross section (II–4), trapezoidal with a lenticular cross section (IV–3, 4), and with a geometrically irregular cross section (V–2, 11); arrow points that are leaf-shaped (I–2b), with a stem (X–5; XI–5), triangular (V–b), and incompletely retouched (O–8); knives that are stemmed with a straight back and convex working edge (V–8), with a curved back (IV–7), and truncated leaf-shaped (II–8); end scrapers on blades (I–1), pear-shaped (I–11; II–11), high trapezoidal (VIII–24), discoid (IX–13), and scrapers with "ears" (IV–2).

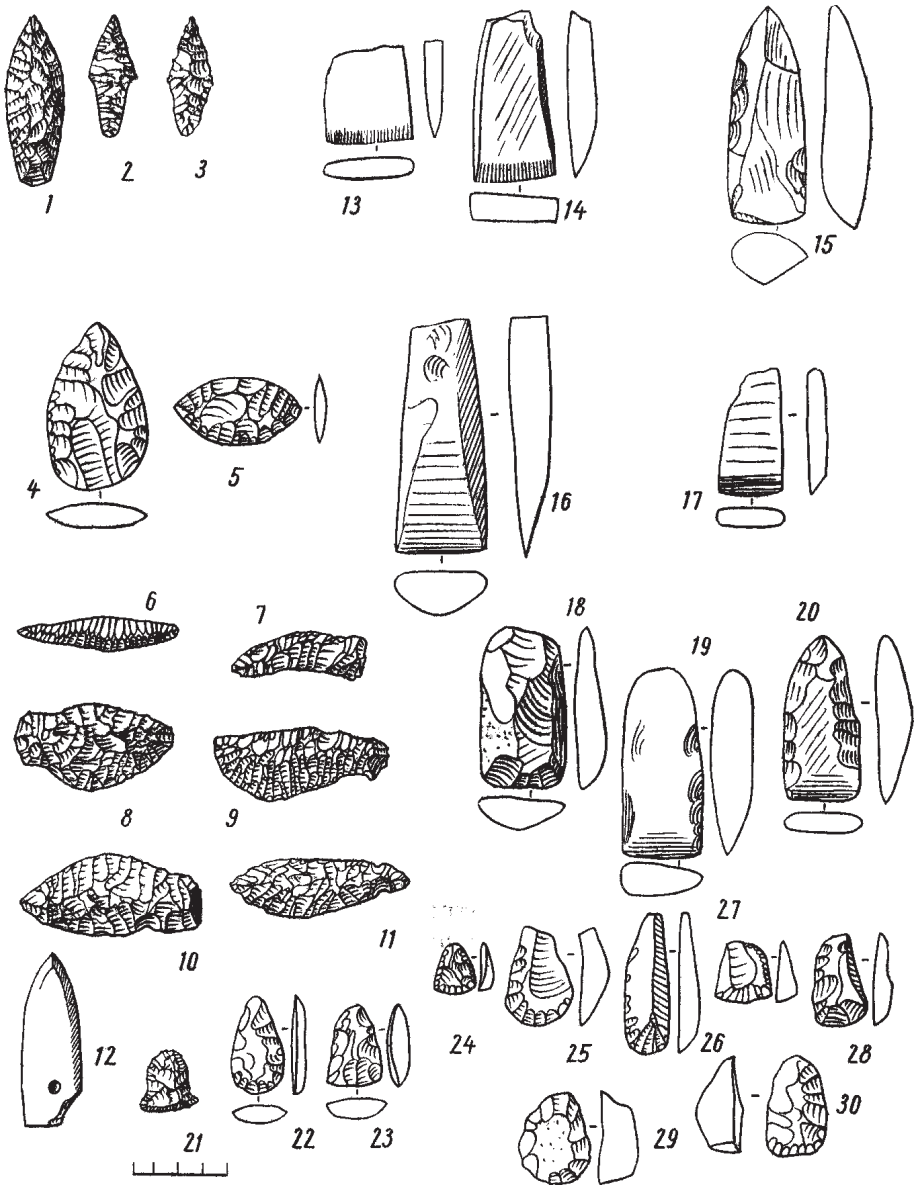

Figure 111. Complex of stone artifacts found only in the South Kamchatkan (Nalychevo) variant of the Old Itel'men culture. 1, 7, 8, 21—Cape Sivuiskii (303), after S. I. Rudenko; 2, 30—Cape Suvuisk (303), after W. I. Jochelson; 5, 11, 13, 15–20, 22, 23, 25, 26, 28, 29—Cape Sivuiskii (303), in the depository of GIM, W. I. Jochelson's collection (11—Kavran, after S. I. Rudenko); 6—Cape Nalychevo (255), after W. I. Jochelson; 9—southern Kamchatka, after S. I. Rudenko; 10—Savoiko (Elizovo?—42), after S. I. Rudenko; 14—Cape Nalychevo (255), in the depository of GIM; 24, 27—southern Kamchatka, in the depository of GIM.

The majority of types (25 of 48) are innovations peculiar only to this indigenous southern Kamchatkan group of sites of the Nalychevo type, with ceramics of the Neidzi type (Fig. 111): adzes partially ground and oblong (IV–1), grooved (IV–2), and several other types of adzes (V–4, 6, 8, 10, 11), including chisel-shaped (V–12); arrow points that are leaf-shaped (I–5a), stemmed (X–15), truncated leaf-shaped (II–3b), and triangular (V–b, ay, VaMx); knives that are leaf-shaped and bifacial (II–1, 2, 3), truncated leaf-shaped (II–8), and narrow-bladed and stemless with a curved back and with a convex back and concave working edge (V–15); triangular biface scrapers (V–2); and crudely flaked end skreblos (VIII–25, 29) and round skreblos (IX–10, 13).

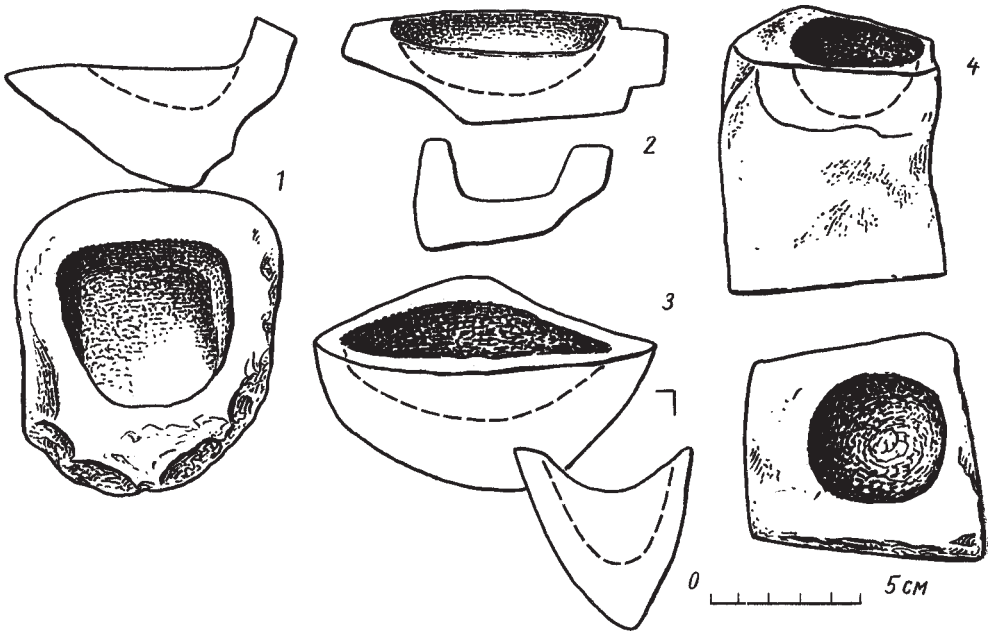

Figure 112. Stone lamps from W. I. Jochelson's excavations at Cape Sivuiskii (303) (depository of GIM) (1–4).

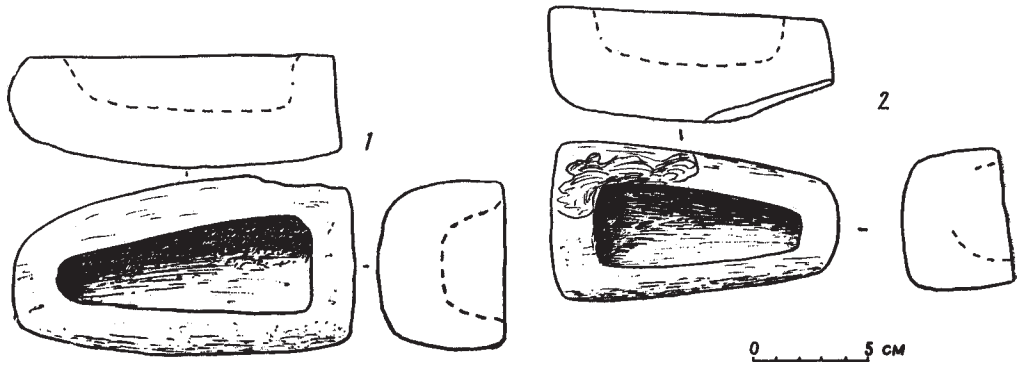

Figure 113. Stone lamps from W. I. Jochelson's excavations at Cape Sivuiskii (303) on Kuril'skoe Lake (303) (1–2) (depository of GIM).

In summary, all the innovations of this southern Kamchatkan group of sites fall into 29 types, and the number of all the traditional types is only 19. Thus, the qualitative difference of this complex of stone artifacts from the preceding Tar'in is evident. There is no doubt that most innovations (25) are peculiar only to the southern group of sites of the latest Remnant Neolithic Kamchatkan culture and only five of all these new artifacts (V–8 adzes, I–2b and II–3b points, II–9 knives, and IX–13 scrapers) are common for both the southern and northern indigenous groups.

A similar disproportion is also observed in quantitative composition: of 19 traditional elements, 17 have an indigenous southern Kamchatkan origin, five of them can be viewed as common for both the southern and middle Kamchatkan part of the Tar'in culture, and only four items have an exclusively middle Kamchatkan origin.

This is also confirmed by the collection of stone lamps from excavations on Cape Sivuiskii (303) assembled by Jochelson. Round, elliptical, and subtriangular like a flatiron (Figs. 112, 113), they differ substantially from those of the Koryak and Aleuts, and even more from those of the

Eskimo and Chukchi. The most original types of them are subtriangular, sometimes with an "ear" hole, as on the roundish Koryak lamps. Roundish stone lamps probably go back to the Tar'in type of lamps with ornamental hatching along the upper edge (Dikov 1977b:Pl. 49:8) (ornamental designs are encountered occasionally also on Sivuiskii lamps).

Thus, it is natural to conclude that the source of some of the distinctiveness in the complex of stone artifacts of southern Kamchatka during the latest Remnant Neolithic period came from the Tar'in culture. The origin of a large number of the innovations may be endogenous or exogenous. This can be ascertained only by comparing them with corresponding elements of surrounding cultures.

Before proceeding to such comparative-historical analysis it is necessary beforehand—and as reliably as possible—to place in time the indigenous South Kamchatkan archaeological culture we are examining. The basic indicators of its age are the Neidzi ceramics, which spread from the Kurile Islands only in the seventeenth century (Befu and Chard 1964; Kozyreva 1967:109–118), as well as coins found by Jochelson in pit houses near the mouth of the Ozernaia River and on Cape Sivuiskii in Kuril'skoe Lake (Bada 1939; Dikov 1969a:Fig. 129; Jochelson 1928). They show that the Sivuiskii and Ozernaia sites existed up to the arrival in Kamchatka of Russian explorers and that they were synchronic with the Neidzi culture of the Ainu on Sakhalin and in the Kurile Islands. Of course, only the upper boundary date of the group of sites can be determined this way. A few earlier sites can be found among them.

Such a late date for this indigenous culture limits very much the possibility of establishing its connections by means of analogies to its stone artifacts. In the surrounding cultures, even in Northeast Asia, not to mention more southern and western regions, the Neolithic stone-working industry had either disappeared long ago or has been so much degraded that it does not fit into any comparison with the excellently preserved stone industry, which is still properly Neolithic, of the sites with Neidzi type ceramics.

Nevertheless, we find many analogies with the latest pre-Russian stone artifacts of southern Kamchatka in the surrounding regions, but we find them in sites more or less earlier than South Kamchatkan. But such analogies may have genetic significance and thus are of interest for clearing up the origin of innovations in the indigenous South Kamchatkan culture.

Along with the above-noted large number (21 of 48) of similar innovations in the synchronic Middle Kamchatkan culture in the Kamchatka River valley, there are some, though in smaller number, similar types in the late sites of the northern Okhotsk coast, Sakhalin, and the Kurile and Aleutian Islands.

North Okhotsk analogies are narrow, flaked adzes with a pointed butt and lenticular cross section (IV–1) and probably ground, grooved adzes (IV–12) from the upper site on Zav'ialova Island (500–800 A.D.) (Vasil'evskii 1965:Figs. 1–11), stemmed projectile points (X–15) and triangular scrapers from the same place (*Ibid.*:Fig. 2d),[62] as well as knives that are truncated leaf-shaped (II–9) and leaf-shaped with a lateral projection (V–3) and discoid scrapers (IX–10) from a still earlier site (which weakens their significance for this comparison) on Nedorazumeniia Island (*Ibid.*:Fig. 1:5). In this same site, those flaked adzes (IV–1) that are characteristic also for the later

[62]Museum of Anthropology MGU, Coll. 310–10 (M. G. Levin's collection).

Zav'ialova stage of development of the Old Koryak culture (500–800 A.D.) appeared for the first time (Vasil'evskii 1968b:314).

Among the Sakhalin analogs, of interest are leaf-shaped biface knives (II–1) from the Nevel'skaia site of the first millennium A.D. (Kozyreva 1965:Fig. 5:3, 5). But from the Kurile Islands we have somewhat more of them: flaked adzes (IV–1) from the Kuibyshevskaia site on Iturup Island that were already noted on the Okhotsk coast (second half of the first millennium A.D.) (Chubarova 1960b:Fig. 3:11), an adze (V–6) from the earlier Kasatkinskaia site on the same island (end of the first millennium B.C.–beginning of the first millennium A.D.) (*Ibid.*:Fig. 1:20), grooved adzes from the same site (*Ibid.*:Fig. 1:19), and curved knives (V–15) from an undated collection from Iturup Island.[63]

The analysis of the above-cited analogies to new elements of the indigenous South Kamchatkan culture confirms its very close connection with the Tar'in culture and with the synchronic indigenous culture in the Kamchatka River valley. All three groups of sites apparently make up an ethnic unity, and of course it must be defined as Itel'men. The analogies in the Okhotsk, Sakalin, and Kurile cultures attest to the definite role of the latter in the formation of the indigenous South Kamchatkan culture. This conclusion also applies to the Neidzi type clay vessels with "ears." The presence of such ceramics among the remains of the late South Kamchatkan culture should most probably not be considered as definite evidence of its purely Ainu association, but influence on it by the Ainu Neidzi culture cannot be denied.

These distinctive vessels add to the South Kamchatkan archaeological complex exactly that unique quality which permitted us to separate it as an indigenous variant of the archaeological culture. However, we do not have sufficient basis, just from the presence of Neidzi ceramics, to assign it only to the Ainu. We probably have here Itel'men in its basic indigenous culture, which only borrowed Ainu ceramics and perhaps some very few other elements. It was very easy for Ainu ceramic production to be introduced to the Itel'men of southern Kamchatka since until then they generally had no ceramics, as archaeological materials have indicated. Therefore, suitable Ainu vessels spread rather quickly and quite far to the north along the peninsula beyond Avacha Bay up to Nalychevo into the region where, according to historical evidence, by the seventeenth century the Avacha "Suaachiu-ai" Ite'men lived and not the Ainu, with which Krasheninnikov (1949:888) and Dolgikh (1960) are in accord.

Not so simple, however, is the question of settlement by the Ainu of southern Kamchatka, Cape Lopatka, and the nearby Kurile Island of Shumshu.

From Cape Lopatka meanwhile there are generally no archaeological finds, and from Shumshu Island, only the chance undated finds of B. A. Podkovyrkin. They are leaf-shaped and stemmed obsidian and basalt projectile points and knives, as well as bone toggling harpoons (Dikov 1946:Fig. 3),[64] and there is no assurance that they can be connected with the Ainu, who, as has been established, appeared on Sakhalin only in the fifteenth century A.D., and in the Kurile Islands only in the seventeenth century (Kozyreva 1967:108). Krasheninnikov suggested that those who lived on Cape Lopatka and Shumshu Island, the so-called Near Kuriles people, were not the Ainu, though they possessed the Ainu language along with the Itel'men, but rather the Kamchadal (Itel'men), who

[63]In the depository of the MAE AN SSSR, Coll. 6032.
[64]Museum of Anthropology MGU, Coll. No. 503.

only mixed somewhat with the Ainu and borrowed from them some customs, among which he notes that they "are not Azhushaki, but they have *struzhki* [wooden idols] in the yurts" (Krasheninnikov 1949:739). But the fact that they worship *struzhki*, which is very typical of the Ainu *inau*, a cult very characteristic of the Ainu, compels one to doubt the interpretation of the Near Kuriles as Itel'men who were exposed only to the influence of the Ainu. Consequently, Dolgikh is evidently correct, as is Gurvich, who, on the basis of written sources, came to the conclusion that the "Near Kuriles" of Cape Lopatka and Shumshu Island were Ainu (Dolgikh 1960:573, 574; Gurvich 1966:268, Maps).[65] It is even more probable that only in this way will the influence be understood that they undoubtedly rendered on the southern Kamchatkan Old Itel'men culture, which was expressed in the distribution of ceramic vessels "with internal ears" up to Nalychevo, that is, substantially to the north of Avacha Bay.

However, the problem is in identifying certain archaeological sites with the "Near Kuriles" (that is, with the Ainu). Such sites are presently unknown, and the materials from Jochelson's excavations on Kuril'skoe Lake and the Ozernaia River that are customarily identified with them (Jochelson 1930; Rudenko 1948) cannot be Ainu since they are identical to finds in early pit houses at Nalychevo (where there are vessels with "ears"), which by their geographic location can be assigned only to the Avacha "Suaachiu-ai" Kamchadal.

Consequently, Neo-Ainu archaeological sites in Kamchatka may still be discovered, and they will probably be found in the very south of the peninsula, on Cape Lopatka, where no archaeological surveys had been conducted until those carried out recently by T. M. Dikova. The discovery in Kamchatka of Ainu sites would be a substantial contribution to the problem of the northern boundary of the Ainu, which in recent times has attracted the most steadfast attention of many scholars (Arutiunov 1970; Chard 1970; Levin 1958:249–295).

Thus, both the Middle Kamchatkan and the South Kamchatkan indigenous cultures of the second millennium A.D. to the seventeenth century are Old Itel'men. We identified the first with the northern Kamchadal (according to Krasheninnikov's terminology) and the second with the southern Kamchadal. And such a double unity of Old Itel'men culture is not strange if one considers that also among the Eskimos early culture was embodied in a large number of special, distinctive archaeological cultures, such as Old Bering Sea, Okvik, Birnirk, Thule, Punuk, and the like.

The nearness of the early, presently still unnamed Late Neolithic inhabitants of the Kurile Islands, and then of the Ainu, exerted strong cultural and ethnic influence on the southern Itel'men, but, taking everything into account, it did not bring about their complete assimilation. As a result, the technology of the Stone Age was preserved in the southern Kamchatka Peninsula in its "original" form up to the arrival of Russian explorers at the end of the seventeenth century.

[65]These data on the Ainu of Kamchatka were summarized recently by the Japanese historian Shichiro Murayama (1970).

Common Regularities and Basic Features of Historical Development in Extreme Northeast Asia

Investigation of archaeological sites in extreme Northeast Asia as a historical resource permitted us to draw a picture, although a generalized one, but nevertheless rather definite and concrete, of the development of culture from the Upper Paleolithic to the Undeveloped Iron Age and late Remnant Neolithic.

Now, at the end of investigation, it is necessary to touch upon some general theoretical questions and draw basic conclusions resulting from our research and the characterizing common tendencies, principles, and features of development in Northeast Asia.

