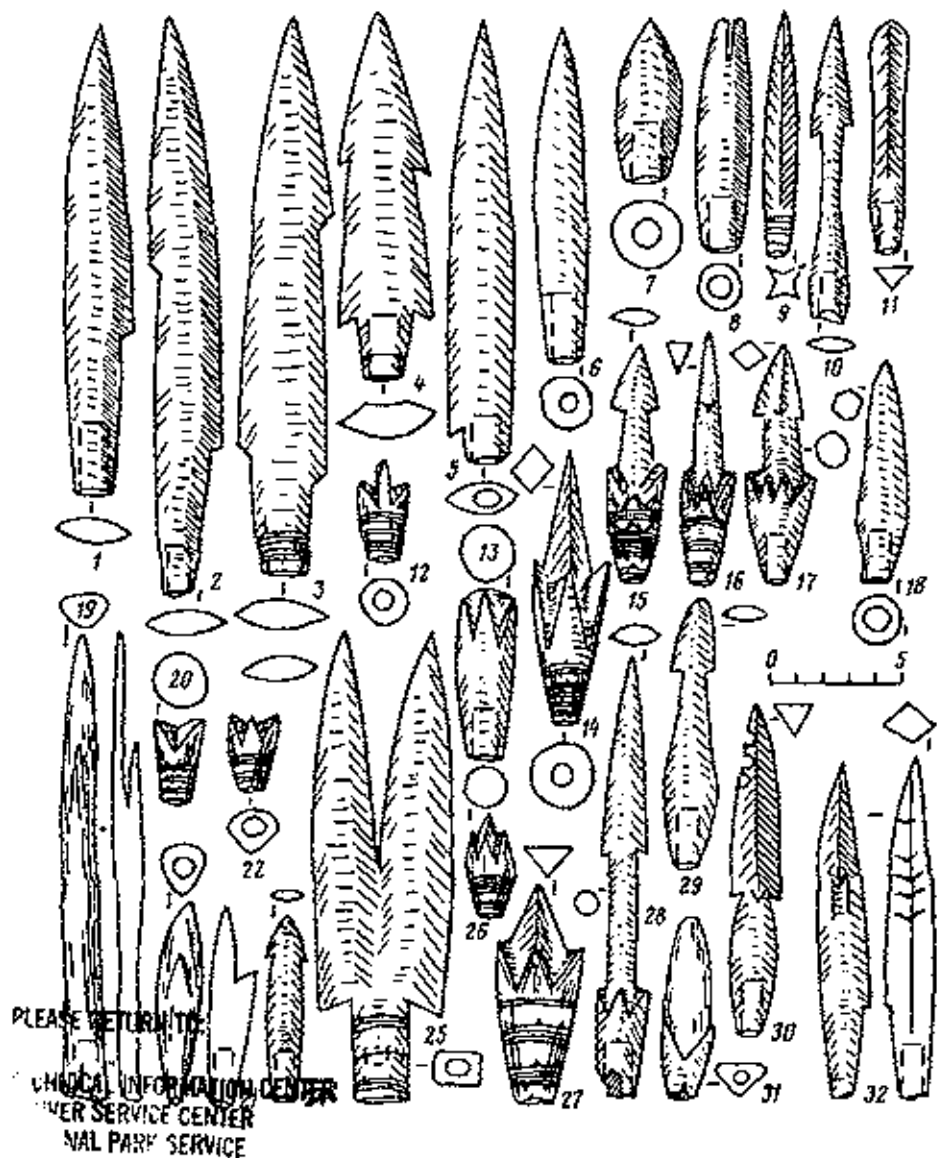


AN EARLY CULTURE OF THE NORTHWEST BERING SEA

File: Beeringian Heritage

By

Aleksandr A. Orekhov



Translated by Richard L. Bland



IN REPLY REFER TO

United States Department of the Interior

NATIONAL PARK SERVICE

2525 Gambell Street, Room 107
Anchorage, Alaska 99503-2892



K38(AKSO-RCR)

SEP 24 1999

Dear Colleague:

The National Park Service's Shared Beringian Heritage Program is pleased to share another product of Russian research in Beringia. This study, entitled *An Early Culture of the Northwest Bering Sea*, reports on archeological investigations carried out by Aleksandr A. Orekhov, one of Russia's leading archeologists of the Far North. Professor Orekhov is currently a member of the faculty of North International University in Magadan, Russia, and he remains one of a handful of scholars who have conducted research on both sides of the Bering Strait.

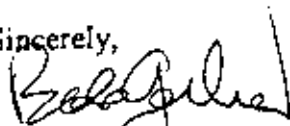
Professor Orekhov's monograph was originally published by Nauka Press of Moscow in 1987, but, like many other scholarly studies written in Russian, it initially received little attention outside of Russia. The book's original title was *Drevniiaia Kul'tura Severo-Zapadnogo Beringomor'ia*. Professor Orekhov has since revised the book and graciously given consent for the publication of this English translation of his updated monograph. The book delves into important questions concerning the origins of peoples and cultures in the Russian Far East. His focus centers on the archeological origins of the Kerek, a maritime hunting people of the Bering Sea whose coastal homeland spanned the distance between Cape Oliutorskii on the south to the Gulf of Anadyr on the north. Though some scholars viewed the Kerek simply as a northern variant of the Koryak, others, such as Professor N. N. Dikov, proposed that these people were a distinct and ancient Paleo-Asiatic population with deep archeological roots in their traditional homeland. In his monograph, Professor Orekhov uses archeology to pursue the mysteries of the Kerek past and their cultural ties to the Koryak, Chukchi, and other northern neighbors. His findings should be of interest to all scholars trying to unravel the story of the peopling of Beringia.

This is Dr. Richard Bland's fourth translation of a Russian archeological work on behalf of the Shared Beringian Heritage Program. As in the three previous translated volumes, Dr. Bland uses his combined command of archeology and Russian to good advantage to provide the reader with a careful translation of the author's words. This is not an easy task and his continued efforts to bring Russian archeological works to a wider readership are to be commended. Anna Gokhman took on the important job of proofreading the manuscript and Therus Smith embraced the difficult task of editing and coordinating the publication of the book. Many others contributed to the technical quality of the final translation; including Douglas Beckstead, Victor Fuentes, Ruth Kalerak, and Katerina Solovjova Wessels.

mention. Katerina Solovjova Wessels spent many hours proofreading the manuscript for errors of translation and making the necessary editorial changes. Finally, Thetus Smith requires our thanks for coordinating the printing and publication of the monograph with the Government Printing Office.

We hope you will find this volume a useful addition to your library. If you have need of additional copies or have any questions about the Shared Beringian Heritage Program, please contact Peter Richter of the National Park Service at (907) 257-2617.

Sincerely,

A handwritten signature in dark ink, appearing to read "Robert Gerhard", with a stylized flourish at the end.

Robert Gerhard
Coordinator, Shared Beringian Heritage Program

Enclosure

An Early Culture of the Northwest Bering Sea

By

Aleksandr A. Orekhov
Nauka, Moscow
1987

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The Russian edition of *An Early Culture of the Northwest Bering Sea*
by A.A. Orekhov published in 1987
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Editing and production preparation by Thetus Herndon Smith
Production assistance by Victor Fuentes
NPS D-9

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.



AN EARLY CULTURE OF THE NORTHWEST BERING SEA

by Aleksandr A. Orekhov

Nauka, Moscow, 1987

TRANSLATOR'S INTRODUCTION

I would like to thank Aleksandr A. Orekhov, North International University 685014 Magadan, Russia, for permitting the National Park Service to publish this translation of his archaeological work on the northwest coast of the Bering Sea.

The present book was originally published in 1987 by Nauka, Moscow, under the title *Drevniiia kul'tura Severo-Zapadnogo Beringomor'ia*. To the original work the author has made revisions on pages 111 and 128 and added several names to the bibliography.