Analyzing the course of cultural-historical development in Northeast Asia, it is easy to note the general tendency of gradual local differentiation of early cultures. Thus, the vast cultural zone of the late Paleolithic, in which the complexes of Cultural Layers V–VI of the Ushki sites and Diuktai Cave on the Aldan are included, is replaced in the Northeast by narrower zones of the Maltan and Sumnagin Mesolithic, which was followed by separation in the Early Neolithic of the Ushki and Amguema complexes having arrow points with a rhomboid cross section. In this substrate in the Developed and Late Neolithic, two cultural spheres emerge: a Neolithic with ceramics—in Chukotka (the North Chukotkan and Ust'-Belaia cultures), and a Neolithic without ceramics or almost without them—in Kamchatka (the complexes of Ust'-Palana and Nedorazumeniia, second Ushki, and then the Tar'in culture and the complex at Chertov Ovrag on Wrangel' Island). During the Remnant Neolithic in the Northeast a substantially larger number of separate cultures evolved: several variants of coastal cultures with more or less well-developed sea mammal procurement (Okvik, Old Bering Sea, Birnirk, Thule-Punuk, North Okhotsk with its five stages [Zav'ialova, Bogurchan, Atargan, Lengel'val', and Final Sixteenth Century], northwestern Bering Sea, Kanchalan, and one represented by a site with distinctive houses investigated in 1977 on Cape Nizkii), as well as cultures of inner-continental type, predominantly fishing: the Anadyr'-Main or Vakarevo, Middle Kamchatkan (Nikul'skaia), and South Kamchatkan (Nalychevo) indigenous cultures. This ethnic commonality is probably related to the earliest Esko-Aleuts, who replaced the population here that participated in the ethnogenesis of the Paleo-Indians at the beginning of the Holocene.

The formation of local differences in the economy and culture in the area being examined reflects the processes of ethnic differentiation. Thus, in the late Paleolithic in Kamchatka there were probably tribes that were a part of some vast ethnic commonality marked in the west by the Diuktai culture and in Alaska by the Denali culture.

This ethnic commonality, marked by labrets, is probably related to the earliest Esko-Aleuts who replaced the population here that participated in the ethnogenesis of the Paleo-Indians. At the beginning of the Holocene, communities (the Maltan complex and the Siberdik and Sumnagin cultures) were formed here that at present have not been precisely defined. One such later community (Ushki, Cultural Layer IV) is possibly related to the forming of proto-Itel'men. The labret-bearing Late Neolithic Tar'in culture has been more definitely connected with them. In Chukotka and adjoining regions to the west and southwest the initial labret-less Chukchi-Koryak ethnic community of Northeastern Paleo-Asiatics was probably formed at this time and even somewhat earlier. With this, the Ust'-Belaia and North Chukotkan cultures undoubtedly made up the essential component not only of Chukchi-Koryak ethno- and cultural-genesis but, judging by paleo-physical anthropological and archaeological data, probably that of the Neo-Eskimo as well. In addition, it has been established that during this time Paleo-Eskimos already lived on Wrangel' Island. During the Remnant Neolithic period, the demarcation of cultures generally corresponds to the settlement of the ancestors of all the basic contemporary aboriginal peoples of Kamchatka and Chukotka, except the Even. The Ainu lived on the southern approaches to Kamchatka or even on its very southern edge, in the region of Cape Lopatka, and rendered a strong influence on the southern Itel'men. The latter occupied the southern part of the peninsula (the Nalychevo culture). In its central part, in the Kamchatka River valley, lived the northern Itel'men (the indigenous Middle Kamchatkan culture). Neo-Eskimos occupied the sea coast of northern and eastern Chukotka (the Okvik, Old Bering Sea, Birnirk, and Thule-Punuk cultures). The Chukchi (the Kanchalan culture) began to settle closer toward the south, on the sea coast of Chukotka. In the basin of the Anadyr' and Main Rivers, a fishing culture emerged during this time, the ancestors of the Yukagir. They were wedged between the Koryak and the Chukchi, having pushed the latter into the northwestern and northeastern regions of Chukotka, where Russian explorers encountered them in the seventeenth century.

In all stages of the history being examined, cultural connections with northwestern America can be observed, the most intensive during the late Paleolithic and Mesolithic, and later reflected in the spread of Eskimo culture.

We also examined the cultural connections of Kamchatka, Chukotka, and the Kolyma with surrounding regions of the Old World over a wide chronological range. At various stages they are characterized by a different breadth and intensity, depending on the level of the culture and the concrete historical environment.

Careful study of the connections of each of the early cultures in the Northeast that we have examined has permitted tracing their dynamics from the Paleolithic to the Remnant Neolithic and uncovering the essential principle of the dynamics leading finally in the early Iron Age and Remnant Neolithic to the isolation of extreme Northeast Asia, and along with it the whole North American continent as well, from the relatively more highly developed cultures of the Old World.

The dynamics of the cultural connections are well defined. Approximately from the second millennium B.C. their circle begins to shrink noticeably, shifting at the same time toward the north from the steppe into the taiga and tundra, where they begin to embrace almost the whole circumpolar zone, and to the Northwest Coast of North America along the islands of the Pacific Ocean.

Summarization of the total aggregate of data available to us on cultural connections of the early population of the Northeast during various stages of its historical development and theoretical

understanding, in particular, of this very characteristic dynamic of development of connections, leads us to conclude that the connections had a naturally determined dependence on the relative economic-cultural level of the surrounding cultures. The reason for the shrinking and reorientation of cultural connections of the Northeast toward the north, in our view, can ultimately be explained by the unevenness of development of production forces in the initial broad zone of cultural contacts and by the emergence in the Neolithic of an economic barrier between agricultural peoples and livestock breeders of the steppe, on the one hand, and hunters and fishers, on the other.

In the northern subtropical zone of the Old World during the Holocene events took place that had great significance for further development of ethnic and cultural connections. The vast world of hunters, fishers, and collectors gradually ceased to be unique. In the Near and Far East, under the most favorable natural conditions, people changed from collecting ready-made products of nature to producing them. They began to occupy themselves with agriculture and livestock breeding.

This revolutionary process was later spread even farther to the north in some regions, embracing, for example, the tundra-steppe valley of the upper and middle Lena, reaching here almost to the Arctic Circle itself—to the limit of possible spread at this time of highly developed livestock breeding.

If earlier in the Upper Paleolithic, and even the Early Neolithic, it was all the same to hunters and fishers where they settled so long as there was no insuperable natural hindrances along the route and there were animals for hunting and fish to catch, and if the change in the climate, which incidentally was almost imperceptible during the centuries-long movement of peoples, did not frighten them, then the transition now of the population to livestock breeding and agriculture sharply curtailed the stimuli of population movement on the continent toward the Northeast, into the taiga and tundra, beyond the middle Lena steppe toward North America.

Therefore, southern inner-continental connections were gradually curtailed from the second–first millennia B.C. and a long period of relative isolation began for the extreme Northeast, as well as for North America, from the more well-developed livestock breeding-agricultural cultures of the Old World that were emerging in the south.

A very significant sign of this occurrence can be seen in the fact that the Bronze Age, which reached Chukotka (confirmed by bronze burins in the 3,000-year-old Ust'-Belaia cemetery), did not cross Bering Strait into North America (arrow points with a three-sided and rhomboid cross section also did not cross there). This fact alone clearly attests to the weakening of connections directed from inner-continental Asia toward North America. Later, in the early Iron Age, these connections are curtailed even more. Gradually all of extreme Northeast Asia and North America were excluded from continuous contact with the ever more progressive livestock breeding-agricultural continental cultures of eastern Asia. Something akin to a distinctive "closing" of America is begun, as of the regions of extreme Northeast Asia adjoining it, in which the hunting-fishing way of life is preserved. A significant break in the development of connections between the Old and New Worlds occurs, the essence and significance of which cannot be underestimated.

But even at this time the isolation of our Northeast and North America, of course, was not absolute. The dissolution of connections evidently occurred very slowly, like the settlement of the region. Besides, the decrease in stimuli for migration and connections from inner-continental Asia as a result of the emergence there of highly developed types of economy (livestock breeding and

agriculture) did not exclude the existence of peripheral routes for the spread of culture and population movement along the sea coasts.

As many researchers note, at this time a rather homogeneous circumpolar culture of deer hunters spread along the Arctic Ocean from Norway to Greenland (where a route of human migration from Asia to America probably existed during the Paleolithic) (Simchenko 1976).

Penetration of iron (though in paltry quantities)—as well as some elements from southern cultures, such as curvilinear design—into the Northeast and farther, into Arctic North America, to the ancestors of the Koryak and Eskimos occurred along the Okhotsk and Pacific shores and the islands of eastern Asia. Under conditions of isolation, the development of technology went backward for a while, back to the Stone Age and continued its course in the form of the Remnant Neolithic. Features of the Stone Age were peculiar to almost all of Chukotka and Kamchatka up to the seventeenth century and even later.

In the archaeology of the Northeast, in spite of its long historical isolation, we find confirmation of common regularities of progressive development in the unity of productive forces and production relationships. As in most regions of the earth, progressive development from an economy that only appropriated ready-made products of nature to a producing economy occurred here, from a natural division of labor to a communal one.

The manifestation of common features were also here. The most essential of them was the absence of sufficiently good conditions for the emergence in the past of agriculture and highly productive livestock breeding. This feature in combination with the long (up to the opening up of the territory by the Russians in the seventeenth century and later) survival of Stone Age technology placed a distinct imprint on all the aboriginal history of the population of the Northeast, in consequence of which we observe here a quite distinctive course in the development of the primitive economy. Because of unfavorable natural conditions, it remained only an appropriating economy a millennium longer than in other regions of the earth.

Its apogee on the sea coast was sea mammal procurement, which emerged 3,000 to 4,000 years ago. Harpoons with toggling heads that disengaged, invented by the ancestors of the Eskimos and Coastal Chukchi, provided abundant procurement from the sea. From that time the inexhaustible resources of the sea in the form of the meat of sea mammals (seals, bearded seals, walruses, and then whales) began to be used by people here. This highly productive procurement does not lose its great significance even now. It predestined the transition of the coastal part of the population of Chukotka to sedentism and, although weak, it was nevertheless a substitute for a settled agricultural economy in the communal division of labor (Dikov 1958b, 1969a).

As for livestock breeding, it appeared here comparatively recently, no more than a few centuries ago, in the rather primitive form of reindeer herding. This in itself very progressive shift in the development of productive forces in a tundra population, formerly hunters, having the significance of being the first great communal division of labor, secured a nomadic way of life for the other, tundra part of the population of Chukotka. And up to now this type of economy, much more advantageous than simply hunting wild deer, connected with the nomadic deer-herding way of life, is the only way of mastering the huge reindeer-moss pastures of Chukotka.

The development of production relationships in the Northeast occurred in direct connection with the progress of productive forces, which can be traced rather well in an archaeological perspective over a period of 15,000 years from the Paleolithic to most recent times.

The earliest, so-called Paleolithic, population of the Northeast, which probably collectively conducted drives in hunting mammoths and other large mammals, still jointly possessed simple property and calculated kinship, it can be supposed, based on the maternal line. Approximately the same stage of social development was also later experienced by Neolithic hunters of wild deer—the ancestors of the Chukchi. Incidentally, among them also, as in the Paleolithic, the drive hunt was widely practiced, but now on reindeer at their river crossings. These hunters of the Neolithic and Undeveloped Iron Age of Chukotka, in essence still Paleolithic based on their hunting methods, left us magnificent cliff illustrations, among which figures of ancestors and spirits clearly of the female sex predominate.

Maternal clan organization also predominated among the Itel'men, who lived chiefly by fishing, judging by the written sources, up to the seventeenth century. This stage is also recorded for them by the archaeological data. Early Itel'men fortified sites always have, along with pit houses of medium dimensions, large communal houses that are evidently special men's houses (Okladnikov 1953a), so characteristic for the maternal clan. Such men's houses—kazhim—are also encountered in early Eskimo sites. The presence of the maternal clan stage, common to all hunting peoples of the Northeast, is evident also in the broad distribution of remnants, be this womanlike shamans among the Chukchi or *koekchuchi* of the Itel'men or such transformed female spirit rulers like the Eskimo Sedna, who, as Bogoras pointed out, could have become part of the paternal clan through inheritance only from the maternal clan. This initial stage of development of society is attested also by such a widespread vestigial custom in the Northeast as avunculate (that is, the typical priority of the maternal clan in family relations between nephew and maternal uncle).

The transition of part of the population of the Northeast to a higher degree of development in aboriginal society—to the paternal clan—had already occurred in connection with that distinctive social division of labor, about which we spoke above, probably with the transition to marine hunting, and especially with the separation of deer herding as an independent branch of the economy. Ethnographic data authenticated by written sources of the seventeenth–eighteenth centuries are predominantly decisive for such a conclusion, as are archaeological data. It is necessary to take into consideration such an essential feature of social development as the disintegration of clan connections among the Chukchi before the arrival there of the Russians, which was evidently a consequence of the very dispersed settlement of nomadic deer herders (Anisimov 1967; Shternberg 1933; Vdovin 1948, 1950, 1965).

With the paternal clan, primitive society enters, as is known, the phase of its disintegration. Tendencies begin to gradually develop in it toward private ownership. It is possible that the deepening of this process was connected in the Northeast with some elements of military democracy. This is confirmed by several archaeological sites in Chukotka: the ruins of fortified sites on rocky capes on the sea coast, where places of battles have been revealed.

Since the seventeenth century, after the northeastern extremities of Siberia became part of the Russian state, the process of disintegration of relations of the primitive communal system increased even more and on the basis of further development of productive forces, social division of labor, and trade resulted in the formation of a variety of neighboring communities (nomadic and sedentary). The peoples of the Northeast changed to neighborly communities by various courses: the Chukchi, Koryak, Even, and Reindeer Yukagir—from a patriarchal large-family community—and the Eskimos, Itel'men, and Yukagir hunters and fishers—from a maternal clan community that was still unsuccessful in reorganizing itself into a patriarchal one. The result, however, was about the

same: along with communal property in the pasture and hunting areas, private property was asserted in the deer herd and tools of production, and the monogamic family with a man at the head was strengthened. Here the same processes occurred as in many other disintegrating communities, in particular among the Indians of North America.

We thus see how specific features of local historical development in Northeast Asia correlate with the common social regularities of the historical process. Attention has already been turned to the importance of this theoretical-methodological aspect of historical investigations (Zhukov 1975:7–24).

The total aggregate of archaeological information that we have investigated illustrates that progressive development was a feature of the Stone Age of Northeast Asia and that the ancestors of its native inhabitants had their deeply original history. They made a substantial contribution to the history of world culture. This is attested by the early domestication of the dog in the Paleolithic, the early harpoon complex of the Eskimos, and rather well-developed northern art (it is sufficient to recall the highly artistic carving on a walrus tusk or the Pegtymel' petroglyphs), and many other examples. But their greatest historic feat was the opening up of the severe north and, in this connection, their historical role in the initial settlement of America.

Conclusion

This work is based on the previous book of this author—*Archaeological Sites of Kamchatka, Chukotka, and Upper Kolyma* (Moscow, 1977/NPS, 2002). The writer continues the study of archaeological cultures in Northeast Asia and undertakes to interpretation them. The particular questions treated are the problems of the initial peopling of Northeast Asia and America during the Paleolithic and of the cultural-economic and ethnic development of Northeast Asia during the Mesolithic, Neolithic, and Undeveloped Iron Age.

The Paleolithic cultures of Kamchatka, the Kolyma, and Chukotka are very important for solving the first problem. The multilayered Ushki sites of Kamchatka, studied by the Northeast Asian Archaeological Expedition, are the reference and key sites for these cultures. The sites reveal the most representative Northeastern (and Yakutian) series of Paleolithic and later cultures featuring very clear stratigraphy that is ideally controlled by volcanic ash layers. In terms of stages, the oldest among the presently known Northeast Asian Paleolithic cultures (including Diuktai in Yakutia) is the early Ushki culture of Cultural Layer VII (14,300 ± 200 B.P.) with stemmed bifacial arrow points, which seem traceable back to the Alaskan British Mountain culture with its nondeveloped stemmed points. A significant result of the excavation of sites of the Ushki culture is the discovery of remnants of burials and large above-ground dwellings consisting of adjacent pairs of huts with fireplaces lacking stone enclosures (the Ushki I and V sites). This complex features an underdeveloped technology of wedge-shaped cores and thus differs significantly from sites of the Verkholenskaia Gora type (including sites of the Diuktai culture in Yakutia) and from the culture of the overlaying Ushki Cultural Layer VI, as well as from Japanese pre-ceramic cultures. Judging from its general Paleo-Indian appearance and dates, one can assume that the complex itself or its influence could have penetrated to the cultural area beyond the glaciers of western North America, where there are no wedge-like cores and where some 12,000–10,000 years ago and later very similar stemmed points were common (Marmes, San Dieguito, and others).

A very different image is peculiar to the later (Late Sartan glaciation: 10,760 ± 110 and 10,360 ± 350 B.P.) Paleolithic culture of Cultural Layer VI at the Ushki I, IV, and V sites. It is represented by the remnants of large villages, one of which (Ushki I) is perhaps the world leader among the settlements of the Upper Paleolithic with respect to the number of dwellings found in it. More than 16 houses discovered there belong to two general types: large ones above-ground and smaller, somewhat semisubterranean ones that have corridors and circular stone fireplaces. Residents of the settlements hunted horses, bison, and moose, fished for salmon, and bred domestic dogs. Stemmed points were not abundant here, and leading among the stone artifacts were narrow, leaf-shaped bifacial arrow points and wedge-like cores. This culture is synchronous with the Diuktai, has many features in common with it, and also can be assigned to the Verkholenskaia biface tradition.

Judging from the fact that the Ushki culture of Cultural Layer VI is similar to the Denali culture and to some degree to Anangula, it may be referred to as proto-Eskimo-Aleut and can be related to subsequent migration from Asia to America, this time exclusively to the Alaska area. The following may be considered as intermediate traces of that migration: mixed sites featuring leaf-shaped biface points, wedge-shaped cores, and ski-shaped rejuvenation spalls at Inas'kvaam River (southern Chukotka) and wedge-shaped cores from the mixed Chikaevo site on the Anadyr'.

The following can be attributed to the final early Holocene Paleolithic—a complex of the Ushki I, II, and V sites (8790 ± 150 B.P.) that is a chronological continuation of Cultural Layer VI and the Siberdik culture of the Upper Kolyma (Siberdik, 8480 ± 200 B.P.; Kongo, 9470 ± 530 B.P.) with choppers, microblades, and wedge-shaped cores. The latter are used by the author as a distinctive feature for differentiating Paleolithic and Mesolithic developmental stages in Northeast Asia. As a result, subsequent cultural complexes and cultures (Sumnagin, Maltan, and Kukhtui) that are characterized by a developed blade industry based on prismatic and conical cores, scrapers on massive lamellar spalls, and percussion-flaked adze-like tools with a total absence of wedge-shaped cores are interpreted by the author as Mesolithic. These also include some of the sites at Tytyl' Lake (the upper reaches of the Aniui River in western Chukotka) discovered by the Northeast Asian Archaeologic Expedition, sponsored by the Northeast Interdisciplinary Scientific Research Institute of the Far East Science Center of the USSR Academy of Sciences in 1977.

During the Neolithic and Undeveloped Iron Age there was a general increase in the tendency toward gradual local differentiation of early cultures that reflects ethnic differentiation. This appears to be the principal mechanism for the origin of Paleo-Asiatic peoples of the Northeast, though it is not improbable that migration from the southern areas contributed to it, which can be attested by similarities between the mushroom images on the cliffs in Saiany Canyon (Tuva) and old Chukchi petroglyphs featuring humanoid fly-agarics (the Pegtymel' River area).

The 1975 discovery of the first and oldest Asiatic Paleo-Eskimo culture (3360 ± 155 B.P.) in Chertov Ravine (Wrangel Island) was valuable indeed for investigation of early stages of Eskimo ethnic history. R. S. Vasil'evskii's hypothesis, suggesting two independent centers of appearance of sea-mammal hunting: the ancestors of the Eskimo and Northeastern Paleo-Asians (Koryaks and Chukchi), is becoming very contradictory now. A proper statement should imply only a divergence in an initially single sea-mammal hunting complex.

Development of culture and means of production in Northeast Asia, as finds in the earliest Paleolithic stages reveal, was very progressive in character, which is supported by the high level of stone technology, usage of hunting bows and arrows, and a multifaceted household characterized by hunting large herd animals, the early taming of dogs, early settlement, and well-developed house construction. The Upper Paleolithic of Northeast Asia could not have been any less developed than in Europe, otherwise its population would have failed to resist the cold climate and would never have reached North America in the Arctic latitudes. However, since the Holocene, and particularly during its second half, there commenced a notable delay in the development of production means, which was brought about by the nonuniformity of historic evolution. This was considerably aided by isolation in this harsh region, and in America, from the southern areas of the Old World. Highly productive livestock breeding and agriculture could not have penetrated the tundra and taiga expanses of the Northeast. Characteristically, primitive Stone Age techniques persisted here until the arrival of the first Russian explorers in the seventeenth century. A remarkable fact is that in spite of this they had a very progressive economy including specific sea mammal hunting techniques on the coast and nomadic reindeer herding in the tundra.