I would like to thank Thetus Smith for the usual wonderful job of editing. My special thanks and gratitude go to Anna Gokhman for proofreading the text in the short amount of time allotted and for making comments that brought much greater coherence to the final work. Also due a great deal of thanks are Michelle Jespersen, who reviewed and commented on the section dealing with ceramics, Douglas Beckstead and Ruth Kalerak for discussion on dog sled parts, and Katerina Solovjova Wessels for patiently answering many questions on the translation. Finally, I would like to thank Bob Gerhard and Peter Richter of the Shared Beringian Heritage Program of the National Park Service, whose funding made this effort possible.

R.L.B.

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ABBREVIATIONS

- AN - Akademiia nauk [Academy of Sciences].
- DVNTs - Dal'nevostochnyi nauchnyi tsentr [Far East Science Center].
- IA - Institut arkheologii [Institute of Archaeology].
- IRGO - Izvestiia Rossiiskogo Geograficheskogo obshchestva [Proceedings of the Russian Geographical Society].
- IE - Institut etnografii [Institute of Ethnography].
- KM - kraevedcheskii muzei [regional museum]
- KSIA - Kratkie soobshcheniia Instituta arkheologii [Short Report of the Institute of Archaeology].
- LOIA - Leningradskoe otdelnic Instituta arkheologii [Leningrad Division of the Institute of Archaeology].
- MAE - Muzei antropologii i etnografii [Museum of Anthropology and Ethnology].
- SA - Sovetskaia arkheologiia [Soviet Archaeology].
- SE - Sovetskaia etnografiia [Soviet Ethnography].
- SSSR - Soiuz Sovetskikh Sotsialisticheskikh Respublik [USSR].
- SVAKAE - Severo-Vostochnaia Aziatskaia kompleksnaia arkheologicheskaiia ekspeditsiia [Northeast Asiatic Interdisciplinary Archaeological Expedition].
- SVKNI - Severo-Vostochnyi kompleksnyi nauchno-issledovatel'skii institut [Northeast Interdisciplinary Scientific Research Institute].

INTRODUCTION

ONE OF THE FUNDAMENTAL TRENDS of development of Far Eastern archaeology is the reconstruction of the early history and the elucidation and complete investigation of Neolithic cultures, which were fundamental to the formation of certain ethnic groups. The problem of the ethnogenesis of the Native communities of Northeast Asia is a constituent part of the more general problem of the origin of Paleo-Asiatics (Fig. 1). Successful archaeological research on this problem is being conducted by N. N. Dikov.

In the resolution of this extraordinarily complex problem, which is complicated by the lack of written sources, archaeologists, ethnographers, [physical] anthropologists, and linguists are working together. In Northeast Asia they have organized research within the framework of the Northeast Asian Interdisciplinary Archaeological Expedition of the Northeast Interdisciplinary Scientific Research Institute of the Far East Science Center of the Academy of Science of the USSR in Magadan under the directions of Dikov, Associate Member of the Academy of Science of the USSR. The present monograph is devoted to the results of research of archaeological sites by one of the divisions of the SVKNII' (under the direction of the author) in the territory of the northwest Bering Sea, one of the regions of Northeast Asia. Archaeological research of this region is inseparably linked to the problem of the origin of Paleo-Asiatics in general and to the problem of the ethnogenesis of the Kereks in particular.

The research of the Northwest Bering Sea began significantly later (the second half of the nineteenth century) than in contiguous regions of Northeast Asia. Investigators discovered here an enigmatic people, the Kereks, whose language was distinct from the languages of all the surrounding peoples. The Kereks were distinct as well in outward appearance (short, with softened Mongoloid features). The Chukchi, Koryak, and Yukagir considered the Kereks an independent people. However, at the beginning of archaeological research of the region, two contradictory concepts on the ethnogenesis of the Kereks emerged in the literature. The history of research of the region shows how and why these concepts were formed and how the aims of archaeological research of the region took shape.

Literary sources of the pre-Revolution period are primarily represented by official documents and descriptions by eyewitnesses. This information, collected by people who had no special education or preparation, is often inaccurate, mistaken, and contradictory. However, it was they who unveiled for science and further research a previously unknown, distinct population of Native inhabitants of the Northwest Bering Sea, the Kereks. The authors reported on settlement of the territory and occupations of the population, giving a description of the way of life. They attempted to determine the

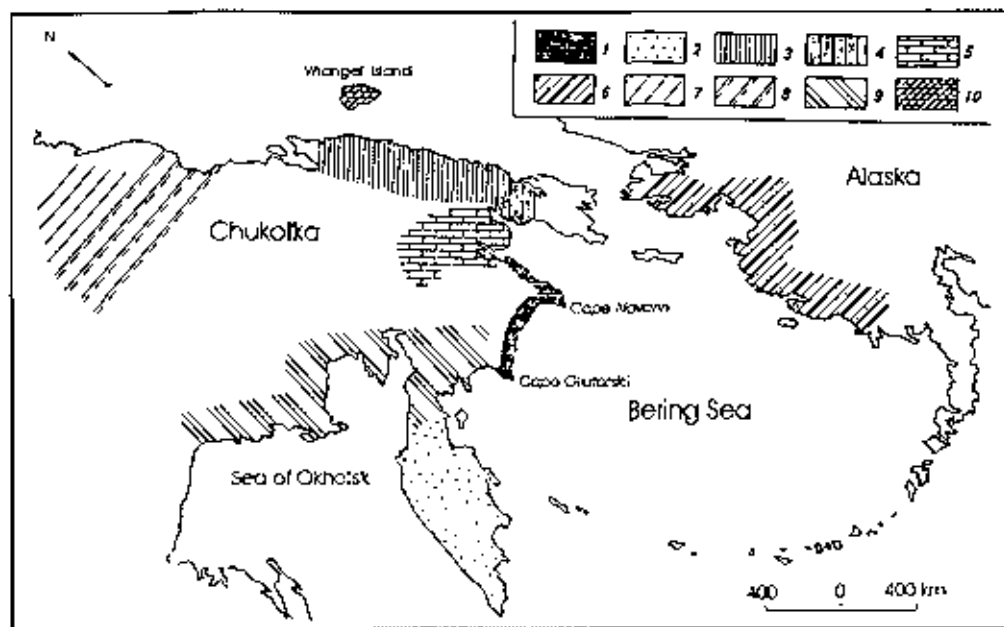


Figure 1. Neolithic cultures of Northeast Asia. 1 - Lakhtina; 2 - Tar'insk; 3 - Northern Chukchi; 4 - presumably Northern Chukchi; 5 - Ust'-Bel'skii; 6 - Norton; 7 - Ymyiakhtakh; 8 - presumably Ymyiakhtakh; 9 - Northern Okhotsk; 10 - Paleo-Eskimo. (Cultures: 2 by Dikova, T. M.; 3, 4, 5, 9 by Dikov, N. N.; 6 by Ackerman, R.; 7, 8 by Fedoseeva, S. A.)

ethnic membership and in several cases raised questions on the origin of Native peoples of Northeast Asia (the problem of Paleo-Asiatics). Naturally, the solution to these problems conformed to the level of scientific development of that period.

The first information on the population of the Northwest Bering Sea seems to belong to the year 1654. "In the past year 162² we went among the Korga on an expedition against the Koryak people who do not live far from this Korga and who come around to Korkh to secretly massacre us and they hunt the sea walrus for food. And we, I, Semeika, with my comrades, went against them and came to a strong stockade with 14 yurts . . .," wrote S. I. Dezhnev in his report in 1655.³ The Magadan ethnographer V. V. Leont'ev, for rather good reasons, considers that Dezhnev's expedition had a clash with the inhabitants of a Kerek settlement in Geka Land (the southern spit at the entrance of the Anadyr' estuary) (Leont'ev 1983:25). After the mentioned clash, the inhabitants of the settlement abandoned it and moved south to Tymna Lagoon.

S. P. Krasheninnikov, well known researcher of Kamchatka, briefly reports on the "Katyrykans." He considered that the "Opuka and Katyryka Koryak moved in toward the Chukchi" (Krasheninnikov 1949:688). Krasheninnikov defines the territory of the settlement of the "Katyryka Koryak" as north of the Apuka Koryak in the region of the Khatyryka River.

Several reports on the population of the region were connected with *yusak* [tax]-based politics of the government. In official documents of 1774 we find mention of two Kerek communities: "... on the Pakhacha River taxable and non-taxable Koryak 16, on the Apuka River 13, on the Kavachia River 11, on the Topataga River 13--in all 53 persons." (Kosven 1962:287). "Taxable and non-taxable" refers to the adult male population. Consequently, the approximate total number of inhabitants in the Kerek settlements of Kovacha--44 persons, and Topataga--52 persons.

In 1777 Quartermaster Sergeant Ivan Ankudinov visited the region of Cape Oliutorskii for the collection of taxes. He called upon the southern settlements of the Kereks, composing a detailed report wherein he cited interesting ethnographic information. Ankudinov reports on four settlements and on the occupations of the settlements. "This report indicates,--that on the Khatyrka there are many non-taxable Koryak who live in earthen yurts in three communities, the fourth away from the Khatyrka at some distance from the mouth of the Anadyr'; for their livelihood they take sea mammals, birds, and fish, as well as collect roots and berries" (Kosven 1962:286).

The materials of the Sixth Inspection (1803-1807) contain information about "Apuka and Khatyrka citizens," numbering 166 persons, who did not pay taxes at that time (Sgibnev 1869:36).

In 1885 the Vladivostok merchant Lindgol'm fitted out the whaling schooner *Siberia*, having provided it with goods for an attempt to initiate trade with the "citizens" of the north. The schooner probably traveled along the coast of Kamchatka and arrived at Cape "Serd'tse-Kamen'" (present-day Cape Dezhnev). The schooner was commanded by Captain Gek. According to instructions from the governor-general of Priamur'e, the official A. A. Resin was dispatched on the schooner and was supposed to give a description of the settlement of the "citizens."

Resin defines the state of research of the population of the coast of the Bering Sea in the following way: "Up to recent times all official information on the life of our extreme northeast was limited by fragmentary reports of the commanders of military ships which occasionally cruised along the coast of the Chukchi Peninsula" (Resin 1888:1).

During the course of this trip, the region of the coast from Cape Oliutorskii to the Chukchi Peninsula, which earlier had been marked by a dotted line, was placed on the map by Captain Gek, and names were given to different geographic objects. Resin traveled along the coast of the Northwest Bering Sea on the schooner, giving the first description of the way of life and customs of the Kereks, which he mistakenly calls the "Chukmari," from the name for the Chukchi spread throughout Kamchatka "Chukhmar'e" (Bogoraz 1934:3). Indicating the territory of the settlement of the Kereks, he wrote: "Between them (the Koryak and Chukchi)--A. O. [Aleksandr Orekhov] (on the banks of the Apuka and Tuma) live the people ... known in the community by the

name 'Chukmar'" (Resin 1888:36). Resin reported information on Kerek settlements in Anastasia and Dezhnev bays and at Opukha and Tuman lagoons. They confirm the lack of Russian influence here up to the end of the nineteenth Century. "The Chukmar on the banks of the Apuka and Tumenskii . . . in fact hold no authority above themselves." "In the bay of St. Anastasia . . . we encountered the first people . . . one had to see the delight with which they looked at my straps and buttons, and the greed with which the women set about obtaining them from me." "From Cape Navarin farther to the north, settlements were encountered more often; these for the most part were nomadic reindeer Natives" (Resin 1888:30).

"With regard to intellectual development the Chukmar are noticeably distinct both from the Koryak and from the Chukchi," he says, continuing the description. "In general these people give the impression of absolute savages: they are all idolaters. The European greeting of shaking hands they don't know, they shake your shoulders, and stroke your head, which is often accompanied by some kind of wild exclamations . . . they obtain fire by friction on wood, rotating, with the string of an instrument like a bow, a rounded baton on a dry log . . ." Resin reports interesting data on the presence among the Kereks in this period of tending small herds of reindeer and of the significant role of the women in the economy and commercial affairs (Resin 1888:37).

In his description, the talented researcher--the self-taught, Russianized Chuvan A. E. D'iachkov--mentions the Kereks. His "description," highly valued by specialists of that time, was basically answers to questions apparently put before him by the first district commander of the Anadyr' District, the scholar S. N. Grinevetskii.

D'iachkov notes: "Along the shores of the latter (the Oliutorskii Sea--A.O.) they (the Koryak--A.O.) live in neighborliness with the Kereks" (D'iachkov 1893:51). He is the first to introduce to the scientific world the name "Kerek," which, in the opinion of W. I. Jochelson (1908b), was borrowed by the Russians from the Chukchi, though a majority of the terminology borrowed by the Russians was from the Yukagir.

Jochelson proposed an origin for the term "Kerek": . . . the Yukagir word 'kere'ke' or 'kere'ki,' apparently is the same as the Koryak word 'kora'ki' in which the vowels 'a' and 'o' are replaced by 'e' in conformity with Yukagir rules of sound harmony" (Jochelson 1908a:406). However, Leningrad ethnographer I. S. Vdovin considers this assumption incorrect. Other ideas have not been offered at present. It is clear that the Chukchi and Yukagir distinguished Koryaks from Kereks.

The borders of the settlement of the Kereks were more precisely determined by N. L. Gondatti, commander of the Anadyr' District in 1884. This scholar did much for the research of Native peoples of Northeast Asia. He gives evidence supporting the idea that the Tuman Chukchi brought furs for trade they had obtained and "acquired from the Kereks--a people who live in small settlements on the shore of the Great Ocean to the south of Cape Navarin and almost to Cape Oliutorskii, and along the

rivers which flow into the ocean here" (Gondatti 1897:175). Gondatti collected interesting information on the Kereks "according to stories of the Chukchi, predominantly the Tuman, as well as the Lamut." According to his assignment, Ankudinov, assistant commander of the Anadyr' District, was the first to visit northern Kerek settlements in 1897 where he conducted a census of the population and made a collection of objects of daily life, hunting, trade, and art (the collection is preserved in the repository of MAE [the Museum of Anthropology and Ethnology] and at present is not published entirely).

Gondatti attributes the limitations of information on the Kereks and the lack of Russian influence here to the difficulty of access to the territory of their settlements. "To visit a settlement of the Kereks from the mainland is very difficult, since the Novo-Mariinskii post in winter time, when communication here is only possible by a dry land route, is entirely cut off from them by a desert region, where no one from the settlements has ever gone and not even a single reindeer [herder] is encountered who could be a guide. It is easier to reach the Kereks in winter from the Gizhiginskii District." He writes that the Kereks "... occupy themselves with fishing and hunting sea and fur animals" (Gondatti 1897:175-176).

The well-known researcher of Northeast Asia, the ethnographer W. G. Bogoraz, defined the territory of occupation of the Kereks from Cape Anannon in the south to Cape Barykov in the north, that is, significantly broader than previous authors. He reported information on the arrangement and number of the population of 13 Kerek villages. Bogoraz visited them as part of the Jesup Expedition in 1901. He collected information on the way of life, economy, construction of buildings, and traditions of the Kereks. The collected information Bogoraz turned over to Jochelson, who used it in his research monograph entitled *The Koryaks* (Jochelson 1908b).