Appendix

Index of Distribution of Similar Forms of Stone Artifacts in the Archaeological Sites of Kamchatka, Chukotka, and the Northern Okhotsk Coast

This appendix contains explanatory text for Tables 1–10. In these tables all the diversity of basic categories of stone artifacts of the extreme Northeast are illustrated and noted by a type index. Correspondingly, we first give a short definition of them here and then subsequently cite the combined data on their occurrence in the sites of the region.

It should be kept in mind that in the body of the text of our work alluding to this or that form of stone artifact we often limited ourselves for the sake of economy of space to only the indication of its numerical index in the mentioned tables and in this appendix, not yielding, where it was not necessary, to repeated wordy characteristics.

Thus, it must be pointed out that the tables consist not of abstract generalized types, but rather of concrete items from those sites the name of which stands directly after the numerical index.

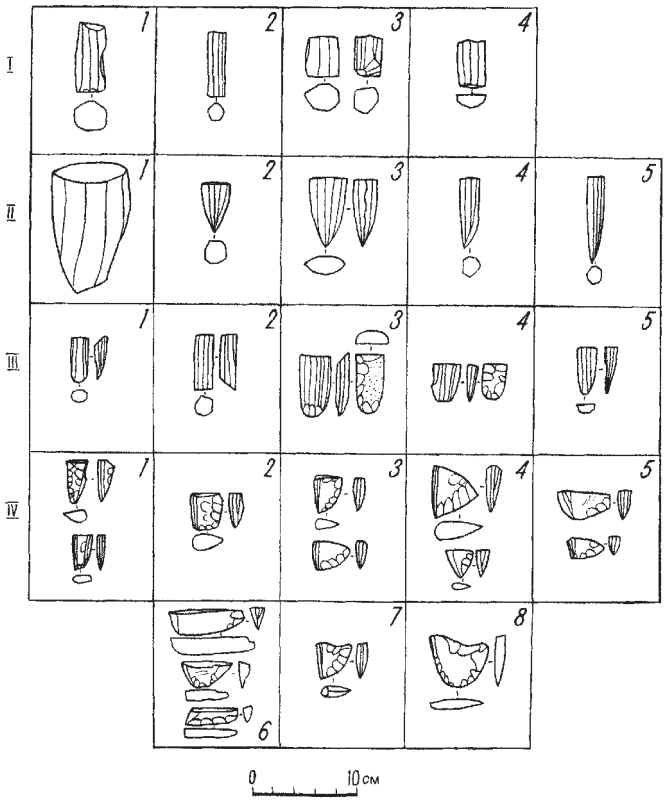

Table 1.

Cores (Table 1)

We arrange cores of the northern Okhotsk coast into five basic groups.

Into *Group I* fall prismatic double-platform cores with parallel striking platforms and single-platform cores: crude with rather irregular facets of longitudinal flaking (1), regular elongated (2), short and wide (3), and flat on one side (4).

Group II is made up of conical cores: large with relatively irregular faceting (1), small and finely faceted (2), with a flattened (oval) cross section (3), pencil-like, not completely symmetrical (4), and pencil-like with fine symmetrical longitudinal facets (5).

Group III is made up of semi-wedge-shaped cores: with a beveled striking platform (1); with a straight (horizontal) striking platform (2); unifacially flattened, with a beveled striking platform (3); wide and unifacially flattened, with a straight striking platform (4); and narrow and unifacially flattened, with a straight striking platform (5).

Into *Group IV* fall eight varieties of wedge-shaped cores: with a straight horizontal platform and a wide, rounded wedge (1); narrow, with a pointed blade and a straight platform (4); elongated (5); elongated, crudely formed (6); and "tailed," the upper, bifacially retouched edge of which is similar to a blade (7, 8).

To *Group V* we assign all the rest, predominantly atypical cores (1–4).

The spalls from the cores have a different shape corresponding to the forms of the cores (Table 2). Among them can be distinguished amorphous flakes (I–2–5; II–1–7) and knife-like blades (I–1), microblades (IV–1), ski-shaped spalls split from wedge-shaped cores for rejuvenation of the striking platform (III–1, 2), corner spalls from prismatic cores (IV–2), and spalls taken from their ends (III-5).

Group I

I–1. Ushki I (1); El'gygytgyn (188); Yakitikiveem (186).
I–2. Ushki (surface); Ushki I (1), Cultural Layer I; Ushki II (2), Cultural Layer V; Ushki IV (3), Cultural Layer VI; Ust'-Belaia (72); Amguema, at 102 km, Site 4 (81); Chikaevo (74).
I–3. Ushki II (2), Cultural Layer IV; Ust'-Belaia (72), Kurgan 14.
I–4. Ushki (surface); Ushki I (1), Cultural Layer IV; Ushki I (1), Cultural Layer V; Ushki II (2), Cultural Layer IV; Ust'-Belaia (72); El'gygytgyn (188).

Group II

II–1. Markovo (Sokol'nikov's collections).
II–2. Ushki II (2), Cultural Layer IV; Ust'-Belaia (72); Chikaevo (74).
II–3. Ushki II (2), Cultural Layer IV; Chikaevo (74); Amguema, at km 145 (88).
II–4. Ushki I (1), Cultural Layer I; Ushki II (2), Cultural Layer IV; Ust'-Belaia (72); Chikaevo (74); Amguema, at km 102 (1) (78); Amguema, at km 102, Site 4 (81).
II–5. Ushki I (2), Cultural Layer IV; Ust'-Belaia (72); Chikaevo (74); Amguema, at km 102, Site 3 (80).

Group III

III–1. Ushki I (1), Cultural Layer IV; Ushki (surface); Ust'-Belaia (72).
III–2. Ushki II (2), Cultural Layer IV; Ust'-Belaia (72).
III–3. Ust'-Belaia, Kurgan 8 (72); Yakitikiveem (93).
III–4. Ushki II (2), Cultural Layer IV.
III–5. Ushki II (2), Cultural Layer IV; Amguema, at km 102, Site 4 (81); Chikaevo (74); El'gygytgyn (188).

Group IV

IV–1. Ushki (surface); Ust'-Belaia (72); Chikaevo (74).
IV–2. Ushki I (1), Cultural Layer VI; Ust'-Belaia, Kurgan 15 (72).

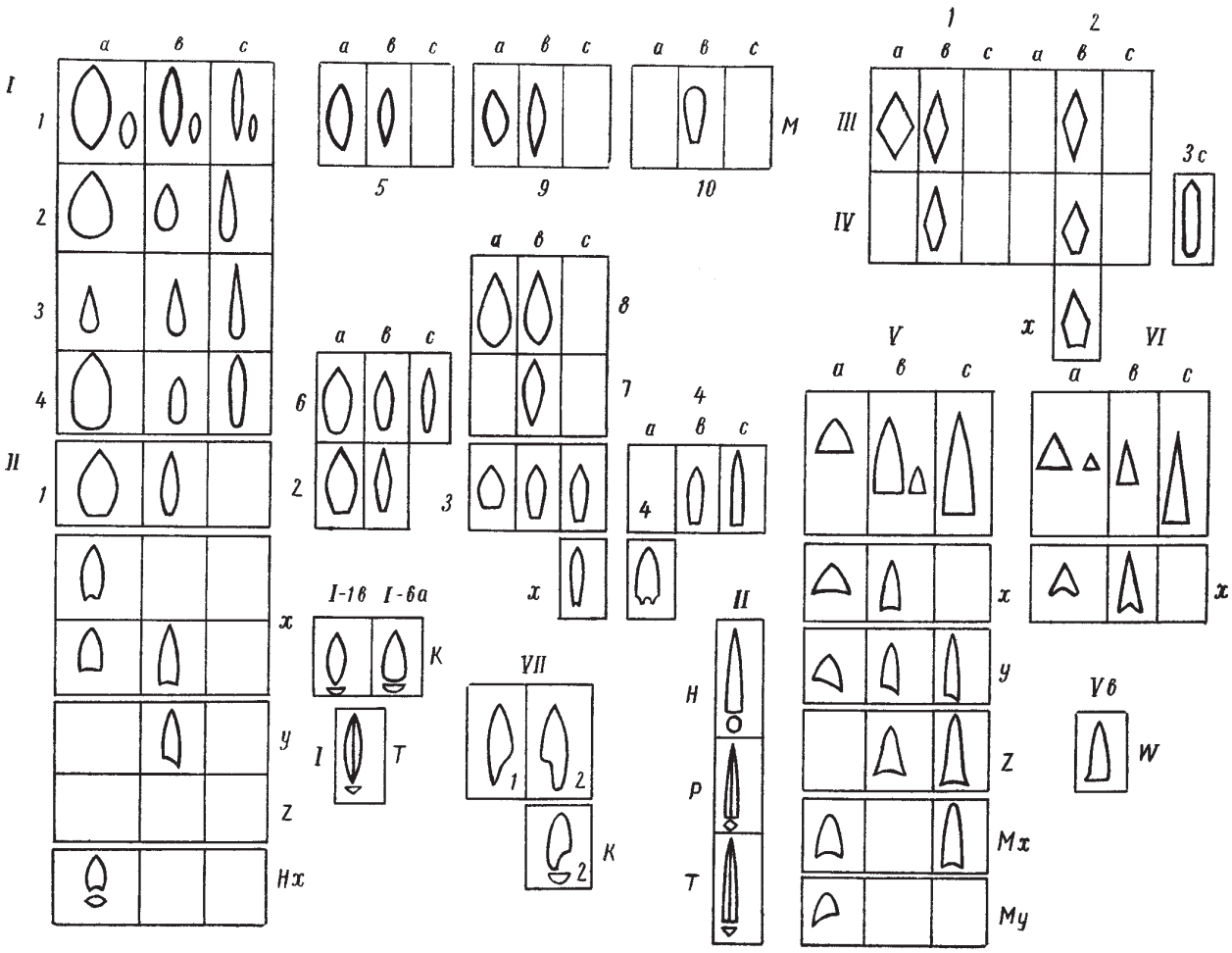

Table 2.

IV–3. Ushki (surface); Ushki I (1), Cultural Layer I; Ushki I (1), Cultural Layer V; Ushki I (1), Cultural Layer VI; Ushki IV (3), Cultural Layer VI; Chikaevo (74); Ust'-Belaia, Kurgan 8 (72).

IV–4. Ushki I (1), Cultural Layer I; Ushki I (1), Cultural Layer V; Ushki I (1), Cultural Layer IV; Ushki IV (3), Cultural Layer VI.

IV–5. Ushki (surface); Ushki I (1), Cultural Layer V; Ushki I (1), Cultural Layer VI; Ushki IV (3), Cultural Layer V.

IV–6. Ushki IV (3), Cultural Layer VI; El'gygytgyn (188); Chikaevo (74); Ust'-Belaia, Kurgan 15 (72); Amguema, at km 102, Site 4 (81); Amguema, at km 115 (82).

IV–7. Ushki (surface); Ushki I (1), Cultural Layer I; Ushki II, Cultural Layer V (2).

IV–8. Ushki I (1), top layer.

Points of Arrows, Darts, and Spears (Tables 2 and 3)

Based on the character of manufacture, these tools are divided into: (1) bifacially worked by retouch—bifaces (without an index); (2) incompletely retouched—unifaces on knife-like blades and flakes (noted "0" in the Index); and (3) ground ("E" in the Index).

Based on type of cross section they are divided into:

1. Flattened lenticular cross section (without index).
2. Massive, of thick oval-lenticular cross section (H).
3. Unifacially convex cross section (K).
4. Rhomboid cross section, four-faceted (P).
5. Three-faceted (T).

Based on planar form they make up 11 basic groups of predominantly flat biface points: leaf-shaped (I–1–10), truncated leaf-shaped (II–1–4), rhomboid (III–1, 2), truncated rhomboid (IV–1, 2), subtriangular with convex lateral sides (V), triangular (VI), leaf-shaped with a lateral indentation at the base (VII), leaf-shaped stemmed (VIII), rhomboid stemmed (IX), subtriangular stemmed (X), and triangular stemmed (XI).

Also distinguished are special features in the form of the base of stemless points: symmetrically grooved base (x); asymmetrical base, that is, with one barb (y); and asymmetrical with lateral notches (z).

Stemmed points, besides the form of the blade, differ by the form of the stems themselves (triangular, rounded-triangular, rectangular, with lateral notches, button-shaped, and irregularly shaped). However, these features are not noted in the indices since they are taken into account in the sequence of arrangement of stemmed points in the series in the table (1–24) (Table 3).

Finally, points with a rounded front end (M) are distinguished. The usual pointed end is not noted in the index.

Considering the named features, we grouped all projectile points in the following typological groups, which are divided into two tables (Tables 2 and 3).

Stemless Points (Table 2)

Group 1

I–1b. Ushki I, Cultural Layer VI; Domashnee Lake (7); Kozyrevsk (8); Staraia Sopka (15); Tar'ia (282), Gur'ev's collections, MAE (210-213); Osinovskaia Sopka (66); Ust'-Belaia (72).

I–1c. Ushki I (1), Cultural Layer VI; Yavino (306); Golygino (308), Bogdanovich's collections.

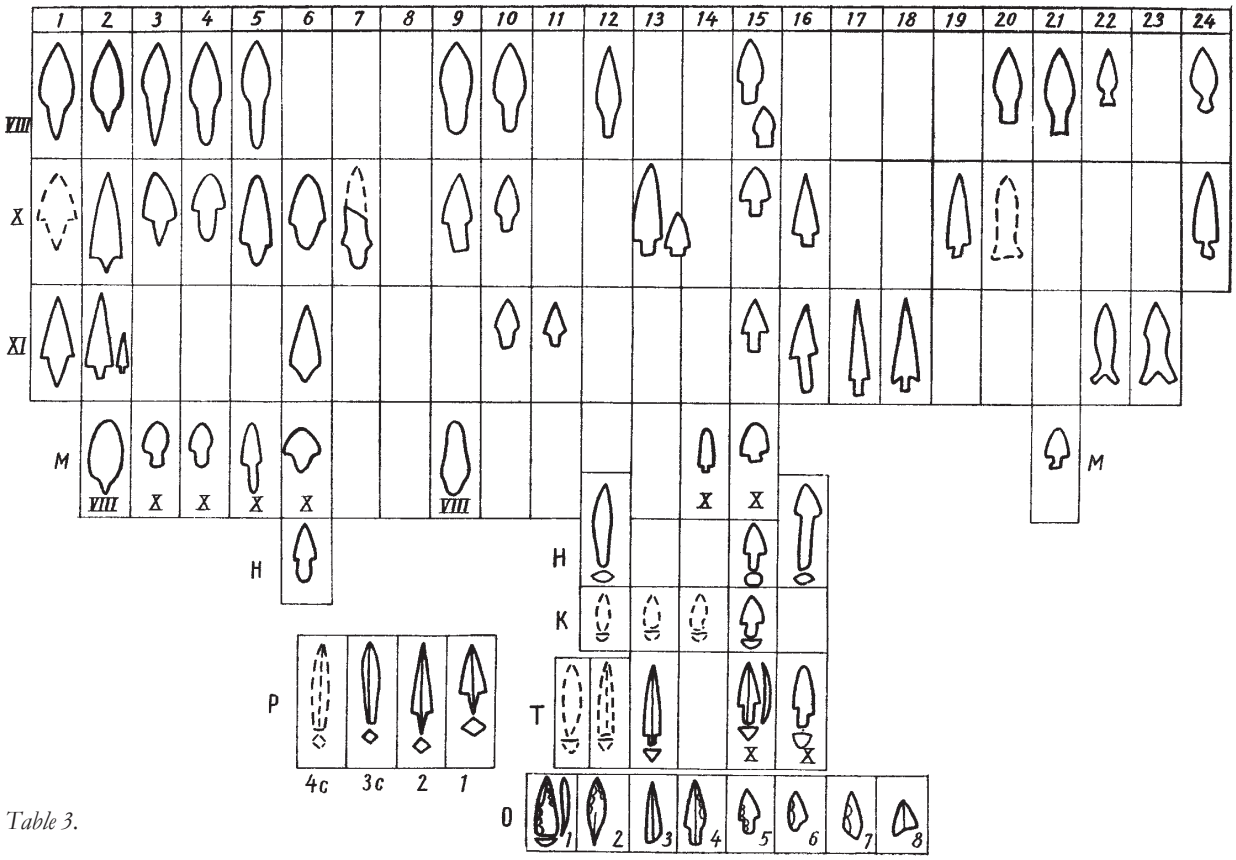

Table 3.

I–2b. Ushki IV (3), Cultural Layer V; Nikulka (16); Bukrich (17); Sivuiskii (GIN) (303); Kulka (328); Chikaevo (74); Chini (110); Ushki I (1), Cultural Layer VI; Domashnee Lake (7); Doiarki (10); Staraia Sopka (15); Sopochnoe (319), (Kamchatka Museum); Pervorechensk (343); Yavino (306); Golygino (308), Bogdanovich's collections; Sivuiskii (303), GIM; Staryi Ostrog (Elizovo), Gerts's collections (42); Chikaevo (74); Chini (110); Uelen (119); Vankarem (148–152); Inchoun (120); Ust'-Belaia (72).

I–2c. Ushki (surface); Ushki I (1), Cultural Layer VI; Ushki I (1), Cultural Layer VI; Ushki IV (3), Cultural Layer VI; Kozyrevsk (8); Domashnee Lake (7); Kirpichnaia (44); Nikulka (16); Staraia Sopochka (15); Bukrich (18); Khapitsa (18); Nalychevo (GIM) (254–255); Seshan (131); Aion (163); Ust'-Belaia (72); Amguema, Site III (80); Sed'moi Prichal (105); Manily (49).

I–3b. Ushki II (2), Cultural Layer I; Ushki II (2), Cultural Layer IV; Bukrich (18); Osinovskaia Sopka (66); Chikaevo (74); Domashnee Lake (7); Doiarki (10); Amguema, Site III (80); Aion (163).

I–3c. Nikulka (16); Manily (49); Pervorechensk (343), Kamchatka Museum (surface material); Kamenskoe (50).

I–5a. Sivuiskii (215), GIM; Osinovskaia Sopka (66).

I–5b. Ushki II (2), Cultural Layer II; Staraia Sopka (15); Nizhne Kamchatsk (37), Kamchatka Museum (surface); Seroglazka (262); Sivuiskii (303); Nalychevo (253, 255), GIM; Utkholok (325), Zmiev's collections; Chini (110); Aion (163).

I–8a. Ust'-Belaia (72).

I–9a. Domashnee Lake (7); Bukrich (18); Nalychevo (253–255), GIM; Ust'-Belaia (72); Uelen (119).
I–9b. Domashnee Lake (72); Kozyrevsk (8); Kliuchi (13); Kirpichnaia (44); Mishennaia Sopka (43); Kameshki (58), Kamchatka Museum (surface material); Uelen (119), collections of Arutiunov and Sergeev; Vankarem, Site 4 (152); Aion (163).
I–10bM. Ushki I, Cultural Layer VI.

Group II
II–1b. Ushki I (1), Cultural Layer V; Ushki II (2), upper layer; Ushki II (2), Cultural Layer II; Ushki II (2), Cultural Layer V; Ushki II (2), Cultural Layer VI; Doiarki (10); Domashnee Lake (7); Kamaki (18); Nalychevo (253–255), GIM; Kamchatka Museum (surface); Chikaevo, Cultural Layer III (74); Chini (110).
II–2a. Chikaevo (74).
II–2b. Kamchatka Museum (surface material); Elizovo (42), Jochelson's collections, GIM.
II–3a; II–3b. Kliuchi (13); Krasneno, Spit 4 (67); Amguema, Site IV (81); Chini (110).
II–3c. Kamchatka Museum (surface material); Karaga (216), Gondatti's collections; Chikaevo (74); Chini (103).
II–4b. Domashnee Lake (7); Kozyrevskii, Sovkhoz (9); Penzhina (49); Ust'-Belaia (72); Chini (110); Uelen (119), collections of Arutiunov and Sergeev.
II–1bx. Golygino (308); Yavino (306).
II–1ax. Aion (163).
II–3cx. Yavino (306); Golygino (308).

Group III
III–1b. Zav'ialova (381).

Group IV
IV–1b. Elizovo 1 (42).
IV–2a. Yavino (306); Golygino (308).
IV–2ax. Golygino (308).