The first researchers determined the ethnic membership of the Kereks differently. Dezhnev calls them "Koriats people," that is, Koryak. T. I. Shmalev, following the data of I. Ankudinov, also does not distinguish the Kereks from the Koryak, including them in a group of Khatyrka Koryak. In official documents of the eighteenth-nineteenth centuries the southern group of Kereks, falling territorially into the Gizhigin District, was assigned to the Koryak; but the northern group, in the territory of the Anadyr' District, up until 1897 was included in the number of the settled Chukchi. Resin speaks of the closeness of the Kereks to the Chukchi and the Koryak, describing them as "people related by language both to them and to others . . ." He expresses the mistaken supposition that "the Chukmar" (Kereks) are a people "probably descended from marriages between the Koryak and Chukchi" (Resin 1888:36). D'iachkov writes that "the Kereks are distinguishable from the Chukchi only by language" and that "this tribe is in the middle between the Chukchi and Koryak, but in way of life are quite similar to the Chukchi" (D'iachkov 1893:51).

Gondatti, in distinction from his predecessors, rather sharply contrasts the "Kerekit" with the Koryak and Chukchi. "Regarding the number of the people settled

in the Anadyr' District, the Kerekit people are concerned as well. The language of this people is unintelligible to the Chukchi, the Lamut, and even the Koryak. The Chukchi separate the Kerekit from the Koryak, recognizing them as an entirely separate people." "It is very possible," says Gondatti, expressing the supposition "that the Kerekit are one of the peoples of a Koryak tribe, for example, the Oliutorskii [formerly spelled Aliutorskii] people, and they are encountered in other places, nearest to those indicated" (Gondatti 1897:177).

Bogoraz designates the Kereks as "a branch of the coastal Koryak which lived in the most distant part of a country very poor in beneficial minerals" (Bogoraz 1903:114). He noted that the Eskimos played a distinct role in the origin of the Kereks, but "in reality they (the Kereks) represent the most primitive offshoot of the Koryak and Chukotsk tribes" (Bogoraz 1934:3). Jochelson, agreeing with Bogoraz' ideas, notes that "the Kereks comprise the eastern branch of the coastal Koryak . . ." (Jochelson 1908b:406).

On the whole in the Pre-Revolution Period all the data on the Kereks had a fragmentary character. Investigations, often carried out by insufficiently qualified non-specialists, give us contradictory, often imprecise data, on the basis of which it is impossible to create a complete and exhaustive representation of Kerek culture. More detailed and in depth research of the Kereks has also been prevented by the initial thesis of their ethnic membership in the coastal Koryak. Completely lacking from this period are linguistic and anthropological materials on the Kereks. Nor were archaeological investigations conducted.

The chief results have been not so much the information collected by researchers and eyewitnesses as the very raising of the question about the originality of the Kereks and their ethnic membership. Opinions were divided. Two points of view were formed: first, the Kereks were an eastern branch of the Koryak with a separate dialect; and second, the Kereks were an independent people. The second point of view is also known to be based on the testimony of the Native inhabitants of Northeast Asia--the Koryak, Chukchi, and Yukagir.

During the Soviet Period more goal-oriented ethnographic investigations were conducted. In 1937 a detailed investigation of the southern group of Kereks in Anastasia Bay and on Nerpa Lake was conducted by N. B. Shnakenburg. The results of the research, with the broad use of Bogoraz' data, was set forth by him in the article "Nymylany--Kereki," where the characteristics of the economy and social relations of the Kereks are given. On the basis of these materials Shnakenburg comes to the conclusion that the economic and social unit of the Kereks was the patriarchal family, and "the type of economy, material way of life, and language attest to the membership of the 'Kerek' in the coastal Nymylan--Koryak. There are no grounds for separating the 'Kereks' as an independent people" (Shnakenburg 1939:103). This conclusion is ex-

plained by the fact that Shnakenburg studied the southern group of Kereks, which at that time was in significant degree assimilated by the Koryak.

The conclusion of Shnakenburg was supported by the Magadan ethnographer A. V. Beliaeva, who visited the Northwest Bering Sea in the summer of 1965. Here she collected some archaeological materials in an early settlement at the mouth of the Khatyrka River. She writes that the "type of economy, material and spiritual culture, and language attest to the membership of the Kereks in the coastal inhabitants. Therefore, there is no basis for separating the Kereks as an independent people." "In a way they are an eastern branch of the coastal Koryak, which is distinguished by a separate dialect" (Beliaeva 1968:94).

Since 1957 P. Ya. Skorik, a leading specialist of the Chukotka-Kamchatka languages, has been occupied with the study of the Kerek language. On the basis of collected linguistic data, he arrives at the conclusion that the Kerek language is an independent language in which a strong influence of Koryak and Chukotsk languages and elements of Eskimo language can be traced (Skorik 1968).

The following authors, using the materials of their predecessors, are divided in opinion. Thus, R. S. Vasil'evskii, determining the territory of the settlement of the Koryak along the coast of the Bering Sea up to the Anadyr' River, actually relates the Kereks to the Koryak (Vasil'evskii 1971:10). V. V. Antropova considers that the Kereks (100 persons) consisted of a group of Koryak "with their own special dialect." In distinction from Bogoraz, in determining the borders of occupation by the Kereks, she writes: "The territory occupied by them extended from Nataliia Bay to Cape Navarin." Antropova determines the villages of Kavacha, Tamak, Machevna, and Vayna as settlements of the Apuka Koryak (Antropova 1971:19). Vdovin considers that Bogoraz assigned to the Apuka Koryak the inhabitants of the settlements of Kavacha, Tapatagin, Vaimentagyn, and Tapan (Vdovin 1973:102). However, Jochelson, relying on the data of Bogoraz, designates these settlements as Kerek (Jochelson 1908). To the question of the ethnic membership of the Kereks, Vdovin maintains the point of view of Bogoraz and Shnakenburg. This opinion he substantiates by the similarity of Koryak and Kerek folklore. On the basis of folklore data of the Oliutorskii and Apuka Koryak and the data of toponymics, Vdovin offers the proposition that the original settlers on the coast of the Bering Sea were the Eskimos (Vdovin 1973:104).

In 1973 Dikov expressed an interesting proposition: "... by virtue of the unevenness of the ethnic development here (in Northeast Asia--A.O.), such relics of small population as, for example, the Kereks were preserved. The latter genetically go back probably to the earliest ethnic strata--the Proto-Eskimo-Aleut and earliest [Iel'men--and are relics of them, preserved in the surroundings of later arrivals, the Chukchi and Koryak, owing to the natural isolation behind the mountain ranges in a coastal region of difficult access" (Dikov 1973:33).

A broad ethnographic investigation was necessary for confirmation of the proposition offered. Since 1971 Leont'ev has been occupied with a special ethnographic investigation of the Kereks. He has collected interesting material. During the course of the research, the distinctiveness of the folklore and ethnographic peculiarities of the Kereks in their way of life, customs, occupations, dwellings, cosmogonic ideas, and so on, has come to light.

On the basis of the collected materials, Leont'ev comes to the conclusion that the Kereks were ethnically independent and repeats the notion that they "were earlier occupants of the Northeast than the Koryak and the Chukchi" (Leont'ev 1983:92). The results of the research were set forth in his interesting monograph *Etnografiia i fol'klor kerekov* [The Ethnography and Folklore of the Kereks]. However, the collected materials turned out to be very limited and could not fully confirm the conclusions of the author. At the time of the investigations, the Kereks had been in large measure assimilated by the Chukchi; and the actual Kerek component did not make up more than a quarter of the language, folklore, and way of life. Leont'ev says that it is hardly possible to reconstruct the past of the Kereks (Leont'ev 1983:6).

Thus, the problem of the ethnogenesis of the Kereks and its ethnic independence on the whole remains on the level of the supposition.

To the physical materials used in the monograph belong the ethnographic collection acquired by Ankudinov in 1897 on instructions from Gondatti (Leningrad, MAE vaults, collections 441 and 442), as well as S. N. Stebnitskii's (1929) collection of wooden ritual arrows from the shrine at the mouth of the Apuka River (Leningrad, MAE vaults, collection 3896) and the archaeological collections of A. K. Vernander (1931) from the shrine in Omayan Bay (Vladivostok, Regional Museum named for V. K. Arsen'ev, collection 2277) and Udalov (Leningrad, MAE vaults, collection 4422), and Vasil'ev's surface collection from the shore of Lakhtina Lagoon in 1940 (Leningrad, LOIA vaults, collection 6251). Unfortunately, these collections, which are not completely preserved and for the most part not documented, give an extremely limited representation of the material culture of the Kereks and the early population of the region.

Only a broad enlistment of archaeological materials could help in resolving the problems of the ethnogenesis and ethnic independence of the Kereks and in the reconstruction of the early history of this Native people of Northeast Asia. It was necessary as well to eliminate the gap in the archaeological investigation of the coastal cultures of the North Pacific Ocean. All this required a special, broad archaeological investigation of the Northwest Bering Sea in the region that corresponds to the area occupied by the Kereks.

This defines the goal of the research: to provide, on the basis of analysis of archaeological materials with the aid of ethnographic, anthropological, and linguistic materials, an ethnocultural, economic, social, and ideological reconstruction of the early

coastal culture of the Northwest Bering Sea and to show the dynamics and uniqueness of its development. Some questions and problems have been enlarged upon in several articles by the author (Orechov 1977, 1979, 1982, 1984, 1985).

This monograph represents a regional archaeological investigation. In territorial regard, it embraces the region of the coast of the Northwest Bering Sea from Geka Land in the north to Nataliia Bay in the south. Several early settlements and shrines have been marked on the archaeological map of the region by the data of informants (Apuka River, Kavacha River, Lake Nerpich'e, Anastasia Bay, Tymna lagoon) (Fig. 2). Others were located in the course of aerial reconnaissance (Machevna Lagoon, Dezhnev Bay, Ushakov Bay, Kainupil'gyn Lagoon). Some sites had been located by Leont'ev and E. Gunchenko as a result of an ethnographic trip in 1973 (Yankinen, Etchun, Orianda Lagoon, Lakhtina Lagoon, Geka Land). Archaeological sites in the vicinity of the coast from Cape Rifov in the south to Geka Land in the north were inspected for the first time by the author in the course of an archaeological-ethnographic trip in 1975 with Leont'ev. Dikov worked at Lakhtina Lagoon in 1975.

Archaeological sites were studied in varying degrees. In some, excavations were conducted (Nataliia II--78 m², Opukha I--300m², Anna II--50 m², Etchun I--18 m², Orianda I--30 m², Orianda II--24 m², Lakhtina II-IV--45 m², Geka I--20 m²). Others were examined by controlled testing (Anna I, Amankut, Geka II) and trenching (Nataliia I--15 m², Opukha II--4 m², Khатырка I--5 m², Etchun II--9 m²). The third group is represented by sites with damaged cultural layers. Surface material was collected from them and objects found falling from the cultural strata (Rifovyi, Khатырка II, Yankinen, Lakhtina I).

Excavations were conducted using broad squares set out horizontally with precise notation of stratigraphy and planigraphy. Functional analysis of the inventory of the archaeological complexes permitted determining the economic mode of life and the typological, the ethnocultural characteristics. Where it was possible, samples of charcoal were taken for radiocarbon analysis. Carrying out the investigations was complicated by the permafrost layer and a variety of other frost phenomena.

In the 11 locations a total of 48 archaeological features were examined. The acquired results of the investigation permitted distinguishing a new independent archaeological culture, which was named Lakhtina by the author. The name was derived from the location (Lakhtina Lagoon) of the first site of this culture discovered. Materials also permitted viewing differently, from before, some aspects of the Neolithic and epochs of the Paleo-Metal of the Bering Sea.

Faunal remains were determined in part by Professor N. K. Vereshchagin. Radiocarbon dating of samples of charcoal were conducted in the laboratory of geochronology of SVKNII DVNTs AN SSSR by A. V. Lozhkin and V. P. Parii. Some of the drawings of stone and bone items were done by L. G. Korshkova, associate in the laboratory of archaeology, history, and ethnography of SVKNII. In the archaeological

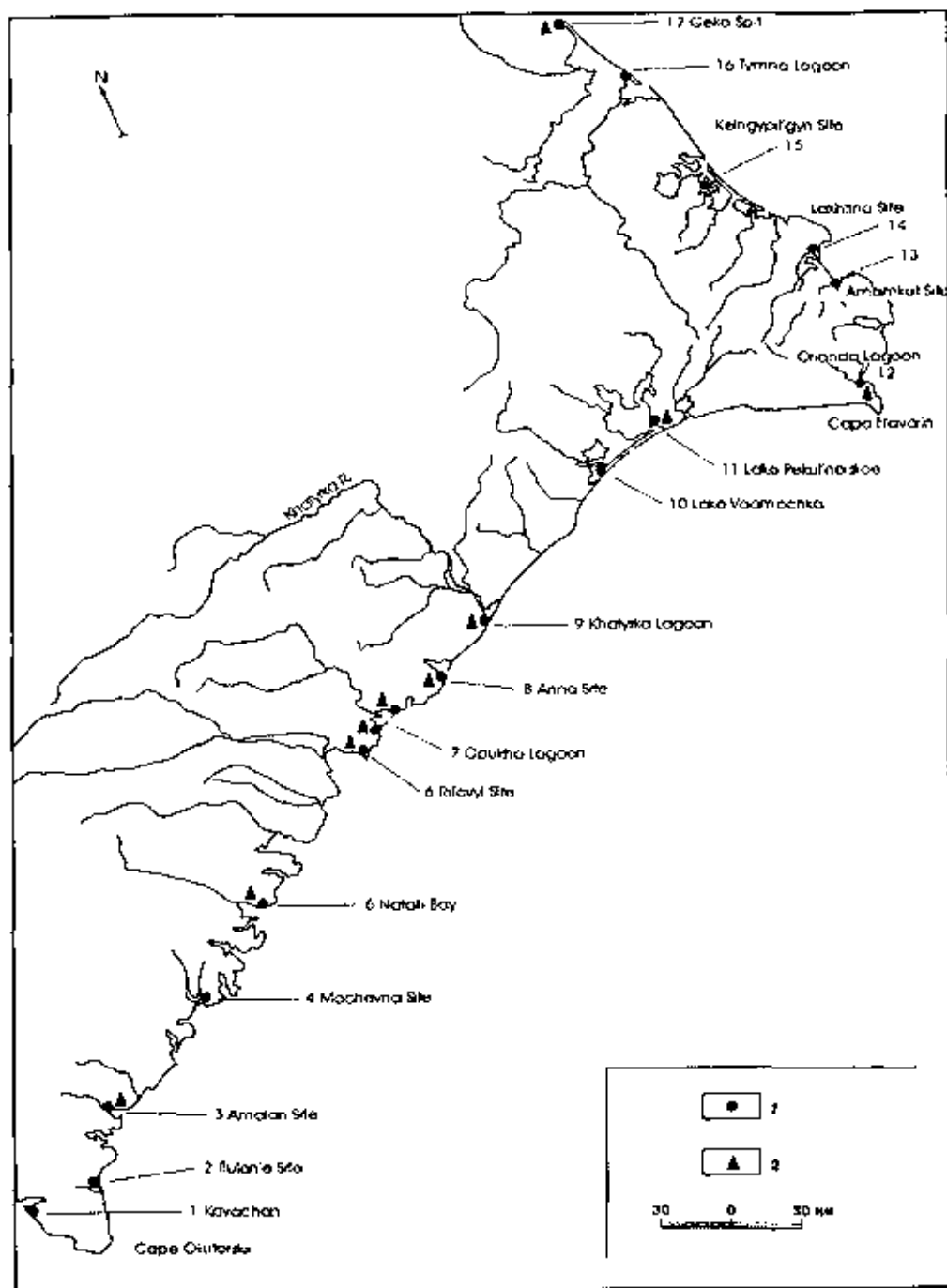


Figure 2. Archaeological map of the Northwest Bering Sea. 1 - Kavacha; 2 - Lake Tiulen'e; 3 - Amajan; 4 - Machevna; 5 - Nataliia I-II; 6 - Rifovyi; 7 - Opukha I-II; 8 - Anna I-II; 9 - Khalyrka I-II; 10 - Yankinen; 11 - Etchun I-II; 12 - Orianda I-II; 13 - Amamkut; 14 - Lakhtina I-IV; 15 - Keinupil'gyn; 16 - Tymna; 17 - Geka.