Group V
V–a; V–b. Domashnee Lake (7); Kamaki (18); Ust'-Belaia (72); Chirovoe (51); Chini (110); Seroglazka (262), GIM, Kamchatka Museum (surface material); Domashnee Lake (7); Kozyrevsk (8); Doiarki (10); Kliuchi (13); Penzhina (49); Staraia Sopka (15); Elizovo (42); Kirpichnaia (44); Bukrich (18); Ust'-Belaia (72); Chikaevo (74); Chini (110); Uelen (119); Ushki I (1), Cultural Layer I; Sopochnoe (319), Kamchatka Museum, collections of geologists; Utkholok (325), Zmiev's collections; Chikaevo (74).
V–Ax; V–bx. Domashnee Lake (7); Kliuchi (13); Amguema, Site III (80); Ust'-Belaia (72); Chikaevo (74); Aion (165).
V–cx. Amguema (Ekiatap-95); Ust'-Belaia (72).
V–ay. Yavino (306); Golygino (308), Bogdanovich's collections; Ust'-Belaia (72); Chikaevo (74); Chini (110); Uelen (119).

V–by. Ust'-Belaia (72); Chini (110).
V–az; V–bz.
Ust'-Belaia (72); Chini (110).
V–bw. Chini (110); Dzhenretlen (142).
V–aMx. Maltan (170); Aion (165).
V–Mx. Kuril'skoe (303), Rudenko.
V–cMx. Ust'-Belaia (72).
V–aMy. Chikaevo (74).

Group VI
VI–a. Chirovoe (51); Ust'-Belaia (72).
VI–b. Tar'ia (282–284); Bukrich (18); Ust'-Belaia (72); Chini (110).
VI–c. Ust'-Belaia (72).
VI–ax. Ust'-Palana (332).
VI–bx. Kamchatka (?).
VI–aMx. Ust'-Palana (332).

Group VII
VII–2. Amguema, km 102, Site III (80).

Group K1
K1–6a. Ushki (surface); Domashnee Lake (7); Bukrich (18); Chikaevo (74); Ust'-Belaia (72); Chini (110); Uelen (119).
KVII. Amguema (79, 81).
PII–3c. Ushki II (2), Cultural Layer IV.
PII–4c. Ushki II (2), Cultural Layer IV; Amguema (80).

Group T
TI–1c. Tytyl' V (M. A. Kiriyak, 1977).
TII–4c. Velikaia river (surface, Sed'ko's collections); Ushki II (2), Cultural Layer III.

Stemmed Arrow Points (Table 3)

Group VIII
VIII–2. Kirpichnaia (44).
VIII–3. Credniaia Bay (365).
VIII–4. Zav'ialova Island (381).
VIII–5. Chukchi Peninsula (after Rudenko).
VIII–9. Kirpichnaia (44); Staraia Sopka (15); Ust'-Belaia (72); Chini (110); Chegtun (126).
VIII–10. Lyvat (344); Kamenskoe (50), Semenov's collections.
VIII–12. Doiarki (10); Staraia Sopka (15); Elizovo (42); Penzhina (49); Sopochnoe (319), Kamchatka Museum, geologists' collections; Ol'khovka (346); Penzhina Bay, Semenov's collections.
VIII–15. Chini (110); Yandogai (107); Uelen (119), collections of Arutiunov and Sergeev; Vankarem III (150).

VIII–20. Chini (110).
VIII–21. Ushki I (1), Cultural Layer VII.
VIII–22. Doiarki (10); Kliuchi (13); Ust'-Belaia (72); Chini (110); Enmynytnyn (115); Uelen (119), collections of Arutiunov and Sergeev.
VIII–24. Ust'-Belaia (72).
VIII–2M. Lopatka (T. M. Dikova).

Group X
X–1. Lopatka II (225), T. M. Dikova's excavations.
X–2. Kamchatka Museum (surface); Omrynskii (73); Ust'-Belaia (72); Ushki (surface); Ushki II (2), Cultural Layer II; Domashnee Lake (7); Staraia Sopka (15); Manily (49); Kirpichnaia (44); Sopochnoe (319), Kamchatka Museum, geologists' collections; Ust'-Belaia (72).
X–3. Nedorazumeniia Island (387).
X–4. Lopatka IV (297), excavations of T. M. Dikova.
X–5. Kirpichnaia (44); Kuril'skoe Lake (303); Mishennaia Sopka (43), Orlova's collections; Sopochnoe (319), Kamchatka Museum, geologists' collections; Chikaevo (74); Amguema, Site III (80).
X–6. Lopatka IV (297), excavations of T. M. Dikova.
X–7. Domashnee Lake (7).
X–9. Lopatka II (295), excavations of T. M. Dikova.
X–10. Chukchi Peninsula (after S. I. Rudenko).
X–13. Ushki (surface); Kamchatka Museum (surface); Ust'-Belaia (72); Uelen (119); Yandogai (107); Chini (110).
X–15. Sivuiskii (303), GIM; Chini (110); Enmynytnyn (115); Uelen (119); Ekiatap (95); Dzhenretlen, Locus II (142); Cape Shmidta (159).
X–16. Kamchatka Museum (surface); Ust'-Belaia (72); Seshan (131); Ikolivrunveem (133); Inchoun (120); Chini (110).
X–19. Ushki I (1), Cultural Layer VII.
X–20.
X–24. Ushki V (4), Cultural Layer VII.
X–4M. Lopatka II (295), excavations of T. M. Dikova.
X–5M. Aion (163).
X–6M. Lopatka IV (297), excavations of T. M. Dikova.
X–14M. Elizovo (42).
X–15M. Chikaevo (74); Chini (110); Uelen (119); Ushki I (1), Cultural Layer VII.
X–21M. Ushki I (1), Cultural Layer VII.

Group XI
XI–6. Lopatka II (295), excavations of T. M. Dikova.
XI–10. Ust'-Belaia (72).
XI–11. Ekiatap (95); Chikaevo (74); Ust'-Belaia (72).
XI–15, 18. Kliuchi (12), surface material in garden.
XI–22.
XI–23. Chini (110).

Group HX
HX–6. Yakitikiveem, collections of V. N. Smirnov.
HX–12. Domashnee Lake (7).
HX–15. Yakitikiveem, collections of V. N. Smirnov.
HX–16. Lopatka I (294), excavations of T. M. Dikova.

Group KX
KX–15. Aion (164).

Group PX
PX–1. Ushki II (2), Cultural Layer IV.
PX–13. Ushki II (2), Cultural Layer IV.
PXI–2. Ushki (surface); Ushki II (2), Cultural Layer IV; Amguema (80).

Group TX
TX–13. Ushki I (1), Cultural Layer III; Ushki II (2), surface; Ushki II (2), Cultural Layer III; Chirovoe (51).
TX–15. Kamchatka (W. I. Jochelson).
TX–16. Ushki I (1), Cultural Layer VII.

Group O
O–1. Ushki IV (3); Nikulka (16); Omryn (73); Chikaevo, Site II (74).
O–2. Lopatka II (295), excavations of T. M. Dikova.
O–3. Ushki (surface); Ushki II (2), Cultural Layer III; Kliuchi (13); Ust'-Belaia (surface); Ust'-Belaia (72); Kurgan 18; Chikaevo (74); Chini (110).
O–4. Ushki II (2), Cultural Layer IV.
O–5. Ushki I (1), Cultural Layer VII; Kirpichnaia (44); Ushki I (1), Cultural Layer II; Ushki II (2), Cultural Layer IV; Domashnee Lake (7); Kliuchi (13); Doiarki (10); Bukrich (18); Ust'-Belaia (surface); Chini (110).
O–6. Lopatka IV (297), excavations of T. M. Dikova.
O–7. Lopatka IV (297), excavations of T. M. Dikova.

Group E
E–1. Ikolivrunveem (133–134).
E–2. Chini (110); Enmynytnyn (115–117); Nuniamo (109); Ilitlen (139); Inchoun (120); Yandogai (107).
E–3. Chini (110); Vankarem (148–152, surface); Uelen (119); Ilitlen (139); Nuniamo (109).
E–4. Chini (110); Enmynytnyn (115–117); Nuniamo (109); Uelen (119).
E–5. Chini (110); Enmynytnyn (115–117); Nuniamo (109).
E–6. Koliuchin (146); Ikolivrunveem (133–134); Uelen, collections of Arutiunov and Sergeev.
E–7. Uelen (collections of Arutiunov and Sergeev).
E–8. Nuniamo (109).

Knives and Knife-Like Blades (Table 4)

This category of artifacts borders closely upon the preceding in formal regard, such that some types of knives exhibit almost no difference in their external appearance from points of spears and darts. We distinguish two basic kinds of knives within this category: (1) worked by percussion flaking and retouch, and (2) ground. Five groups are assigned to the first kind, three to the second. We will examine all these groups successively.

Group I consists of unretouched blades of irregular form (1) or more regular form (2), microblades (3), microblades pointed on one end (4), microblades retouched on one end (5), regular blades retouched along the edges (6), irregular blades retouched along the edges (7), and various inset blades: retouched on opposite edges (8), completely retouched and rectangular (9) and with rounded edges (10), segmented (11), subtriangular (12, 13), and leaf-shaped (14).

Group II consists of leaf-shaped bifacially worked symmetrical knives pointed or rounded on both ends (1–5) and triangular or leaf-shaped with one truncated end (6–9).

Groups III consists of biface knives with a straight axis and more or less long stems (1–4) or with lateral "ears" in the stemmed part (5–7).

Group IV consists of asymmetrical bifacially worked knives with more or less prominent butts, with concave (1), straight (2, 3, 4, 6, 8), or convex (5, 7) working edges.

Group V consists of stemmed narrow-bladed (1–10, 14) and broad-bladed (11, 12, 15) knives having straight (1, 4–6, 11, 13, 14, 16) or convex (7–10, 12) butts and a straight (1, 7, 8), convex (1–6, 10–15), or concave (9) working edge. Among them, so-called "curved" knives (11, 12) and "button" knives (14, 15) can especially be distinguished.

Group VI consists of stemless, segmented, bifacially worked knives with a broad straight butt (1–5).

Group VII consists of knives on partially retouched blade flakes and on flakes of various chance forms (1–12).

Group VIII consists of ground knives with one convex working edge and no stem (1–13), one convex working edge with a retouched projecting stem (14–18), one straight working edge (20–24), two working edges and stemless with a hole (24–40) and without a hole but with a stem (41–42), and stemmed with one working edge and a straight butt (43–45).

Group 1

I–1. Ushki I (1), Cultural Layer IV; Ushki I (1), Cultural Layer VI; Ushki II (2), Cultural Layer IV; Ushki II (2), Cultural Layer V; Ushki (surface); Domashnee Lake (7); Elizovo (42); Ust'-Belaia (72); Chikaevo (74); Krasnenskaia Spit II (69); Chini (103).

I–2. Ushki (surface); Ushki I (1), Cultural Layer I; Ushki I (1), Cultural Layer IV; Ushki II (2), Cultural Layer II; Ushki II (2), Cultural Layer III; Ushki II (2), Cultural Layer IV; Ushki IV (3); Domashnee Lake (7); Kultuk (5); Elizovo (42); Doiarki (10); Nikolka (16); Chirovoe (51); Chikaevo (74); Yakitiki (93); Amguema (78, 80, 81, 93); Osinovskaia Spit (64); Uvesnovaniia (57); Ust'-Belaia (72); Ust'-Belaia (surface); Anokatrary (62); Snezhnaia (55).

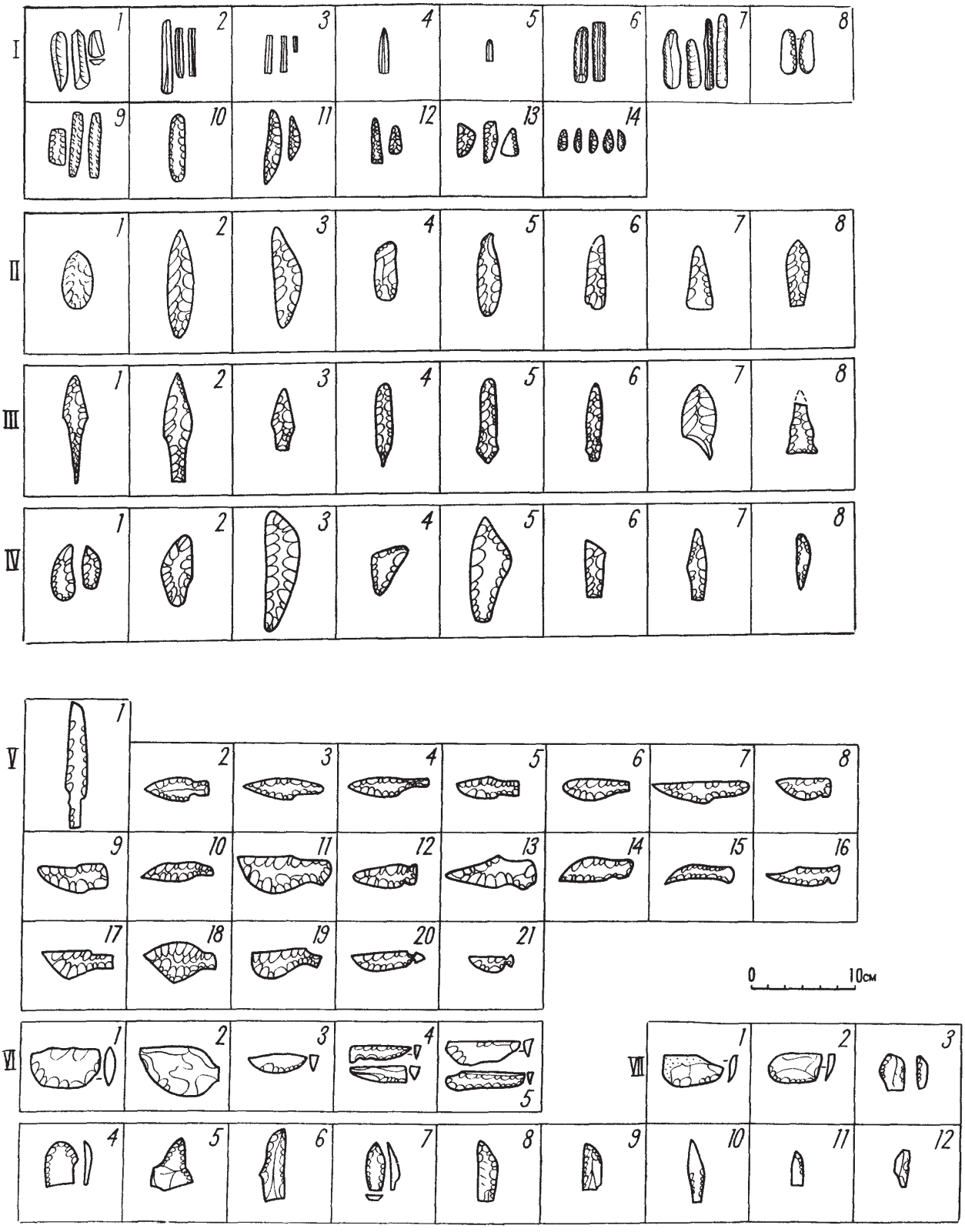

Table 4.

I–3. Ushki I (1), Cultural Layer V; Ushki I (1), Cultural Layer VI; Ushki II (2), Cultural Layer III; Ushki II (2), Cultural Layer V; Ushki IV (3), Cultural Layer V; El'gygytgyn (188); Ust'-Belaia (72); Yakitiki (93); Chikaevo, Locus II (74).

I–4. Ushki I (1), Cultural Layer I; Ushki I (1), Cultural Layer VI; Ushki II (2), Cultural Layer III; Kultuk (5); El'gygytgyn (188); Chikaevo (74); Amguema, km 102 (81).

I–5. El'gygytgyn (188); Yakitiki (93).

I–6. Ushki (surface); Ushki II (2), Cultural Layer II; Ushki II (2), Cultural Layer III; Ushki II (2), Cultural Layer IV; Domashnee Lake (7); Staraia Sopka (15); Kliuchi (13); Nikolka (16); Amguema, Site IV (81); Osinovskaia Spit (64); Chikaevo (74); Chirovoe (51); Chini (110); Uelen (119).

I–7. Ushki (surface); Ushki I (1), Cultural Layer I; Ushki I (1), Cultural Layer IV; Ushki II (2), Cultural Layer V; Domashnee Lake (7); Doiarki (9); Kliuchi (13); Tar'ia (282–284) (MAE); Mishennaia Sopka (Orlova's collection) (43); Chirovoe (51); Yakitiki (93); Chikaevo, Locus II (74); Ust'-Belaia (72); Ust'-Belaia (surface); Osinovskaia Spit (64); Amguema (78, 93); Chini (110); Uelen (119).

I–8. Ushki I (1), Cultural Layer V; Staraia Sopka (15); Bukrich (18); Chikaevo (74); Ust'-Belaia (surface); Ust'-Belaia (72).

I–9. Kamchatka Museum (surface); Nikolka (16); Kliuchi (13); Ust'-Belaia (72); Osinovskaia Spit (64); El'gygytgyn (188); Chini (110).

I–10. Ushki II (2), Cultural Layer III; Ust'-Belaia (72).

I–11. Domashnee Lake (7); Kirpichnaia (44); Yavino (306); Golygino (Bogdanovich's collection) (219); Ust'-Belaia (72); Uelen (119); Nalychevo (253–255) (GIM).

I–12. Ust'-Belaia (72); Chikaevo (74); Chini (110).

I–13. Kultuk (4); Chini (110); Uelen (119).

I–14. Ushki I (1); Yavino (306); Golygino (Bogdanovich's collection) (308); Kultuk (5); Ust'-Belaia (72), Kurgan 8.

Group II

II–1. Ushki I (1), Cultural Layer VII; Ushki II (2), Cultural Layer IV; Ushki IV (3), Cultural Layer V; Kuril'skoe (303); Amguema (81); Chini (110); Uelen (collection of Arutiunov and Sergeev).

II–2. Ushki II (2); Kamchatka Museum (surface); Sopochnoe (Kamchatka Museum, geologists' collections) (227); Kuril'skoe (303); Chikaevo (74); Osinovskaia Spit (64); Krasneno (67).

II–3. Ushki II (2), Cultural Layer III; Ushki IV (3), Cultural Layer V; Kulka (328); Sivuiskii (GIM) (303); Sopochnoe (Kamchatka Museum, geologists' collections) (319); Osinovskaia Spit (64); Krasneno (67); Chegitun (126); Chini (110); Uelen (119).

II–4. Kirpichnaia (44); Mishennaia Sopka (Orlova's collections) (43); Mikino (Penzhinskaia Bay, Semenov's collections) (347); Ust'-Belaia (72); Chirovoe (51); Chikaevo (74); Amguema, km 102 (81); Krasneno (67); Chini (110); Uelen (119).

II–5. Chikaevo (74); El'gygytgyn (188).

II–6. Kirpichnaia (44); Kulka (328); Kozyrevsk (8); Manily (48); Pervorechensk (343); Palana (Fel'dman's collections) (333); Osinovskaia Spit (64); Amguema (80, 83, 85, 86, 89); Neshkan (140); Inchoun (120); Chegitun (126); El'gygytgyn (188); Koliuchin (146); Dzhenretlen (142); Chini (110); Uelen (119).

II–7. Ust'-Belaia (surface); Amguema, km 102 (78–81); Chikaevo (74); Osinovskaia Spit (63).

II–8. Kamchatka Museum (surface); Manily (49); Nikolka (16); Osinovskaia Spit (64); Chini (110); Enmynytnyn (115–116); Uelen (collections of Arutiunov and Sergeev).
II–9. Doiarki (10); Kuril'skoe (303); Kavran (323).

Group III
III–1. Khairiuzovo (322); Kulka (328); Zav'ialova Island (381).
III–2. Chukchi Peninsula.
III–3. Sopochnoe (Kamchatka Museum, geologists' collections) (319); Chukchi Peninsula.
III–4. Domashnee Lake (7).
III–5. Domashnee Lake (6); Kirpichnaia (44); Elizovo (42); Tar'ia (282–284); Ust'-Belaia (72); Nedorazumeniia (387).
III–6. Domashnee Lake (7).
III–7. Vakarevo (53); Kulka (328).

Group IV
IV–1. Ushki I (1), Cultural Layer I; Ushki I (1), Cultural Layer VI; Doiarki (10); Bukrich (18); Kozyrevsk (8); Elizovo (42); Kirpichnaia (44); Kliuchi (12–13); Staraia Sopka (15); Staryi Ostrog (Elizovo, Gerts's collections, MAE) (42); Ust'-Belaia (72); Chikaevo (74); Vakarevo (53).
IV–2. Ushki (surface); Elizovo (42); Ust'-Belaia (72).
IV–3. Kuril'skoe (303); Tar'ia (282–284).
IV–4. Kliuchi (surface).
IV–5. Domashnee Lake (7); Kliuchi (12, 13); Tar'ia (210–213); Naukan (271).
IV–6. Kozyrevsk (8); Doiarki (10); Staraia Sopka (15); Domashnee Lake (7); Kultuk (5); Kamchatka Museum (surface material); Ust'-Belaia (72); Enmynytnyn (115–117).
IV–7. Kliuchi (12, 13); Nalychevo (253–255).
IV–8. Kirpichnoe (44); Amguema, km 102 (78–81).