excavations and laboratory work on the material, students of the history department of Magadan Teachers Institute actively participated. E. Vinogradov, V. Stepin, V. Fursov, A. Nikolaev, and I. Torkhova should be especially noted. The author wishes to express his appreciation to all the specialists and participants for their active help.

In the course of preparation of the manuscript for publication, the materials contained in it were discussed by a wide circle of specialists. For their attention, advice, and recommendations in the preparation of the monograph, the author is grateful to Zh. V. Andreeva, Z. A. Abramova, P. I. Boriskovskii, V. P. Liubin, L. Ya. Krizhevskaja, A. N. Rogachev, S. N. Astakhov, G. N. Gracheva, G. V. Grigor'eva, R. V. Kozyreva, N. A. Kononenko, I. S. Zhushikhovskaja, A. V. Garkovik, and G. V. Sinitsyna. The author would especially like to express gratitude to his mentors in archaeology, T. M. Dikova and N. N. Dikov.

¹ Please see list of abbreviations on page xi. - *Trans.*

² [The year 162 is an abbreviation of the year 7162 after the creation of the world and is equal to A.D. 1654.]

³ See *Russkie arkticheskie ekspeditsii XVII-XX vv* [Russian Arctic Expeditions of the 17th to 20th Centuries]. Leningrad, 1964. P. 139. By the way, the route of S. Dezhnev's detachment, noted in the literature, after the shipwreck (from Cape Oliutorskii along the sea coast to the mouth of the Anadyr' River) is doubtful. On this route Dezhnev and his companions would inevitably have encountered a Kerek village. In his testimony he indicates that neither town nor roads of foreigners were encountered. Probably the route of this detachment lay along the south shore of the Anadyr estuary. The testimony attests to the existence of a fortified settlement, "ostroshok," in the middle of the 17th century in spite of the date (second half of the 18th century) accepted in history and ethnography for the appearance of fortifications during the intertribal warfare.

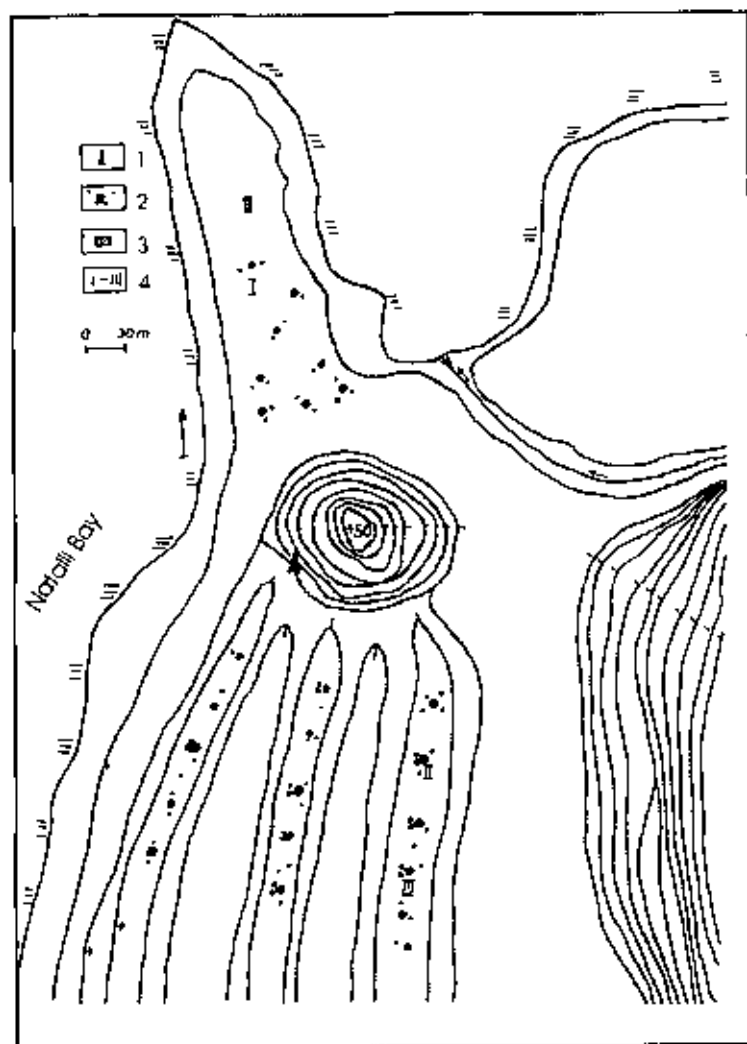


Figure 3. Map of archaeological sites on the shore of Natalia Bay:
1. Shrine; 2. Dwellings; 3. Old house; 4. Dwelling numbers.

CHAPTER ONE

DESCRIPTION OF THE 23 ARCHAEOLOGICAL SITES OF THE NORTHWEST BERING SEA

IN THE NORTHWEST BERING SEA REGION a variety of archaeological features were investigated: early settlements, hunting camps, dwellings, burials, occupation areas, areas of economic impact, and "hoards." A description of the 23 archaeological sites, complexes, and objects is given in geographical sequence from south to north.

Nataliia Bay is located north of Cape Oliutorskii (Fig. 3). This is the southernmost location of archaeological sites investigated. The valley of the Vatyra River, which flows into Nataliia Bay, is enclosed on the west and east by rocky mountain ridges with steep slopes. Here two early sites and a shrine were investigated.

Nataliia I site. This site is located on the right bank of the Vatyra River 7.5 km from its mouth. It contains the remains of six dwellings and three occupation areas. They are located on the top of a terrace of an alluvially deposited shoreline of sandy gravel.

Dwelling 1 is 500 m from the bank of the river. On the surface it was marked by a depression 0.1 m deep and 6 m in diameter. The thick vegetation (grass and brush) on the area of the depression was in sharp contrast to the surrounding tundra (moss) vegetation. This attracted our attention. The central part of the dwelling was investigated using a trench (Nataliia I, excavation). Its area was 11 m².

In the trench at a depth of 0.4 m, a cultural layer was encountered. Its thickness in the central part of the trench was 0.07 m to 0.1 m, and toward the periphery diminished to 0.02 m. In the center a hearth with large vertically set stones was found. Its diameter was about 1 m. In profile A—B the following stratigraphy was noted: 1 - sod layer 0.07 m to 0.1 m; 2 - humic layer 0.06 m to 0.1 m; 3 - brown sandy loam with rubble 0.15 m to 0.2 m; 4 - charcoal of the hearth 0.1 m to 0.15 m; 5 - layer of brownish-orange sub-hearth earth 0.1 m to 0.15 m; beneath is a layer of brown sandy loam with rubble 0.7 m to 1 m; 6 - beyond is a layer of small gravel with brownish-gray sand.

The edge of the carbonaceous layer outlines an area about 3 m to 3.5 m in diameter. It is possible that this is the location of a surface-type, hut-like dwelling. No tools were found here.

Hunting camp 1. A 2 m x 2 m test pit was dug some 200 m south of Dwelling 1 on an area with thick vegetation (Nataliia I, Location 2). In the test pit, at a depth of 0.45 m, a cultural layer 0.1 m to 0.15 m thick was encountered. The stratigraphy of the eastern wall of the test pit was recorded: 1 - sod layer 0.08 m to 0.1 m; 2 - humic layer 0.07 m to 0.1 m; 3 - brown sandy loam with rubble 0.2 m to 0.25 m; 4 - cultural layer, dark-brown sandy loam with charcoal 0.1 m to 0.15 m, small gravel with brownish-gray sand. In the southern part of the test pit the depth of the deposit of the cultural layer diminished to 0.25 m.

In the center of the test pit, in the cultural layer, at a depth of 0.45 m a leaf-shaped dart point of obsidian was found. It is lenticular in cross section with an oval-convex base (Fig. 4:5). Its surface was worked by flattening retouch, and the edge was modified by fine pressure retouch on both sides. This dwelling area is the remains of a hunting camp.

Hunting camp 2. On the surface 30 m south of the living area, a ringed hearth was encountered with a thick (0.07 m to 0.15 m) layer of charcoal (Nataliia I, Location 3). Its diameter was 1 m. With the excavation of the hearth the following stratigraphy was noted in profile A—B: 1 - sod layer 0.03 m to 0.05 m; 2 - humic layer 0.05 m to 0.1 m; 3 - carbonaceous layer 0.03 m to 0.07 m and charcoal of the hearth 0.07 m to 0.15 m; 4 - layer of sub-hearth soil of brick color 0.05 m to 0.1 m; 5 - below is brown sandy loam with rubble. No tools were found here. This hearth is also probably the remains of a hunting camp.

Nataliia II site. This site is located at the mouth of the Vatyra River on the left bank. It contains the remains of 30 dwellings. In the center of the site, dividing it into northern and southern parts, is a small hill. North of it dwellings were distributed on a spit of sandy-gravel river deposits. The dwellings lie in a single line parallel to the line of the bank, though there are some dwellings at the base of this spit that have no apparent order (Fig. 5). South of the hill the dwellings are distributed on the tops of three alluvial ridges in three lines parallel to the line of the bank. The alluvial ridges rise above the terrace of sandy-gravel river deposits.

On the surface the remains of dwellings were indicated by depressions 6 m to 12 m in diameter with trenched entryways. The depth of the depressions was 0.5 m to 1.2 m, and the berms were elevated 0.3 m to 0.5 m. The surfaces of the depressions and berms were covered with thick vegetation (grass and brush). Near the dwellings were pits, overgrown by grass, 0.5 m to 1.0 m deep and 1 m to 2 m in diameter. Judging by the remains, three-room dwellings predominated at the site. They consisted of three semisubterranean dwellings, connected by tunnel-like passages with an elongated oval corridor, which had a tunnel-like entryway.

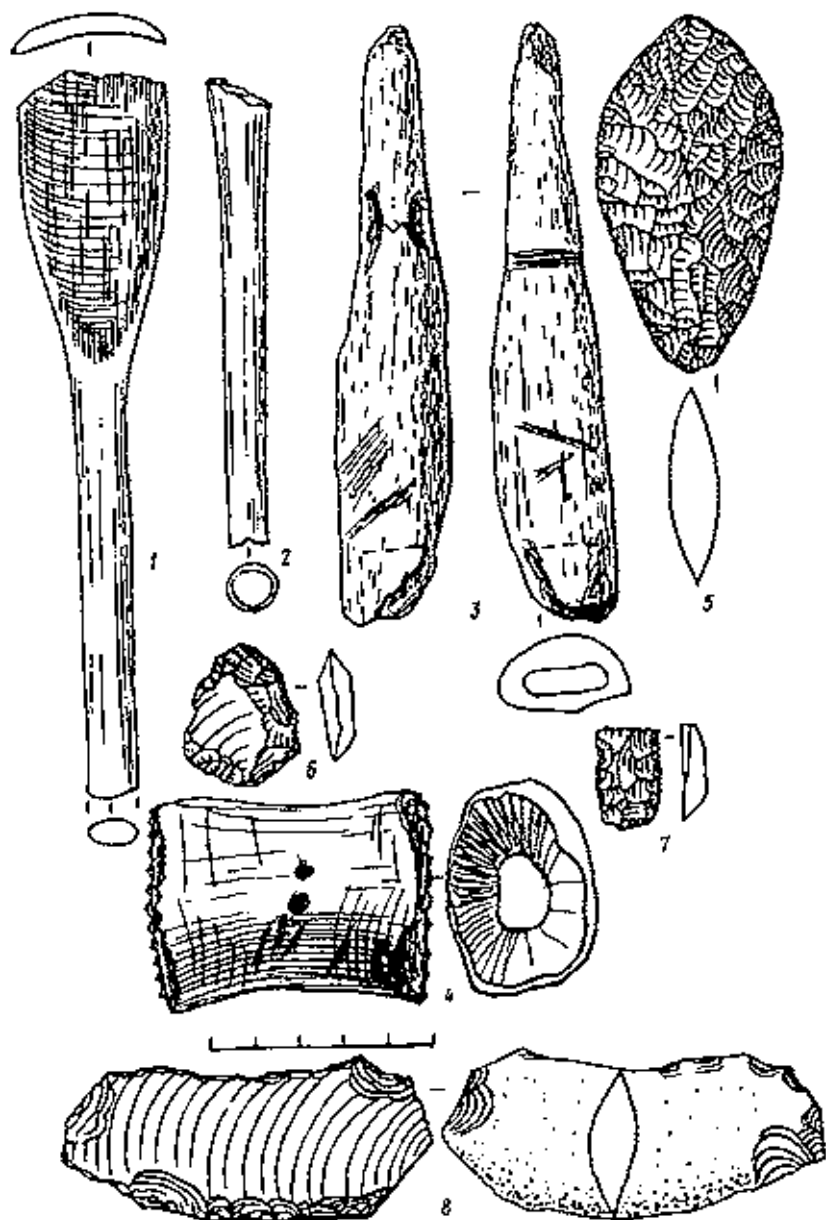


Figure 4. Stone, wood, and bone artifacts. Natalia I-II. 1 - wood; 2, 3, 4 - bone; 5, 7 - obsidian; 6, 8 - gray siliceous slate. 1, 8 - from grotto; 2-4, 6, 7 - from Dwelling 2, Natalia II; 5 - from hunting camp I, Natalia I.

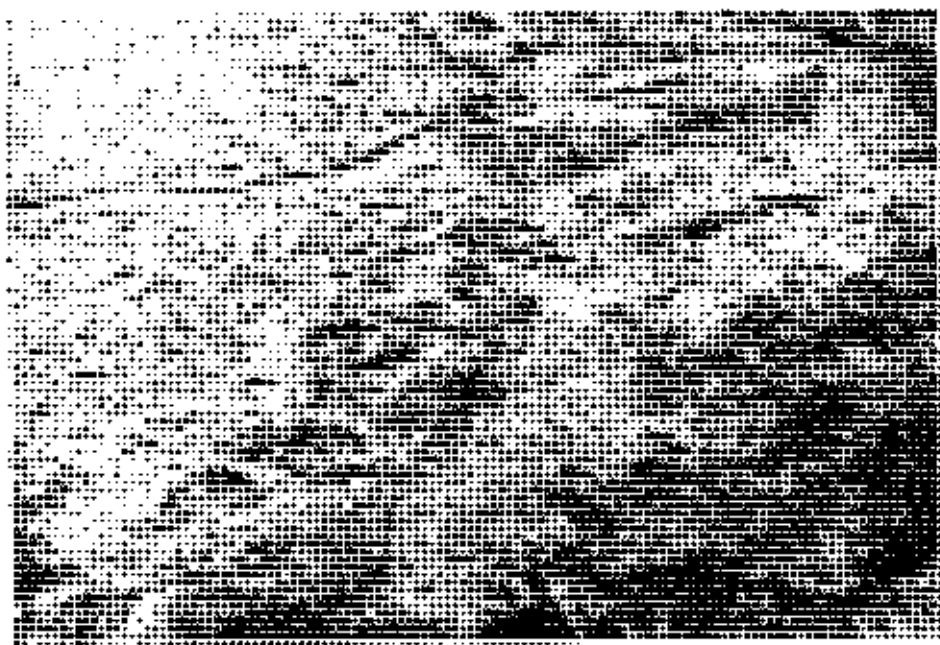


Figure 5. Natalia II settlement, northern part.