Group V
V–1. Ust'-Belaia (72); Chukchi Peninsula (after S. I. Rudenko).
V–2. Kavran (323); Nalychevo (253–255).
V–3. Nalychevo (GIM) (253–255); near Petropavlovsk-Kamchatski (Sokol'nikov's collections).
V–4. Palana (Fel'dman's collections) (333); Sopochnoe (Kamchatka Museum, geologists' collections) (319); Kirpichnaia (44).
V–5. Nedorazumeniia Island (387).
V–6. Sopochnoe (Kamchatka Museum, geologists' collections) (227); Yavino (306); Golygino (Bogdanovich's collections) (308); Kuril'skoe (303); Mishennaia Sopka (43); Kavran (323); Tar'ia (282–284); Nedorazumeniia Island (387).
V–7. Nedorazumeniia Island (387); Zastoichik (6); Kirpichnaia (44).
V–8. Zav'ialova Island (381); southern Kamchatka (after A. K. Ponomarenko); Tar'ia (282–284); Ust'-Palana (332).
V–9. Ust'-Palana (332).
V–10. Tar'ia (282–284); Kamchatka Museum.
V–11. Yavino (306); Golygino (Bogdanovich's collections) (308).
V–12. Ust'-Palana (332).
V–13. Kavran (323).

V–14. Savoiko (Elizovo—42); Uelen (collections of Arutiunov and Sergeev); Nalychevo (GIM) (253–255).
V–15. Kuril'skoe (303); Pervorechensk (343).
V–16. Kulka (328).
V–17, 18. Elizovo (42); Kirpichnaia (44); Tar'ia (282–284); Uelen (collections of Arutiunov and Sergeev).
V–19. SouthKamchatka (Kamchatka Museum).
V–20. Kavran (323); Utkholok (Zmiev's collections) (325); Cape Sivuiskii (Jochelson's collections. After S. I. Rudenko) (303); Kavran (323).
V–21. Aleutian Islands; Ushki V (4), Cultural Layer VII.

Group VI
VI–1. Ushki IV (3); Chikaevo (74).
VI–2. Ushki I (1), Cultural Layer IV; Chirovoe (51); Osinovskaia Spit (64).
VI–3. Ushki I (1), Cultural Layer V; Ust'-Belaia (72); Staraia Sopka (15); Amguema, km 102, Sites 3 and 4 (80, 81).
VI–4. Chirovoe (51); Chini (110).
VI–5. Chirovoe (51); El'gygytgyn (188); Staryi Ostrog (Elizovo, Gerts's collections) (42).

Group VII
VII–1. Chirovoe (51); Chikaevo (74); Ust'-Belaia (72).
VII–2. Ushki I (1); Ushki I (1), Cultural Layer VI; Domashnee Lake (7); Ust'-Belaia (72); Chini (110); V-Palana (302).
VII–3. Ushki I (1); Ushki I (1), Cultural Layer V; Ushki II (2), Cultural Layer II; Ushki IV (3); Domashnee Lake (7); Kozyrevsk (8); Doiarki (10); Kamaki (18); Kliuchi (12, 13); Staraia Sopka (15); Mishennaia Sopka (43); Zastoichik (6); Kirpichnaia (44); Nikolka (16); Chirovoe (51); Utesiki (61); Ust'-Belaia (72); Amguema, km 102 (78–81); Chikaevo (74); Osinovskaia Sopka (66); Chini (110).
VII–4. Ushki I (1), Cultural Layer I; Ushki I (1), Cultural Layer VI; Domashnee Lake (7); Staraia Sopka (15); Kliuchi (13); Nikolka (16); Mishennaia Sopka (43); Rakovaia (45); Chirovoe (51); Chini (110); Vakarevo (53); Sireniki (106); Dzhenretlen (142).
VII–5. Ushki I (1); Ushki I (1), Cultural Layer V; Ushki I (1), Cultural Layer VI; Kultuk (5); Domashnee Lake (7); Staraia Sopka (15); Doiarki (10); Kamaki (18); Chirovoe (51); Ust'-Belaia (72); Chikaevo (74); Uelen (119).
VII–6. Ushki (surface); Ushki II (2), Cultural Layer V; Kultuk (5); Elizovo (42); Kamchatka (surface); Nikolka (16).
VII–7. Doiarki (10); Chini (110).
VII–8. Ushki I (1), Cultural Layer I; Ushki II (2), Cultural Layer III; Ust'-Belaia (72); Chikaevo (74).
VII–9. Ushki (surface); Ushki II (2), Cultural Layer II; Domashnee Lake (7); Rakovaia (45); Bukrich (18); Nikolka (16).
VII–10. Mishennaia Sopka (43).
VII–11, 12. Ushki I (1), Cultural Layer I; Ushki I (1), Cultural Layer V; Ushki I (1), Cultural Layer VI; Kliuchi (12, 13); Ust'-Belaia (surface); Amguema, km 102 (79); Ust'-Belaia (72).

Ground knives, Table 5

Group VIII

VIII–1. Ushki I (1), Cultural Layer V; Nuniamo (109); Neshkan (140); Vankarem (surface); Chettun (124); Chini (110); Uelen (collections of Arutiunov and Sergeev).
VIII–2. Chikaevo (74); Chini (110); Nuniamo (109).
VIII–3. Sed'moi Prichal (105); Chikaevo (74); Nuniamo (109); Uten (122); Vankarem (surface) (148–152); Inchoun (120); Chegitun (126); Chini (110); Uelen (119).
VIII–4. Ushki (surface); Ushki I (1), Cultural Layer VI; Bukrich (18); Sed'moi Prichal (105); Chikaevo (74); Chegitun (126); Chettun (124); Chini (110); Koliuchin (146–147); Cape Shmidta (158); Uelen (119).
VIII–5. Ikolivrunveem (133–134); Sireniki (106); Chini (110); Uelen (collections of Arutiunov and Sergeev).
VIII–6. Bukrich (18); Staryi Ostrog (Elizovo, Gerts's collections) (42); Chini (103); Vankarem (surface) (148–152).
VIII–7. Enmynytnyn (115–117).
VIII–8. Chini (110).
VIII–9. Chini (110); Uelen (119).
VIII–10. Chegitun (126); Uelen (119).
VIII–11. Cape Dezhneva (173).
VIII–12. Ust'-Belaia (72); Chettun (124); Vankarem (148–152); Chini (110); Uelen (119).
VIII–13. Chini (110).
VIII–14. Avacha (after S. I. Rudenko) (46).
VIII–15. Chini (110); Enmynytnyn (115–117); Uten (122); Uelen (collections of Arutiunov and Sergeev) (119).
VIII–16. Chini (110); Nuniamo (109).
VIII–17. Chini (110).
VIII–18. Chini (110).
VIII–19. Ushki I (1), Cultural Layer I; Ushki I, Cultural Layer V; Ushki I (1), Cultural Layer VI; Chettun (124).
VIII–20. Ushki II (2), Cultural Layer II; Chini (110); Inchoun (120); Yandogai (107); Ikolivrunveem (133–134).
VIII–21. Pervorechensk (343); Chini (110); Sireniki (106); Enmynytnyn (115–117).
VIII–22. Uelen (119).
VIII–23. Ushki I (1), Cultural Layer VI; Ushki IV (3), Cultural Layer V; Mishennaia Sopka (43); Chini (110).
VIII–24. Chini (110).
VIII–25. Kamaki (Kramarenko's collections) (18); Vakarevo (53); Uelen (collections of Arutiunov and Sergeev) (119).
VIII–26. Kliuchi (12, 13); Kamaki (18); Kazach'e (20–37); Nuniamo (109); Chini (110).
VIII–27. Chini (110); Nuniamo (109); Uelen (collections of Arutiunov and Sergeev) (119).
VIII–28. Chini (110).
VIII–29. Chini (110).
VIII–30. Chini (110).
VIII–31. Chini (110).
VIII–32. Chini (110).

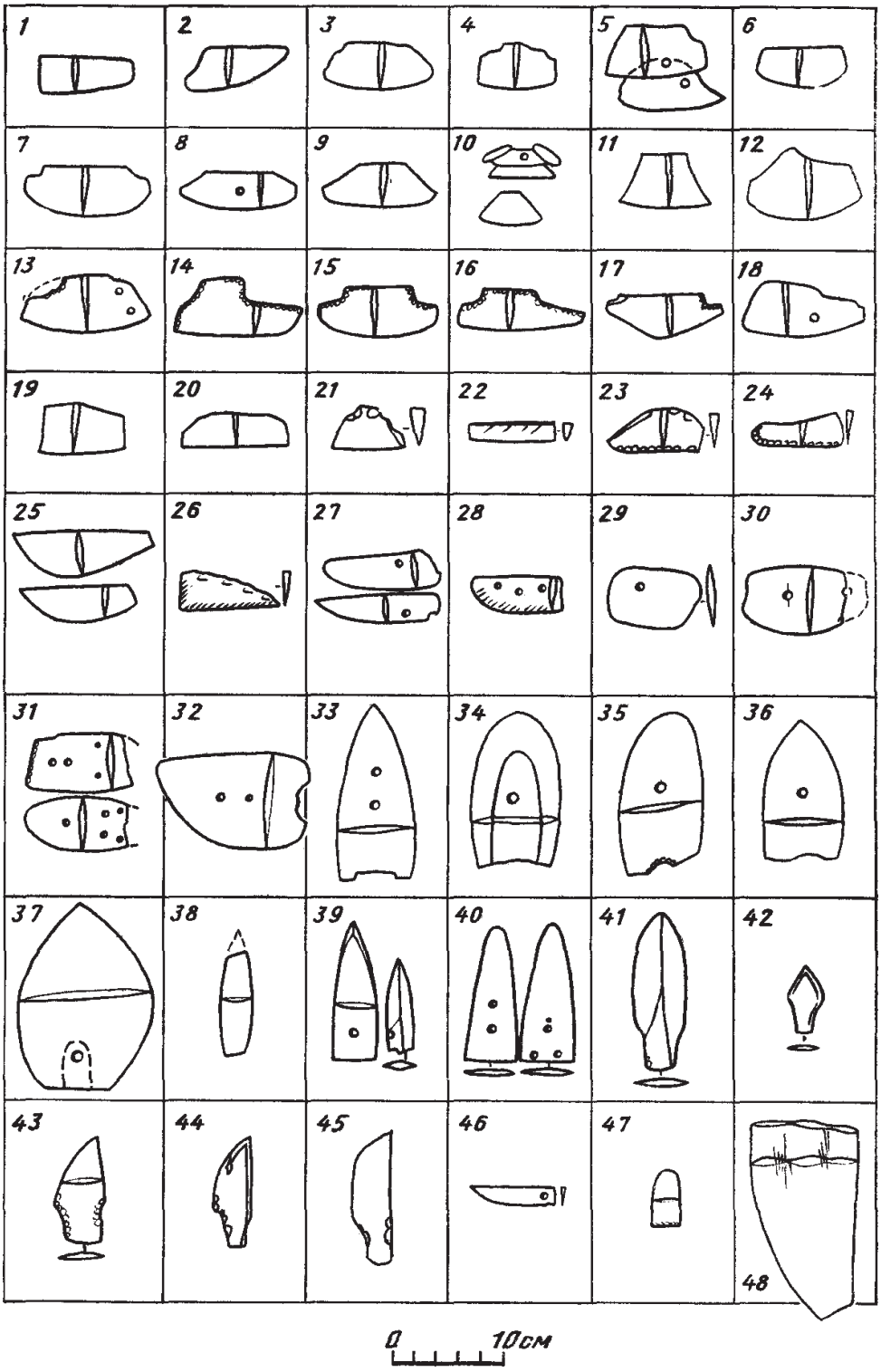
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Table 5.

VIII–33. Chini (103).
VIII–34. Enmynytnyn (115).
VIII–35. Uelen (119).
VIII–36. Chini (110); Enmynytnyn (115–117).
VIII–37. Uelen (119).
VIII–38. Kozyrevsk (8); Nuniamo (109); Chini (110); Sireniki (106); Ilitlen (139); Uelen (119).
VIII–39. Avacha (46); Nuniamo (109); Chini (110).
VIII–40. Chini (110).
VIII–41. Naukan (172); Vankarem (148–152); Uelen (collections of Arutiunov and Sergeev) (119).
VIII–42. Nuniamo (109); Sireniki (106).
VIII–43. Amguema (81); Vankarem, Locus IV (151).
VIII–44. Nuniamo (109).
VIII–45. Chukchi Peninsula (after S. I. Rudenko).
VIII–46. Enmylen (183); Sireniki (106).
VIII–47. Chini (110).
VIII–48. Uelen (collections of Arutiunov and Sergeev) (119).

Scrapers and Skreblos (Tables 6 and 7)

All the scrapers and skreblos from the early cultures of Kamchatka and Chukotka are distributed in 12 groups, which make up several of the following, more general groups: end scrapers (Groups I, II, V, VI), combination tools made on end scrapers (Groups III, IV), the remaining scrapers and skreblos on flakes (Groups VII, VIII, IX, X), spokeshaves (Group XI), grooved scrapers (Group XII), skreblos or pressing instruments, and polishers. We will examine them successively.

In *Group I* are more or less elongated end scrapers on knife-like blades (1, 2, 5, 6, 7), triangular (8), pear-shaped (11), trapezoidal (12, 13), irregular and stretched (15–18), rounded and triangular microscrapers (23, 24), button-stemmed (25), and simply stemmed scrapers. A common feature of all scrapers of this group, besides their all being end scrapers, consists also of their longitudinal profile being bent on the inner side, a consequence of their having been used to work "toward oneself."

Into *Group II* fall almost the same forms of end scrapers, but, in distinction from scrapers of *Group I*, they all have a straight longitudinal profile, a result of their probably having been used predominantly to work "away from oneself." Here enter scrapers on blades (1–5), pear-shaped (9–11), trapezoidal (12–14), oblong with an irregular outline (15–17), truncated oval (18), trapezoidal with the working edge on the narrow side (19), sub-square (20, 21, 22), rounded and triangular micro-scrapers (23, 24), and stemmed (26).

In *Group III* are all variations of combination tools made on end scrapers with a concave longitudinal profile (favorable for working "toward oneself"). These are scrapers with a cutting corner more or less projecting on one side of the scraper blade (1–6) or with a cutting corner on opposite sides of the scraper blade (9–15), with a pointed cutting-scraping blade (16–23), and a scraper-punch (27).

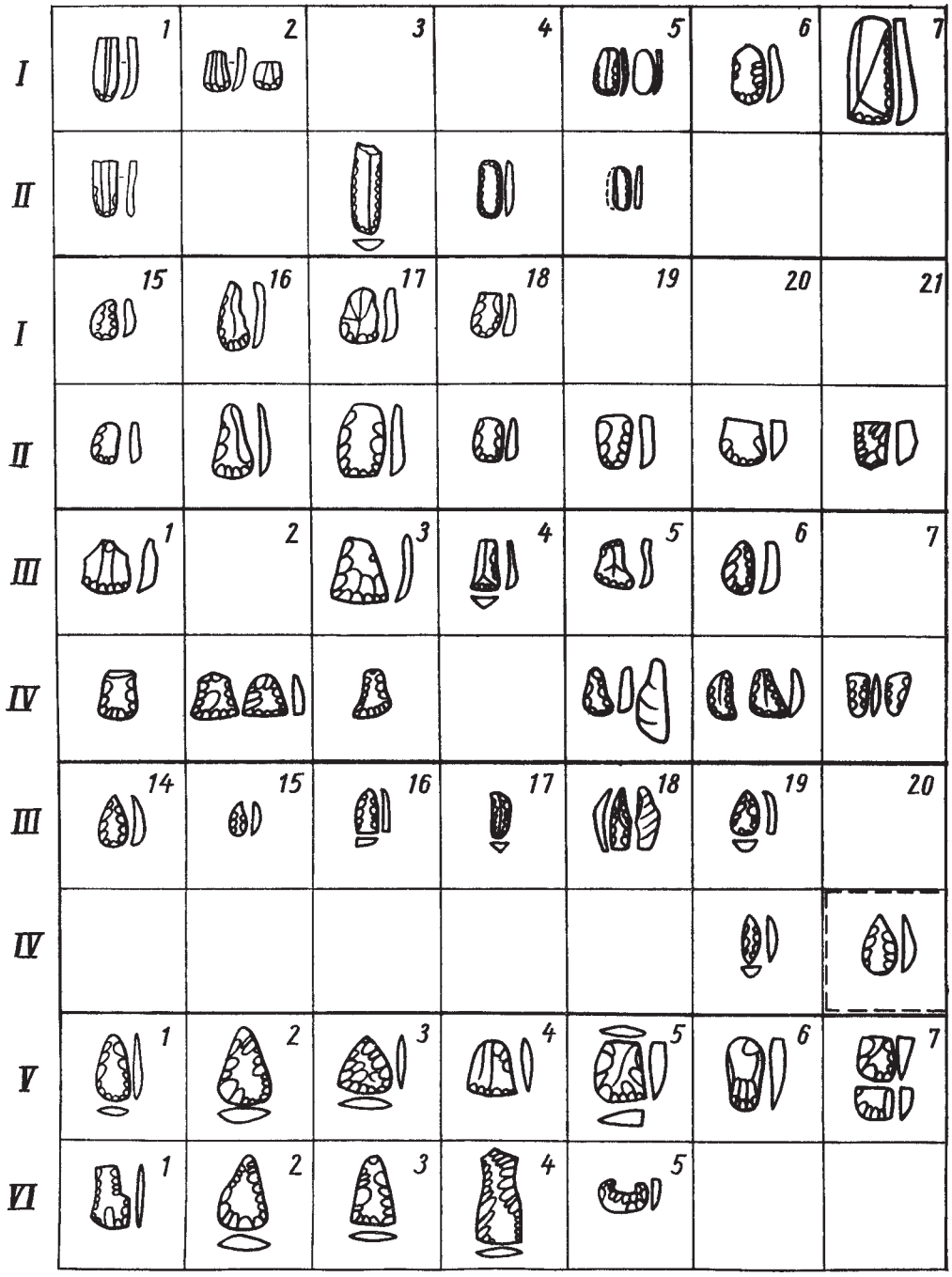
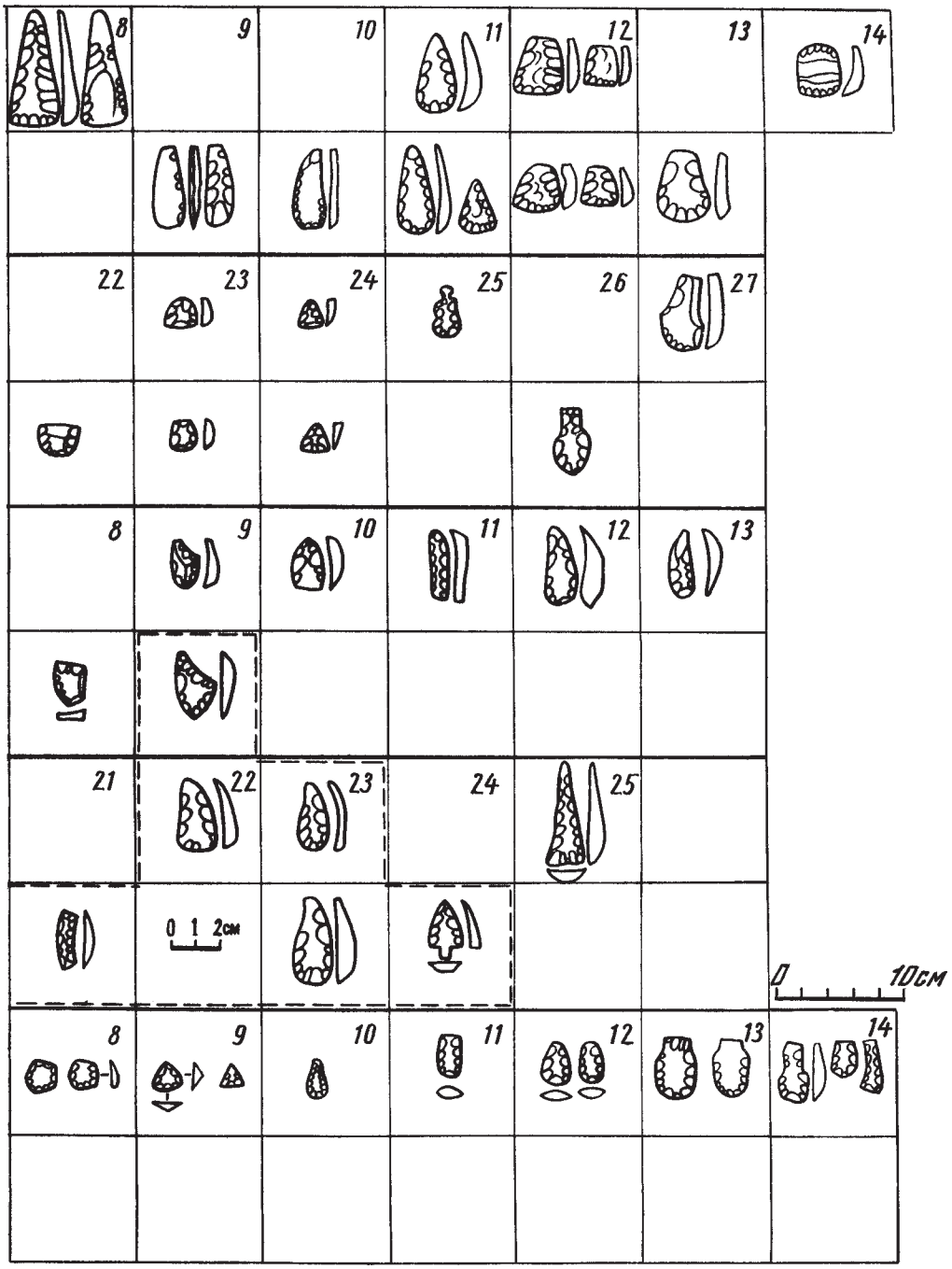


Table 6.

Into *Group IV* enter the same combination tools, but only on end scrapers with a straight longitudinal cross section (favorable for working "away from oneself"): with "ears" on the edges of the blade (1–6), distinctive small tools of cutting-scraping assignment with one (7) and two (8) transverse working edges, with a rear cutting projection (9), and with a pointed cutting-scraping edge (19–23), very favorable for scraping out longitudinal grooves.

Groups V–VI scrapers and combination tools differ by having been bifacially worked and, as a consequence of this, by having a bifacially convex longitudinal cross section (which is



evidently especially favorable for working "away from oneself"). To them belong pear-shaped scrapers (V–1–3) with a lateral projecting cutting corner (V–4–5) and with a narrowing working edge (V–6); sub-square (V–7), rounded (V–8) and triangular (V–9) micro-scrapers; micro-scrapers that are pear-shaped (V–10), oblong rectangular (V–11), oval (V–12), stemmed symmetrical (V–13, 14) and asymmetrical (VI–1, 2), flat with a straight working edge (VI–3, 4), and horseshoe-shaped (VI–5).

Group VII consists of a variety of scrapers on flakes (1–16).

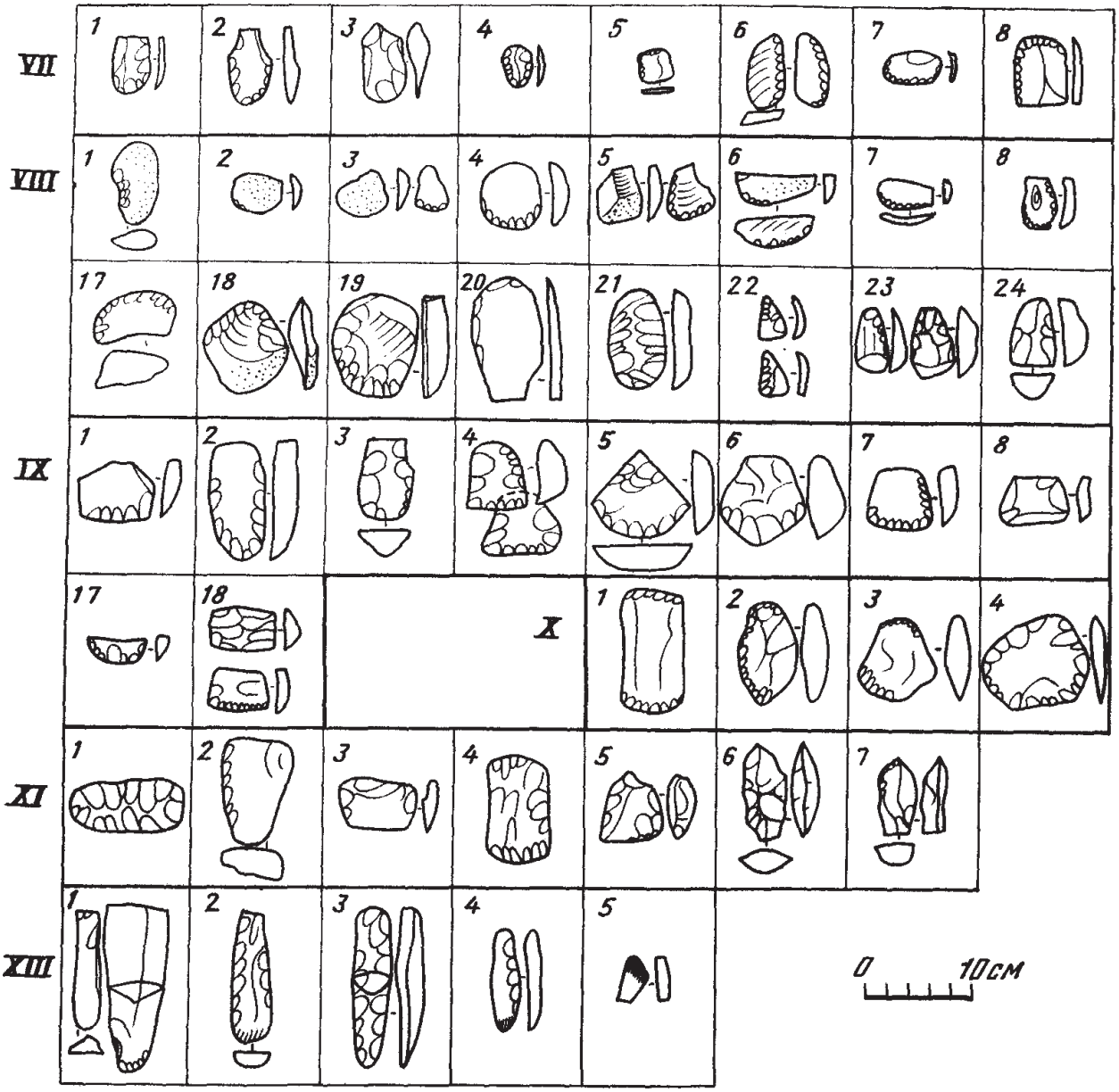
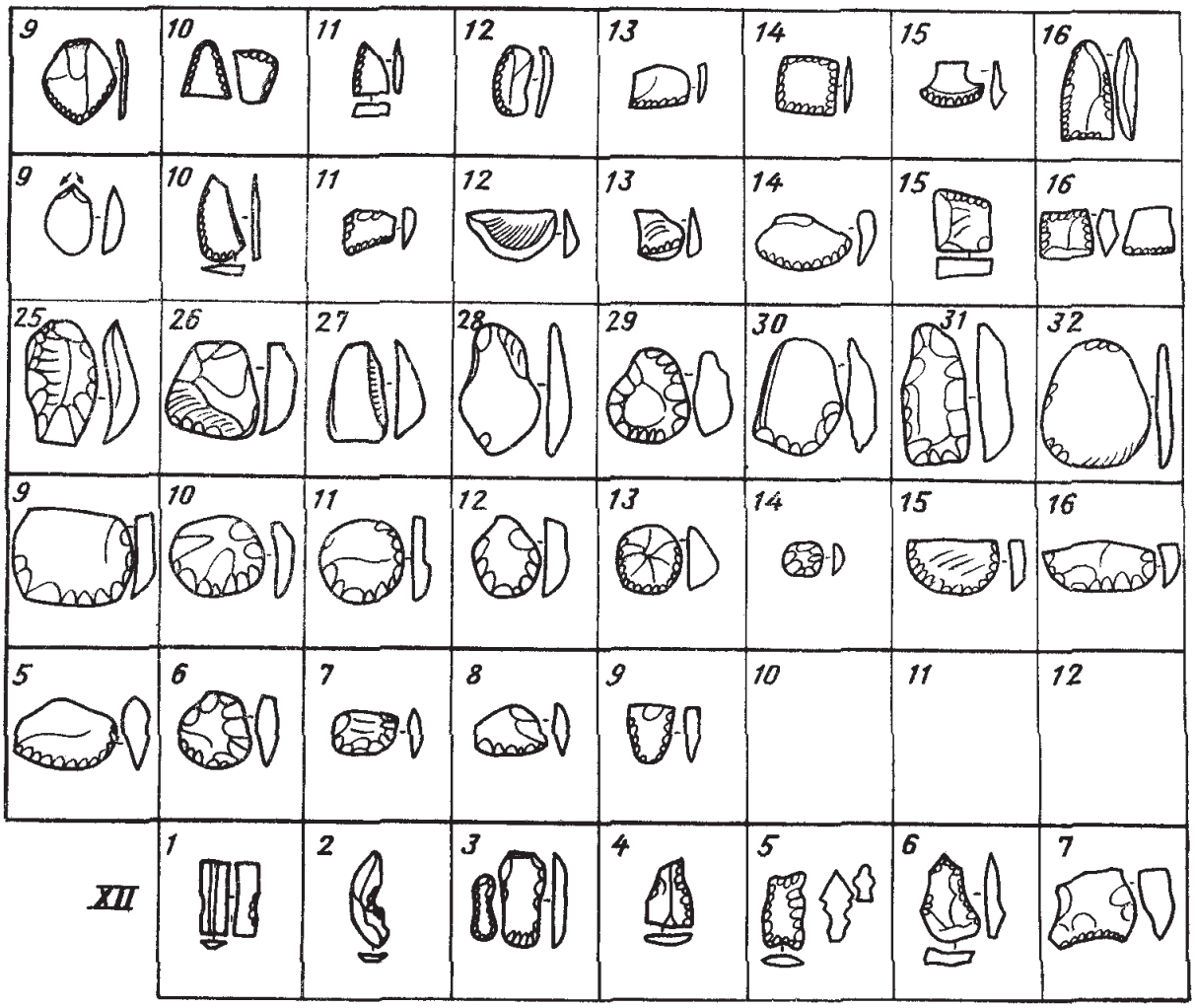


Table 7.

Into *Group VIII* enter scrapers on cobble spalls still preserving the cobble cortex (1–17, 22, 23). Some scrapers were trimmed by retouch along the working edge (1, 3–8, 10, 11, 14–17), while on others the working edge has no trimming at all (2, 9, 12). Into this group also enter skreblos made from more massive cobble spalls with the remains of surface cortex (17–32). Some of them also do not have any trimming along the working edge (27, 28). They all differ in form, position of the working edge, and degree of preservation of cobble cortex.

Group IX also consists predominantly of skreblos (1–18). They were worked much more carefully and do not preserve any remains of cobble cortex. A common feature of this group as well



is the unifacial working on the dorsal side of a massive flake, while the ventral side forms a slightly concave (4, 8, 9, 16) or rectangular (all the rest) interior plane of the tool, favorable for working either "toward oneself" or "away from oneself."

In *Group X* skreblos and scrapers have bifacial working. They differ in size, form, and position of the working edge (1–10).

To *Group XI* we tentatively assign skreblo-like tools of different kinds that could probably serve as spokeshaves (1–8). A very distinctive form among them are the three-sided massive tools with traces of cobble cortex on their ends (8).

Group XII is represented by a different kind of grooved scrapers (1–9). Some of them are on knife-like blades, others on slightly worked flakes (2–6, 8, 9), and a third type consists of irregular stones that are carefully worked by bifacial pressure retouch (7).

In *Group XIII* we place instruments similar to polishers that are generally not yet well understood and can only be tentatively assigned to skreblos (1–5). They were made predominantly from massive oblong spalls and their working edges, often with evident polish, are rounded and located on one of the narrow ends (2–4). A distinctive form of this group is a small polishing instrument, which, in distinction from the remainder, was used probably seated in a handle (5).

Group I

I–1. Ushki I (1), Cultural Layer I; Domashnee Lake (6); Karaginskii (292); Kuril'skoe (303); Ust'-Belaia (72); Yakitiki (93); Uvesnovaniia (57).
I–2. Ushki I (1), Cultural Layer I; Ushki II (2), Cultural Layer I.
I–5. Domashnee Lake (7); Staraia Sopka (15).
I–6. Ushki II (2), Cultural Layer II; Ushki II (2), Cultural Layer V; Sivuiskii (GIM) (303).
I–7. Elizovo (42); Chini (110).
I–8. Chini (110); Ust'-Belaia (72).
I–11. Ushki II (2), Cultural Layer II; Ushki II (2), Cultural Layer V; Elizovo (42); Staraia Sopka (15); Kavran (323); Nikolka (16); Sivuiskii (GIM) (303); Nalychevo (GIM) (253–255).
I–12. Mishennaia Sopka (Orlova's collections) (43); Ust'-Belaia (72); Uelen (collections of Arutiunov and Sergeev).
I–14. Uelen (collections of Arutiunov and Sergeev).
I–15. Ust'-Belaia (72), Kurgan 15.
I–16. Domashnee Lake (7); Kozyrevsk (8); Doiarki (10); Kirpichnaia (44); Kliuchi (13); Kazach'e (20–37); Ust'-Belaia (72); Chini (110); Osinovskaia Spit (64); Sireniki (106).
I–17. Ushki I (1), Cultural Layer I; Ushki II (2), Cultural Layer IV; Elizovo (42); Chikaevo (74); Kultuk (5); Osinovskaia Sopka (66); Ust'-Belaia (72).
I–18. Ushki I (1), Cultural Layer VI; Nikolka (16).
I–24. Elizovo (42); Avacha Bay (after S. I. Rudenko); Kavran (323); Rakovaia (45); Kuril'skoe (303); Ust'-Belaia (72); Aion (160–165).
I–25. Ust'-Belaia (72).
I–26. Avacha Bay (after S. I. Rudenko); Ust'-Belaia (72).
I–28. Chini (110).

Group II

II–1. Ushki II (2), Cultural Layer IV; Domashnee Lake (7); Ust'-Belaia (72).
II–3. Ushki I (1), Cultural Layer V; Sivuiskii (GIM) (303).
II–4. Ushki I (1), Cultural Layer I; Ushki I (1), Cultural Layer VI; Ushki II (2), Cultural Layer IV; Ushki IV (3), Cultural Layer V; Chini (110).
II–5. Staraia Sopka (15).
II–9. El'gygytgyn (188).
II–10. Ushki I (1), Cultural Layer V; Kamaki (18).

II–11. Ushki (surface); Ushki II (2), Cultural Layer V; Kliuchi (12–13); Kamaki (18); Kuril'skoe (303); Nalychevo (GIM) (253–255); Staryi Ostrog (Elizovo, Gerts's collections) (42).
II–12. Kamaki (18); Ust'-Belaia (72); Chikaevo (74); Chini (110); Mishennaia Sopka (Orlova's collection) (43).
II–13. Ushki II (1) (surface); Staryi Ostrog (Elizovo, Gerts's collections) (42); Enmynytnyn (115–117); Penzhina (49); Uelen (collections of Arutiunov and Sergeev) (119).
II–15. Ushki I (1), Cultural Layer VII; Kliuchi, Locus 3 (13); Kameshki (58); Elizovo (42).
II–16. Kuril'skoe (303); Kavran (323); Sivuiskii (GIM) (303); Ust'-Belaia (72); Sireniki (106); Chini (110).
II–17. Ust'-Belaia (72), Kurgan 8.
II–18. Ushki I (1), Cultural Layer I; Ushki II (2), Cultural Layer V; Ushki I (1), Cultural Layer VI; Kamaki (18); Kliuchi (13); Domashnee Lake (7); Kirpichnaia (44); Ust'-Belaia (72); Chikaevo (74); Chini (110).
II–19. Ushki IV (3), Cultural Layer V; Chirovoe (51); Chini (110); Penzhina (49).
II–20. Tar'ia (282–284); Elizovo (42); Chirovoe (51); Chini (110).
II–21. Sireniki (106); Chini (110).\
II–23. Ushki I (1), Cultural Layer I; Ushki I (1), Cultural Layer V; Ushki I (1), Cultural Layer VI; Osinovskaia Spit (64).
II–24. Elizovo (42); Avacha Bay (after S. I. Rudenko); Kavran (323); Rakovaia (45); Kuril'skoe (303); Ust'-Belaia (72); Aion (165).
II–25. Ushki I (1), Cultural Layer VI; Ust'-Belaia (72).
II–27. Kirpichnaia (44); Kulka (328); Chini (110).

Group III

III–1. Ushki I (1), Cultural Layer I; Kirpichnaia (44); Chini (100).
III–2. Kozyrevsk (8).
III–4. Rakovaia (45).
III–5. Chini (110).
III–6. Ust'-Belaia (72), Kurgan 5.
III–9. Kamaki (18).
III–10. Ushki (surface); Chirovoe (51); Krasino (70), Spit 4.
III–11. Ushki I (1), Cultural Layer VI.
III–12. Tar'ia (282–284); Ust'-Belaia (62); Chini (110).
III–13. Ust'-Belaia (72), Kurgan 8.
III–14. Kliuchi (13); Ust'-Belaia (72); Chini (110).
III–15. Kliuchi (13); Zastoichik (6); Domashnee Lake (7).
III–16. Ushki I (1), Cultural Layer I; Kamaki (18); Ust'-Belaia (72).
III–17. Kultuk (5); Domashnee Lake (7).
III–18. Zastoichik (6).
III–19. Kliuchi (13).
III–22. Kamaki (18); Ust'-Belaia (72); Chikaevo (74).
III–23. Kamaki (18).
III–27. Elizovo (42); Kamchatka Museum (surface).

Group IV

IV–1. Chikaevo (74); Chirovoe (51); Chini (110).
IV–2. Kirpichnaia (44); Kurilskoe (303).
IV–3. Tar'ia (282–284).
IV–5. Ushki I (surface); Staraia Sopka (15); Chini (110).
IV–6. Nikolka (16); Mishennaia Sopka (43); Snezhnoe (55).
IV–7. Ushki I (1), Cultural Layer V; Ushki II (2), Cultural Layer I; Domashnee Lake (7); Kirpichnaia (44); Ust'-Belaia (72); Chini (110); Chikaevo (74).
IV–8. Kliuchi (13); Chini (110).
IV–9. Chirovoe (51).
IV–19. Kliuchi (13); Kamaki (18); Ust'-Belaia (72); Chikaevo (74); Chini (110).
IV–20. Kliuchi (13).
IV–21. Kliuchi (13); Doiarki (10); Ust'-Belaia (72).
IV–23. Staraia Sopka (15); Kultuk (5); Ust'-Belaia (72), Kurgan 8.
IV–24. Doiarki (10).

Group V

V–1. Domashnee Lake (7); Sivuiskii (303); Nalychevo (253–255) (GIM); Chini (110).
V–2. Penzhina (49); Nalychevo (253); Sivuiskii (303) (GIM).
V–3. Chikaevo (74); Ust'-Belaia (72).
V–4. Ushki IV (3), Cultural Layer V.
V–5. Kliuchi (13), Locus 3; Uelen (119).
V–6. Ushki IV (3), Cultural Layer V; Chikaevo (74).
V–7. Nikolka (16); Chirovoe (51).
V–8. Ust'-Belaia (72); Chini (110); Uelen (119).
V–9. Ust'-Belaia (72), Kurgan 15.
V–10. Avacha Bay (after S. I. Rudenko).
V–11. Ushki I (1), Cultural Layer I.
V–12. Kamaki (18); Ust'-Belaia (72).
V–13. Chini (110); El'gygytgyn (188).
V–14. Ust'-Belaia (72); Osinovskaia Spit (64); Chini (110); Ust'-Palana (302).

Group VI

VI–1. Osinovskaia Spit (64).
VI–2. Ust'-Belaia (72), Kurgan 8.
VI–3. Mishennaia Sopka (43); Ust'-Main (54); Chirovoe (51); Chikaevo (74).
VI–4. Kamchatka Museum (surface).
VI–5. Chikaevo (74).

Group VII

VII–1. Ushki I (1), Cultural Layer VI; Ushki II (2), Cultural Layer V; Ust'-Belaia (72).
VII–2. Ushki I (1), Cultural Layer I; Nikolka (16); Chikaevo (74); Ust'-Belaia (72).
VII–3. Elizovo (42); Krasino (67); Ust'-Belaia (72); Osinovskaia Sopka (66); Osinovskaia Spit (64).
VII–4. Ushki I (1), Cultural Layer VI; Ust'-Belaia (72); Osinovskaia Spit (64); Chini (110).

VII–5. Ushki I (1) (surface); Staraia Sopka (15); Kliuchi (13); Kirpichnaia (44); Ust'-Belaia (72); Aion (165); Krasnenskaia River (Gondatti's collections).
VII–6. Manily (49); Ukinskaia Bay (220); Chikaevo (74); Chini (110).
VII–7. Elizovo (42); Domashnee Lake (7); Ust'-Belaia (72); Chikaevo (74).
VII–8. Ust'-Belaia (72); Chirovoe (51); Amguema, km 120 (83); Amguema, km 145 (88); Osinovskaia Spit (64).
VII–9. Ushki I (1), Cultural Layer V; Ushki I (1), Cultural Layer VI.
VII–10. Ushki (surface); Ushki I (1), Cultural Layer I; Ushki I (1), Cultural Layer V; Domashnee Lake (7); Zastoichik (6); Elizovo (42); Kirpichnaia (44); Ust'-Belaia (72); Chirovoe (51); Chikaevo (74); Chini (110).
VII–11. Staraia Sopka (15); Kamaki (18); Ust'-Belaia (72); Chini (110).
VII–12. Ushki (surface); Domashnee Lake (7); Kliuchi (surface); Kirpichnaia (44) (surface); Tar'ia (282–284); Ust'-Main (54); Chikaevo (74).
VII–13. Kamaki (18); Osinovskaia Spit (64); Chini (110).
VII–14. Ushki I (1), Cultural Layer I; Nikolka (16); Doiarki (10); Domashnee Lake (7).
VII–15. Domashnee Lake (7); Chikaevo (74); Krasneno (67); Osinovskaia Spit (64); Vilka II (60).
VII–16. Vakarevo (53).

Group VIII
VIII–1. Chikaevo (74).
VIII–2. Ushki I (1), Cultural Layer VI; Ust'-Belaia (72); Chikaevo (74); Osinovskaia Sopka (66); Osinovskaia Spit (64).
VIII–3. Chikaevo (74); Ust'-Belaia (72); Osinovskaia Spit (64).
VIII–4. Chirovoe (51); Ust'-Belaia (72); Koliuchin (146–147); Osinovskaia Spit (64); Krasneno (67); Sed'moi Prichal (98); Kanchalan (189); Karaga (216) (Gondatti's collections).
VIII–5. Chikaevo (74); Osinovskaia Spit (64); Chirovoe (51).
VIII–6. Chikaevo (74); Osinovskaia Spit (64).
VIII–7. Chikaevo (74).
VIII–8. Vilka (59–60); Osinovskaia Spit (64).
VIII–9. Chikaevo (74); near Osinovskaia Spit (64).
VIII–10. Chirovoe (51).
VIII–11. Osinovskaia Spit (64).
VIII–12. Chikaevo (74); Ust'-Belaia (72); Osinovskaia Sopka (66); Snezhnoe (55); Anakatrary (62); Osinovskaia Spit (64); Krasino, Spit 4 (67).
VIII–13. Chirovoe (51).
VIII–14. Ust'-Belaia (72); Vakarevo (53); Sed'moi Prichal (105).
VIII–15. Kanchalan (189).
VIII–16. Kanchalan (189).
VIII–17. Kanchalan (189).
VIII–18. Utesiki, lower part (61).
VIII–19. Chikaevo (74).
VIII–20. Chirovoe (51); Chikaevo (74); Ust'-Belaia (72).
VIII–21. Chikaevo (74).
VIII–22. Chikaevo (74); Chini (110).
VIII–23. Chikaevo (74); Krasneno (67); Osinovskaia Spit (64).

VIII–24. Sivuiskii (303) (GIM); Mishennaia Sopka (43) (Orlova's collections).
VIII–25. Sivuiskii (303) (GIM); Krasino, Spit 4 (67).
VIII–26. Sed'moi Prichal (98); Chikaevo (74); Osinovskaia Spit (64); Ust'-Belaia (72); Kanchalan (189).
VIII–27. Osinovskaia Spit (64).
VIII–28. Sed'moi Prichal (105); Chikaevo (74); Osinovskaia Spit (64).
VIII–29. Kuril'skoe Lake, Sivuiskii (303) (GIM); Kanchalan (189).
VIII–30. Doiarki (10); Chirovoe (51).
VIII–31. Ushki II (2), Cultural Layer III; Doiarki (10); Chikaevo (74).
VIII–32. Chikaevo (74).

Group IX
IX–1. Ushki I (1), Cultural Layer VI; Ushki I (1), Cultural Layer VII; Kultuk (5); Chirovoe (51); Kanchalan (189); Yakitiki (93); Krasino, Spit 1 (68); Osinovskaia Spit (64); Aion (163); Uelen (collections of Arutiunov and Sergeev).
IX–2. Ushki I (1), Cultural Layer I; Ushki I (1), Cultural Layer VI; Ushki I (surface); Cape Zelenyi (47); Kanchalan (184); Uelen (119) (collections of Arutiunov and Sergeev).
IX–3. Ushki I (1), Cultural Layer I; Chikaevo (74); Krasneno (67) (Naryshkin's collections); Uelen (collections of Arutiunov and Sergeev).
IX–4. Kanchalan (189).
IX–5. Ushki I (1), Cultural Layer I; Ushki I (1), Cultural Layer VI.
IX–6. Ushki (surface); Ushki I (1), Cultural Layer I; Ushki II (2), Cultural Layer I; Chikaevo (74); Penzhina (49); Kanchalan (189).
IX–7. Penzhina, Manily (49); Krasnoe (67); Kanchalan (189); Chikaevo (74).
IX–8. Osinovskaia Spit (64); Krasnoe (67) (Naryshkin's collections).
IX–9. Utesiki (61); Chikaevo (74); Anakotrary (62); Sed'moi Prichal (98); Amguema, km 153 (91); Amguema, km 160 (92).
IX–10. Sivuiskii (303) (GIM); Ust'-Belaia (64); Krasnoe (67) (Naryshkin's collections); Kanchalan (189); Osinovskaia Spit (64).
IX–11. Chikaevo (74).
IX–12. Penzhina (49); Utesiki (61); Krasnoe (64) (Naryshkin's collections).
IX–13. Ushki I (1), Cultural Layer I; upper reaches of Sopochnaia River (Orlova's collections) (319a); Ust'-Belaia (72); Uelen (119).
IX–14. Osinovskaia Spit (64);
IX–15. Chikaevo (74); Ust'-Belaia (72); Osinovskaia Spit (64).
IX–16. Ushki I (1), Cultural Layer I; Ushki I (1), Cultural Layer VII; Osinovskaia Spit (64); Krasneno (67); Chini (110); Uelen (119).
IX–17. Ushki I (1), Cultural Layer VI; Osinovskaia Spit (64); Chirovoe (51); Chini (110).
IX–18. Ushki II (2), Cultural Layer V; Chini (110).

Group X
X–1. Sireniki (106).
X–2. Kanchalan (189); Uelen (119) (collections of Arutiunov and Sergeev).
X–3. Kanchalan (189).
X–4. Ushki I (1), Cultural Layer I; Krasneno (67); Kanchalan (189); Uelen (119) (collections of Arutiunov and Sergeev).

X–5. Ushki I (1), Cultural Layer I; Zastoichik (6); Snezhnoe (55); Pervorechensk (343); Osinovskaia Sopka (66).
X–6. Pervorechensk (343); Penzhina (49).
X–7. Kultuk (5); Ust'-Belaia (72); Osinovskaia Spit (64).
X–8. Amguema, km 102, Site 3 (80); Amguema, km 102, Site 2 (79); Uelen (119).
X–10. Ust'-Belaia (72); Chirovoe (51); Chikaevo (74); Osinovskaia Sopka (66); Osinovskaia Spit (64); Krasino, Spit 4 (67); Chini (110); Uelen (119).

Group XI
XI–1. Cape Dezhneva (173).
XI–2. Ushki II (2), Cultural Layer V; Chini (110).
XI–3. Chukchi Peninsula (after S. I. Rudenko); Enmynytnyn (115–117); Chini (110).
XI–4. Chukchi Peninsula (after S. I. Rudenko).
XI–5. Chikaevo (74).
XI–6. Chikaevo (74).
XI–7. Amguema, km 102, Site 4 (81); Chikaevo (74).

Group XII
XII–1. Ushki (surface); Ushki I (1), Cultural Layer I; Domashnee Lake (7); Ust'-Belaia (72); Yakitiki (93); Chirovoe (51).
XII–2. Ust'-Belaia (72); Omryn (73); Krasnenskaia Spit 2 (69).
XII–3. Ushki I (1), Cultural Layer VI; Elizovo (42); Chini (110); Sireniki (106).
XII–4. Domashnee Lake (7); Kliuchi (13); Nikolka (16); Kirpichnaia (44); Ust'-Belaia (72); Sireniki (106); Chini (110).
XII–5. Chini (110).
XII–6. Staryi Ostrog (42) (Elizovo, Gerts's collections); Osinovskaia Sopka (66); Vakarevo (53).
XII–7. Osinovskaia Spit (64); Ust'-Belaia (72); Chikaevo (74); Krasnenskaia Spit 1 (68).

Group XIII
XIII–1. Ushki IV (3), Cultural Layer V; Uelen (119).
XIII–2. Ushki I (1), Cultural Layer V; Chini (110); Uelen (119) (collections of Arutiunov and Sergeev).
XIII–3. Ushki I (1), Cultural Layer I; Ushki II (2), Cultural Layer II; Ust'-Belaia (72).
XIII–4. Uelen (119).
XIII–5. Chini (110).

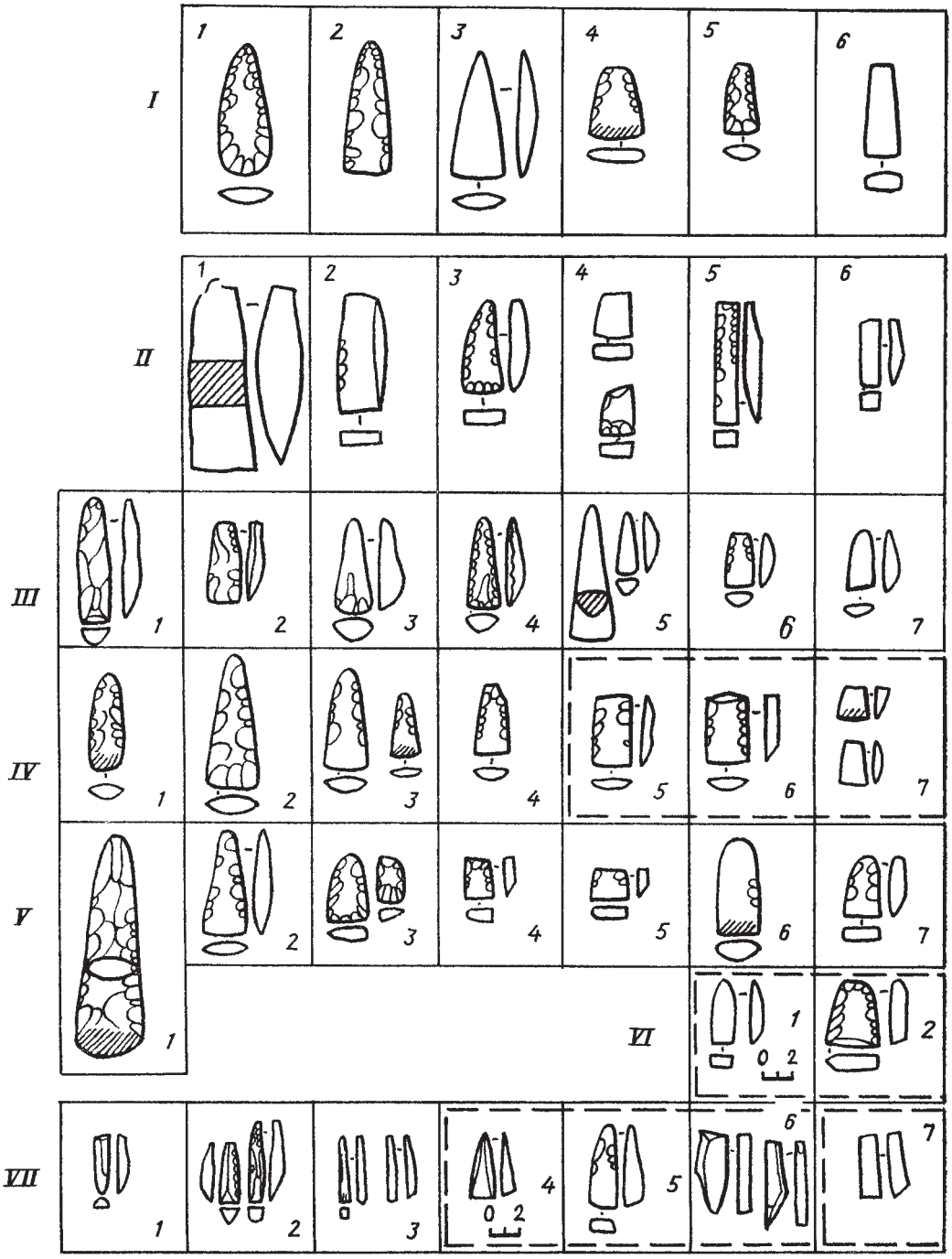
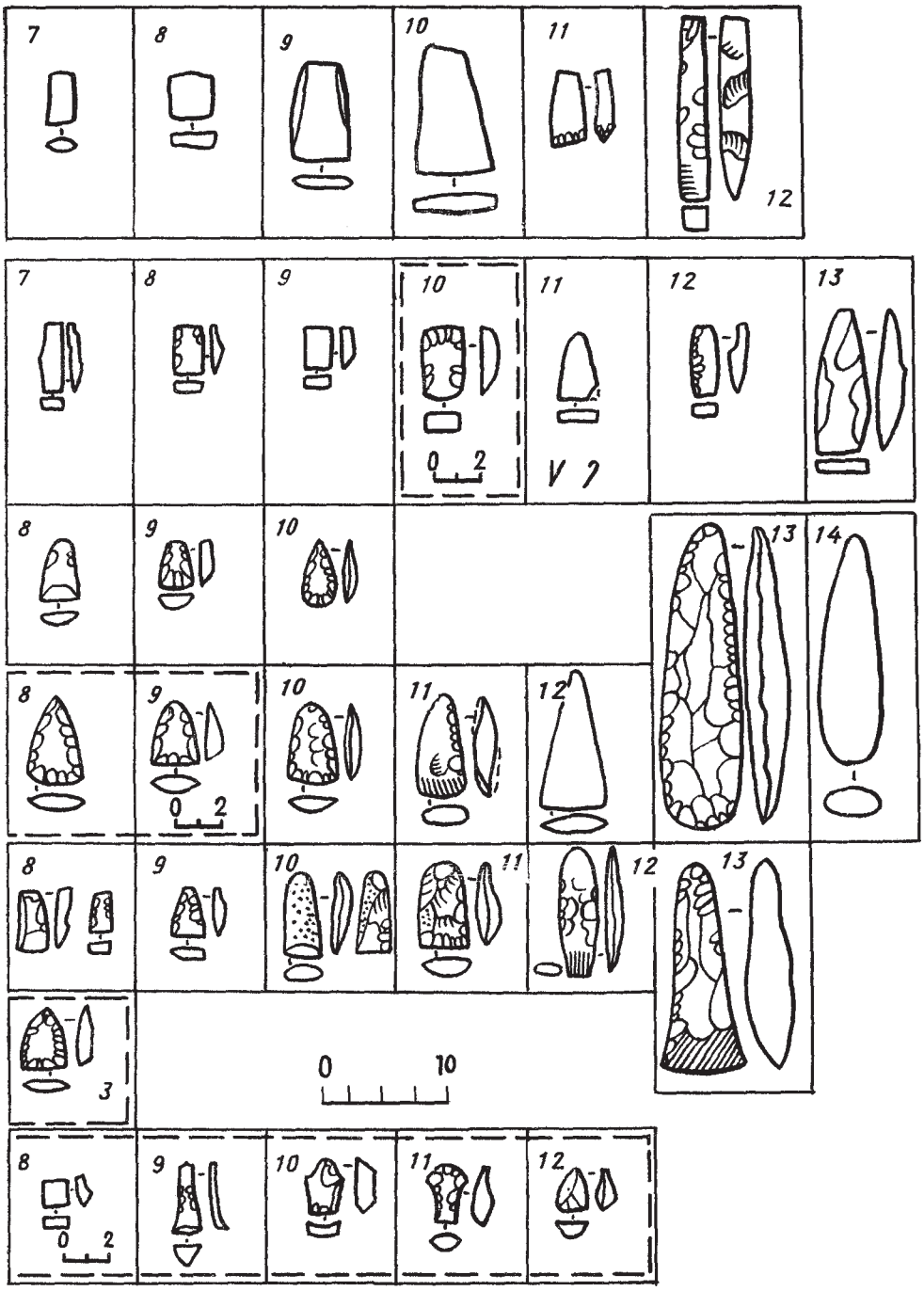


Table 8.

Axes and Adzes (Table 8)

Group I of this category of tools is made up of axes, which are distinguished from adzes by the symmetry of the chopping edge. Just as all other tools of this category they differ among themselves by general planar form and form of cross section, as well as by the characteristics of manufacture. They are oval, triangular, trapezoidal, or rectangular, and their cross section is lenticular (1–5), more or less oval (6, 7), or subrectangular (8, 10–12). Some of them are wholly flaked (1, 2, 5), some partially (3, 4, 12); the remainder are ground.



Adzes make up five of the tentative groups (II–VI).

In *Group II*, all the adzes have a rectangular cross section (1–14). The rectangular adzes (1, 2, 5–12) predominate among them, but there are trapezoidal (1, 4) and almost triangular (3) ones. The rectangular, more or less massive adzes with a projection or groove on the rear part of the butt (5, 8, 13), as well as with convex lateral sides (13–14), are peculiar.

In *Group III*, adzes have a more or less subtriangular cross section (1–10). They are predominantly of elongated form with a pointed butt. Some of them are not ground at all (1, 2, 4,

9, 10), others are partially ground (3, 6, 8), and only three varieties of them are ground on all surfaces (5–7).

Group IV consists of adzes with a lenticular cross section. As a rule, only the blade is ground. They are almost oval (1), trapezoidal (2–4, 7), rectangular (5, 6), or subtriangular (2, 3, 8–12). Among the last are completely bifacially retouched adzes (8, 10, 11), and some of them (10, 12) are assigned to unique forms with a grooved working edge.

Into *Group V* enter adzes with an irregularly oval or even an atypical cross section (1–12). Their frontal outlines are also often deprived of geometric regularity. They are predominantly more or less trapezoidal, though almost rectangular ones are also encountered among them (4, 5), as well as adzes with concave sides (12).

Group VI consists of adzes of special assignment with a large angle of sharpening of the working edge (1–3). They were intended for working hard material, for example, walrus tusk. They are short and their butts narrow so that they are clearly intended for socketed handles. Their cross section is rectangular (1), irregular (2), or lenticular (3). The last two forms are moreover completely or almost completely retouched tools.

Into *Group VII* enter various chisel-like instruments (1–12), more or less oblong (1–7, 9) or very short and tiny (8, 10–12). Two varieties of these artifacts are unique (11, 12), having a distinctive miniature form and a carefully retouched, convex working edge.

Group I

I–1. Uelen (collections of Arutiunov and Sergeev).
I–2. Kamchatka Museum (surface material); Sed'moi Prichal (105); Ust'-Kamchatsk (227) (Karre's collections); Uelen (119) (collections of Arutiunov and Sergeev).
I–3. Chini (119); Chikaevo (74); Sed'moi Prichal (105).
I–4. Staraia Sopka (15); Doiarki (10); Penzhina (49).
I–5. Chikaevo (74); Nikolka (16); Kliuchi (13); Uelen (119); Chini (110); Vankarem, Locus III (150); Koliuchin (146–147).
I–6. Kirpichnaia (44); Kamaki (18); Nikolka (16); Kamchatka Museum (surface material); Chikaevo (74).
I–7. Kameshki (58); Kozyrevsk (8); Kamchatka Museum (surface material).
I–8. Ushki I (1); Kozyrevsk (8); Kamaki (18); Cape Shmidta (158).
I–9. SouthKamchatka (GIM) (from W. I. Jochelson's excavations).
I–10. Kamchatka (Loginov's collections).
I–11. Kamchatka.
I–12. Uelen (119) (collections of Arutiunov and Sergeev).

Group II

II–1. Kamchatka (Loginovskii's collections).
II–2. Kamaki (18); Kamchatka, Palana (333) (Fel'dman's collections).
II–3. Nikolka (16); Ust'-Belaia (72).
II–4. Ushki I (1); Kamchatka Museum (surface material); Nikolka (16); Doiarki (10); Staryi Ostrog (42) (Elizovo, Gerts's collections); Kameshki (Kramarenko's collections); Nalychevo (253–255) (GIM); Chini (110).

II–5. Ust'-Belaia (72).
II–6. Doiarki (10); Kliuchi (13); Ust'-Belaia (72), Kurgan 11.
II–7. Ust'-Belaia (72), Kurgan 9.
II–8. Kamaki (18); Ust'-Belaia (72).
II–9. Kamaki (18); Doiarki (10); Ust'-Belaia (72).
II–10. Ust'-Belaia (72).
II–11. Ust'-Belaia (72).
II–12. Kamaki (18).
II–13. Tar'ia? (282–284) (Vladivostok Museum).
II–14. Tar'ia? (282–284) (Vladivostok Museum).

Group III

III–1. Kliuchi (195) (vicinity of the village, Prof. Derzhavin's collections, Vladivostok Museum).
III–2. Kamchatka Museum (surface material); Dal'nee Lake.
III–3. Kirpichnaia (44); Kliuchi (13); Kamaki (18); Kamchatka Museum (surface material); Mishennaia Sopka (43); Sivuiskii (303); Nalychevo (253–255) (GIM).
III–4. Ushki II (2), Cultural Layer V; Kamchatka Museum.
III–5. Ushki II (2); Sivuiskii (303) (GIM); Tar'ia (284) (Gur'ev's collections); Rakovaia (45); Staraia Sopka (15); Kozyrevsk (8); Kamchatka Museum (surface material); Kirpichnaia (44); Mishennaia Sopka (43); Seroglazka (262) (GIM).
III–6. Ushki; Kozyrevsk (8); Domashnee Lake (7); Kirpichnaia (44); Sivuiskii (303) (GIM); Kamaki (18) (Kramarenko's collections); Utkholok (325) (Zmiev's collections).
III–7. Ushki II (2); Zastoichik (6).
III–8. Ushki (surface material); Nalychevo (253–255) (GIM).
III–9. Ushki I (1).
III–10. Ushki II (2), Cultural Layer IV; Ust'-Belaia (72), Kurgan 10.

Group IV

IV–1. Sivuiskii (303) (GIM); Chikaevo (74); Uelen (119).
IV–2. Uelen (119) (collections of Arutiunov and Sergeev).
IV–3. Nikolka (16); Kamchatka Museum (surface material); Kirpichnaia (44); Staryi Ostrog (42) (Elizovo, Gerts's collections); Seroglazka (262) (Gondatti's collections); Sivuiskii (303) (GIM); Kozyrevsk (8); Kamaki (18); Uelen (119) (collections of Arutiunov and Sergeev); Atargan (300).
IV–4. Doiarki (10); Kirpichnaia (44); Kamchatka Museum (surface material); Sivuiskii (303) (GIM); Chikaevo (74).
IV–5. Kamaki (18).
IV–6. Ust'-Belaia (72).
IV–7. Kamaki (18); Ust'-Belaia (72).
IV–8. Mishennaia Sopka (43) (Orlova's collections); Chirovoe (51); Ust'-Belaia (72), Kurgan 16.
IV–9. Chikaevo (74).
IV–10. Kulka (328); Kavran (323) (GIM); Sivuiskii (303).
IV–11. Sivuiskii (303) (GIM).
IV–12. SouthKamchatka (after A. K. Ponomarenko).

IV–13. Orochan (374).
IV–14. Orochan (374).

Group V
V–1. Orochan (374).
V–2. Nikolka (16); Kamaki (18); Staraia Sopka (15); Rakovaia (45); Kamchatka Museum (surface); Staryi Ostrog (42) (Elizovo, Gerts's collections); Penzhina (49); Sivuiskii (215) (GIM); Enmynytnyn (115–117); Atargan (380).
V–3. Sivuiskii (303) (GIM); Chirovoe (51); Uelen (119); Chegitun (126).
V–4. Kozyrevsk (8); Kliuchi (12); Nalychevo (153–155) (GIM).
V–5. Kliuchi (12, 13); Kamaki (18); Petropavlovsk-Kamchatski (vicinity, Sokovnikov's collections).
V–6. Sivuiskii (215) (GIM).
V–7. Kamaki (18); Nikolka (16); Kozyrevskii Sovkhoz (9); Staryi Ostrog (42) (Elizovo, Gerts's collections); Sivuiskii (303) (GIM); Kamchatka (Loginovskii's collections); Chikaevo (74); Chini (110); Uelen (119) (collections of Arutiunov and Sergeev).
V–8. Staraia Sopka (15); Kamaki (18); Nikolka (16); Doiarki (10); Kozyrevsk (8); Sivuiskii (303) (GIM); Chirovoe (51); Chini (110).
V–9. Staraia Sopka (15); Kamaki (18); Domashnee Lake (7); Doiarki (10); Kamchatka Museum (surface); Sivuiskii (303) (GIM); Chikaevo (74); Chini (110); Nuniamo (109); Ikolivrunveem (133-134); Uelen (119) (collections of Arutiunov and Sergeev).
V–10. Sivuiskii (303) (GIM).
V–11. Sivuiskii (303) (GIM); Uelen (119) (collections of Arutiunov and Sergeev).
V–12. Sivuiskii (303) (GIM); Uelen (119) (collections of Arutiunov and Sergeev).

Group VI
VI–1. Enmynytnyn (115-117); Uelen (119) (collections of Arutiunov and Sergeev).
VI–2. Chini (110); Uelen (119) (collections of Arutiunov and Sergeev).
VI–3. Chini (110).

Group VII
VII–1. Chini (110).
VII–2. Elizovo (42); Kirpichnaia (44); Tar'ia (282–284); Staraia Sopka (15).
VII–3. Chini (110); Uelen (119).
VII–4. Kamchatka Museum (surface material).
VII–5. Staraia Sopka (15); Chini (110); Seshan (131).
VII–6. Ust'-Belaia (72); Chini (110).
VII–7. Kamaki (18); Nikolka (16); Kliuchi (13) (surface material); Bol'sheretsk (310) (Gondatti's collections); Chini (110).
VII–8. Ushki I (1), Cultural Layer I.
VII–9. Ust'-Belaia (72).
VII–10. Kliuchi (13), Locus 3.
VII–11. Chirovoe (51).
VII–12. Chirovoe (51).

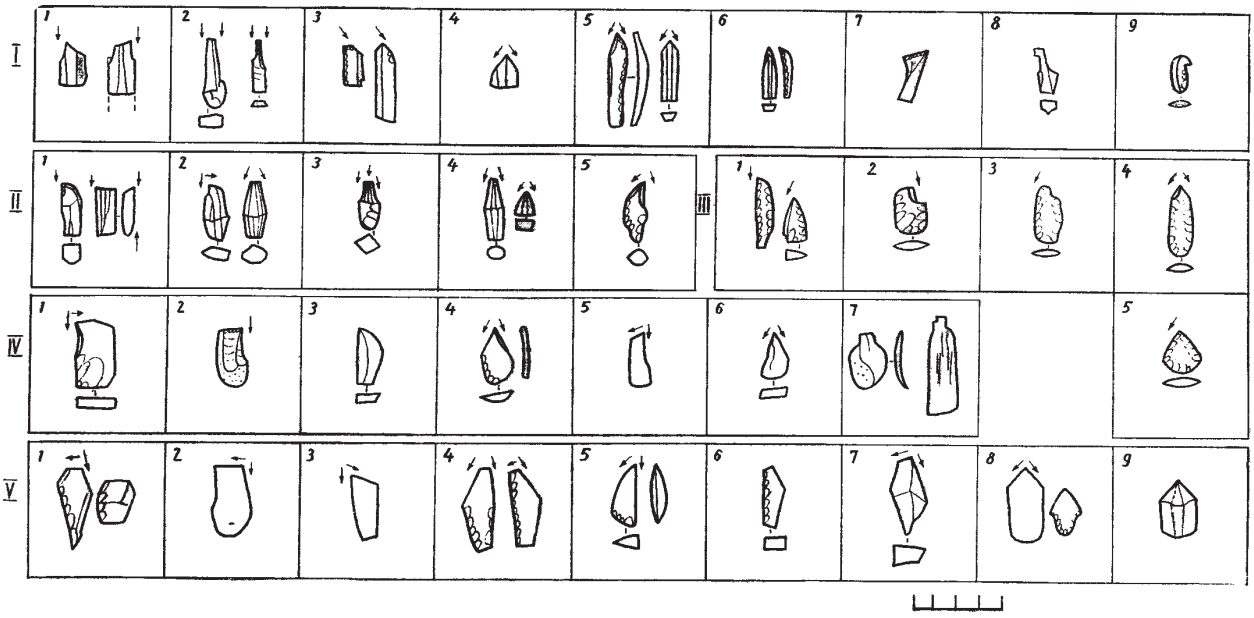


Table 9.

Burins (Table 9)

We placed burins in five groups.

Group I consists of burins on knife-like blades: lateral (1–3), dihedral (4, 5), beaked (6), angle (7), and irregular burins (8, 9).

Into *Group II* enter multi-faceted burins with a large, often core-like or lightly retouched haft (1–5).

In *Group III* are lateral and dihedral burins with flattening bifacial retouch on the haft (1–5).

Burins of *Group IV* are angle, lateral, and dihedral, and they are all on flakes (1–7).

Into *Group V* enter ground burins of hard nephritic stone. They are angle, lateral, or dihedral burins (1–8), sometimes of quartz crystal (9).

Group I

I–1. Ushki I (1), Cultural Layer I; Domashnee Lake (6); El'gygytgyn (183).
I–2. Doiarki (9); Ust'-Belaia (72); Chikaevo (74); Amguema, km 145 (89).
I–3. Ushki II (2), Cultural Layer III; Kliuchi (13); Domashnee Lake (6); Ust'-Belaia (72).
I–4. Ushki I (1), Cultural Layer I; Chikaevo (74); Chini (103).
I–5. Ushki II (2), Cultural Layer IV; Ushki (surface); Zastoichik (5); Domashnee Lake (6); Chikaevo (74); Amguema, km 102, Site IV (81); Kameshki (58).
I–6. Chirovoe (51).
I–7. Kultuk (4).
I–8. Yakitiki (93).
I–9. Ust'-Belaia (72), Kurgan 15.

Group II

II–1. Ushki I (1), Cultural Layer II; Ust'-Belaia (72); Uvesnovaniia (57); Chikaevo (74).
II–2. Chikaevo (74).
II–3. Chikaevo (74); Chirovoe (51); Ust'-Belaia (72); Uvesnovaniia (57); Chini (103).
II–4. Chikaevo (74); Aion (153).
II–5. Ust'-Belaia (72); Chirovoe (51); Chikaevo (74).

Group III

III–1. Ushki I (1), Cultural Layer I; Zastoichik (5); Chirovoe (51); Ust'-Belaia (72).
III–2. Ushki I (1), Cultural Layer I; Chirovoe (51); Kameshki (58); Anakotrara (62).
III–3. Ust'-Belaia (72), Kurgan 9.
III–4. Chikaevo (74); Ust'-Belaia (72); Chirovoe (51).
III–5. Kamaki (18).

Group IV

IV–1. Ust'-Belaia (73).
IV–2. Chikaevo (74).
IV–3. Elizovo (42); Kliuchi (13), Locus 3; Zastoichik (5); Nikolka (16); Ust'-Belaia (72); Chikaevo (51); Uvesnovaniia (57); Osinovaia Sopka (66); Yakitiki (93); Osinovaia Spit (64).
IV–4. Ushki II (2), Cultural Layer V; Chikaevo (74); Yakitiki (93); Ust'-Belaia (72).
IV–5. Kliuchi, Locus 1 (11); Zastoichik (5); Ust'-Belaia (72); Chikaevo (74); Osinovskaia Sopka (66); Yakitiki (93); Vilka II (60).
IV–6. Ushki II (2), Cultural Layer V; Kamaki (18); Ust'-Belaia (72); Chirovoe (51); Amguema, km 129 (85); Aion (154); Uelen (112).
IV–7. Chikaevo (74); Ust'-Belaia (72).

Group V

V–1. Chini (103).
V–2. Chini (103).
V–3. Chini (103).
V–4. Chini (103); Enmynytnyn (108–110); Uelen (112).
V–5. Chini (103).
V–6. Chini (103).
V–7. Chini (103).
V–8. Chini (103).
V–9. Vankarem I (141); Chini (103); Uelen (112).

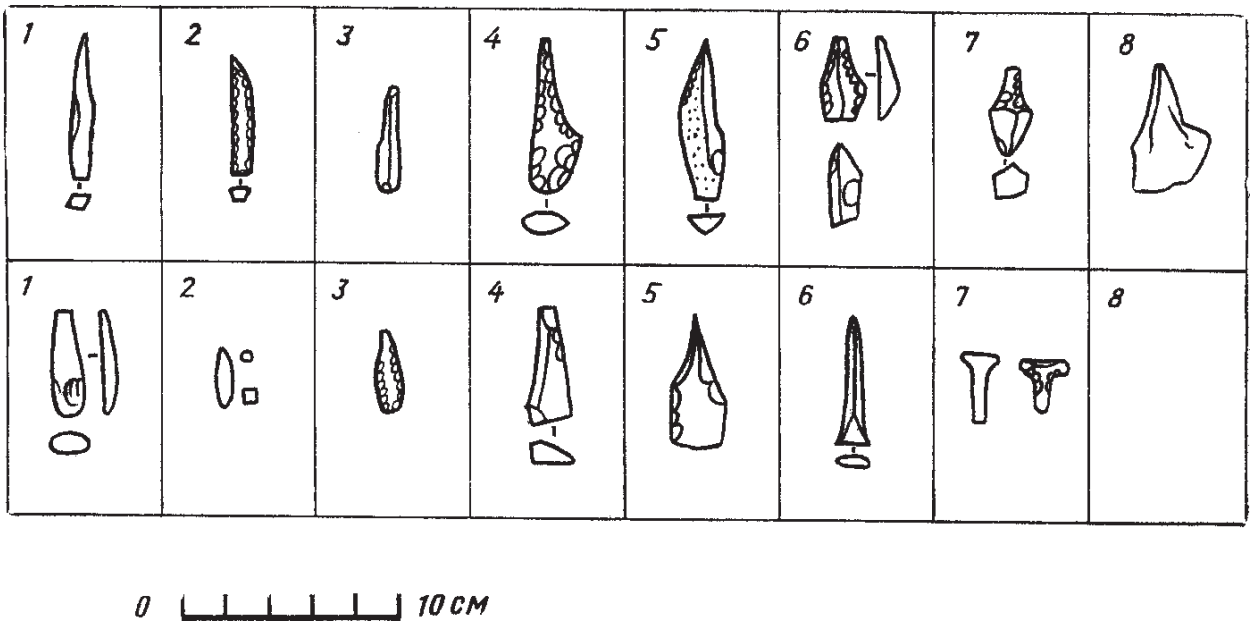


Table 10.

Punches (Table 10)

Punches are not separated into groups of special forms. Among their 15 varieties the following stand out: punches with a retouched haft (4, 6, 11, 13) and T-shaped pins, probably labrets (15).

Group I

I–1. Ushki I (1), Cultural Layer VI; Ushki II (2), Cultural Layer III.
I–2. Ushki II (2), Cultural Layer III; Kamaki (18); Doiarki (9); Chini (103).
I–3. Kliuchi (13) (surface); Chini (103).
I–4. Ushki I (1), Cultural Layer VI; Zastoichik (5); Ust'-Belaia (72); Krasnoe (68–70); Chikaevo (74).
I–5. Ushki I (1), Cultural Layer VI; Chikaevo (74); Ust'-Belaia (72); Osinovskaia Spit (64).
I–6. Ushki (surface); Domashnee Lake (6); Elizovo (42); Kamaki (18); Staraia Sopka (15); Chirovoe (51); Chini (103).
I–7. Chikaevo (51).
I–8. Kliuchi (11–13) (surface); Osinovskaia Sopka (66); Chirovoe (51).

Group II

II–1. Chini (103).
II–2. Chini (103).
II–3. Doiarki (9); Chini (103); Uelen (112).
II–4. Uelen (112).
II–5. Chini (103).
II–6. Uelen (112).
II–7. Domashnee Lake (6); Zastoichik (5).

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(Abbreviations can be found at the end of this section.)

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Abbreviations

AMNH	American Museum of Natural History.
AN	Akademiia nauk [Academy of Sciences].
AO	Arkheologicheskie otkrytiia [Archaeological Discoveries].
AP	Asian Perspectives.
APAMNH	Anthropological Papers of the American Museum of Natural History.
APUA	Anthropological Papers of the University of Alaska.
Archiv MOKM	Arkhiv magadanskogo okruzhnogo kraevedcheskogo muzeia [Archive of the Magadan District Regional Museum].
ArINA	Arctic Institute of North America.
ARNMC	Annual Report of the National Museum of Canada.
BKIChP	Biulleten' komissii po izucheniiu chetvertichnogo perioda [Bulletin of the Commission for the Study of the Quaternary Period].
DVNTs	Dal'nevostochnyi nauchnyi tsentr [Far East Science Center].
GIM	Gosudarstvennyi istoricheskii muzei [State Historical Museum].
GME	Gosudarstvennyi muzei etnografii [State Museum of Ethnography].
ICAES	International Congress of Anthropological and Ethnological Sciences.
IRGO	Imperskoe Russkoe Geograficheskoe obshchestvo [Imperial Russian Geographic Society].
Izv. VGO	Izvestia Vsesoiuznogo geograficheskogo obshchestva [Bulletin of the All-Union Geographic Society].
KSIA	Kratkie soobshcheniia instituta arkheologii [Brief Reports of the Institute of Archaeology].
KSIE	Kratkie soobshcheniia instituta etnografii [Brief Reports of the Institute of Ethnography].

KSIIMK	Kratkie soobshcheniia Instituta istorii material'noi kul'tury [Brief Reports of the Institute of the History of Material Culture].
LGPI	Leningradskii gosudarstvennyi pedagogicheskii institut [Leningrad State Pedagogical Institute].
LGU	Leningradskii gosudarstvennyi universitet [Leningrad State University].
MAE	Muzei antropologii i etnografii [Museum of Anthropology and Ethnography].
MANH	Memoir of the American Museum of Natural History.
MGU	Moskovskii gosudarstvennyi universitet [Moscow State University].
MIA	Materialy i issledovaniia po arkheologii SSSR [Materials and Investigations in the Archaeology of the USSR].
MKAEN	Mezhdunarodnyi kongress antropologicheskikh i etnograficheskikh nauk [The Seventh International Congress of Anthropological and Ethnographic Sciences].
RGO	Russkoe geograficheskoe obshchestvo [Russian Geographical Society].
SA	Sovetskaia arkheologiia [Soviet Archaeology].
SAA	Society for American Archaeology.
Sb. MAE	Sbornik muzeia antropologii i etnografii [Journal of the Museum of Anthropology and Ethnography].
SE	Sovetskaia etnografiia [Soviet Ethnography].
Ser. obshch. nauk	seriia obshchestvennykh nauk [social science series].
SO	Sibirskogo otdeleniia [Siberian Division].
SSSR	Soiuz Sovetskikh Sotsialisticheskikh Respublik [Union of Soviet Socialist Republics—USSR].
SVKNII	Severo-Vostochnogo kompleksnogo nauchno-issledovatel'skogo instituta [Northeast Interdisciplinary Scientific Research Institute].
SWJA	Southwestern Journal of Anthropology.

TIE	Trudy Instituta etnografii [Works of the Institute of Ethnography].
Tr. SVKNII SO AN SSSR	Trudy Severo-Vostochnogo kompleksnogo nauchno-issledovatel'skogo instituta Sibirskogo otdeleniia Akademii nauk SSSR [Northeast Interdisciplinary Scientific Research Institute of the Siberian Division of the Academy of Sciences, USSR].
Uch. zap. LGU	Uchenye zapiski Leningradskogo gosudarstvennogo universiteta [Study Notes of Leningrad State University].
VDI	Vestnik drevnei istorii [Bulletin of Early History].
VGO	Vsesoiuznoe geograficheskoe obshchestvo [All-Union Geographic Society].
VSO	Vostochno-Sibirskogo otdeleniia [East Siberian Division].
Zap. ChOKM	Zapiski Chukotskogo okruzhnogo kraevedcheskogo muzeia [Notes of the Chukotka District Regional Museum].