Dwelling 1. In the northern part of the site, single-room Dwelling 1 was investigated by a 1 m x 1 m test pit. This dwelling, the northernmost in the line, was indicated on the surface by a depression 1 m deep with berms elevated 0.5 m. At a depth of 0.15 m in the test pit the remains of an iron stove were encountered. Apparently this was one of the very latest dwellings, from the beginning of the twentieth century.

Dwelling 2. In the southern part of the site two dwellings were investigated. Three-room Dwelling 2 is located on the top of the second alluvial ridge from the river bank 250 m from the foot of the small hill. On the surface it was indicated by depressions 0.3 m deep with berms elevated to 0.2 m. The depression of the central room was 5.5 m in diameter and the lateral ones 2.5 m.

In the central room in a 1.5 m x 2 m test pit at a depth of 0.35 m to 0.4 m a cultural layer was encountered. In the western part of the test pit a part of a hearth ring 0.55 m in diameter was uncovered.

In the profile A—B of the test pit the following stratigraphy was noted: 1 - sod layer 0.05 m; 2 - humus 0.05 m to 0.07 m; 3 - brown sandy loam 0.25 m to 0.3 m; 4 - cultural layer, dark-gray sand with charcoal 0.05 m to 0.1 m; 5 - has inclusions of baked, black sand; 6 - charcoal of the hearth 0.1 m to 0.15 m; 7 - below is brown sandy loam with gravels.

In the cultural layer several artifacts of stone were found. These include a scraper on a flat suboval flake. Its oval-convex working edge is worked by percussion retouch and modified on one side by fine pressure retouch (Fig. 4:6).

Two knives with a single cutting edge on suboval flakes have a flattened triangular cross section. Their oval-convex cutting edges were modified by percussion retouch on one side. The surface of a piece of a double-edged knife-scraper on a flake of lenticular cross section was worked by flattening retouch, and the straight working edges were modified by fine retouch (Fig. 4:7).

In the southern part of the test pit nine slate flakes were found in the cultural layer.

Also encountered in the cultural layer were two bone artifacts. These were a needle case of the bone of a swan (Fig. 4:2) and artifacts of walrus bone with the core extracted. The lateral edges were decorated with indentations, and two closely located holes in the bone were probably used for suspension (Fig. 4:4). The last artifact was probably closed on the two ends by wooden covers and used by women for keeping small household objects. It has ethnographic parallels (Kerek).

Ceramics were represented in the cultural layer by pieces of a round-bottomed vessel with round body. It was modeled of a paste of well-kneaded clay with inclusions of fine sand and moss and was well fired. The rim of the vessel is flattened and 1.2 cm to 1.4 cm wide, with curved edges. The slope of the rim is inward. The thickness of the wall at the rim is 0.8 cm, the lateral fragments of the vessel 0.5 cm to 0.8 cm. Pieces are dark-brown in the break and on the surface. The inside and outside surfaces were well smoothed. The bottom pieces are 1.5 cm to 1.7 cm thick with the outside of brick color. Judging by the fragments, this was a large vessel, oval in cross section. Its surface is not decorated.

Dwelling 3. On the top of the third ridge from the river bank, 350 m east of Dwelling 2, is the partially examined three-room Dwelling 3. It is composed of three rooms joined by tunnel-like passages with an elongate oval 2 m x 8 m corridor, which had a tunnel-like entryway. The rooms were of various dimensions. The depressions of the large room, 6 m in diameter, and the lateral ones, 3 m in diameter, were preserved. Their depth was 0.4 m, and the berm was elevated to 0.3 m. The tunnel-like passage and corridor were preserved in the form of a trench 0.5 m deep.

As the investigations showed, the cultural layer in the central part of the large room, a 6 m x 8 m oval, lay at a depth of 0.6 m to 0.75 m. Toward the edge of the room the depth of the cultural deposit diminished to 0.5 m to 0.35 m and pinched out at the edges of the room, outlining its borders. The cultural layer is represented by brown, sandy loam with rubble with inclusions of a gray-violet carbonaceous sandy loam. It gives the impression of a mixed layer, though its upper and lower borders are clearly

marked. The thickness of the layer from the center to the periphery of the room diminishes from 0.25 m to 0.05 m.

The profile of the room along the line A—B revealed the following stratigraphy: 1 - sod layer 0.08 m to 0.15 m; 2 - humus 0.05 m to 0.1 m; 3 - stratum of gray sand 0.03 m to 0.15 m; 5¹ - brown, sandy loam with rubble and pebbles 0.3 m to 0.5 m with strata 0.04 m to 0.08 m of dark-brown loam; 6 - cultural layer 0.05 m to 0.25 m with carbonaceous strata; 8 - gray sand with pebbles. In the upper part of the profile under the sod, a large flat stone set vertically was noted.

In the cultural layer of the room stone tools of 10 categories were found.

The most numerous category of tools is knives (N=21). Knives made on flakes predominate (N=12). There are knives with a single working edge on amorphous flakes of subtriangular cross section (N=2). Their straight working edge was formed by percussion retouch and modified by fine pressure retouch on one side. Ten had two working edges of lenticular (N=8) and triangular (N=2) cross section: of suboval form (N=2) (Fig. 6:5), of triangular form (N=2) (Fig. 6:20), dagger-like with straight lower and convex upper working edges (N=2) (Fig. 6:2), and on amorphous flakes (N=4). The surface of these knives was formed by [percussion] flake removal, and the slightly convex working edges were partially modified by fine pressure retouch on both sides.

Single blade knives on cobble spalls are represented by nine specimens. They are triangular (N=7) and lenticular (N=2) in cross section. They are characterized by the preservation of cobble cortex on the convex back. Six of the knives have a triangular form (Fig. 6:14).

Large knives of elongate triangular form (N=2) (Fig. 6:3, 4) and a small knife (Fig. 6:19) have straight or slightly convex working edges, unifacial work by [percussion] flaking or percussion retouch, and modification by fine pressure retouch.

Tools for working skins are scrapers (N=6) and a skreblo. Scrapers of lenticular cross section were generally made on cobble spalls retaining the cobble cortex on the convex back. On two suboval side scrapers the working edge was not modified. On two blanks of discoid scrapers, the working edge was partially worked by percussion retouch on two sides. The working edge on pear-shaped end scrapers on flakes was formed by pressure retouch on both sides (Fig. 6:13, 18).

A skreblo on a suboval cobble spall with lenticular cross section was found. Its oval-convex working edge was not worked.

The hunting-subsistence inventory of the room was represented by three leaf-shaped arrow points: with pointed convex base (Fig. 6:9), oval-convex base (Fig. 6:17), and asymmetrical concave base (Fig. 6:10). All points were made on flakes of lenticular cross section. Their surface and edges were finished by pressure retouch on two sides.

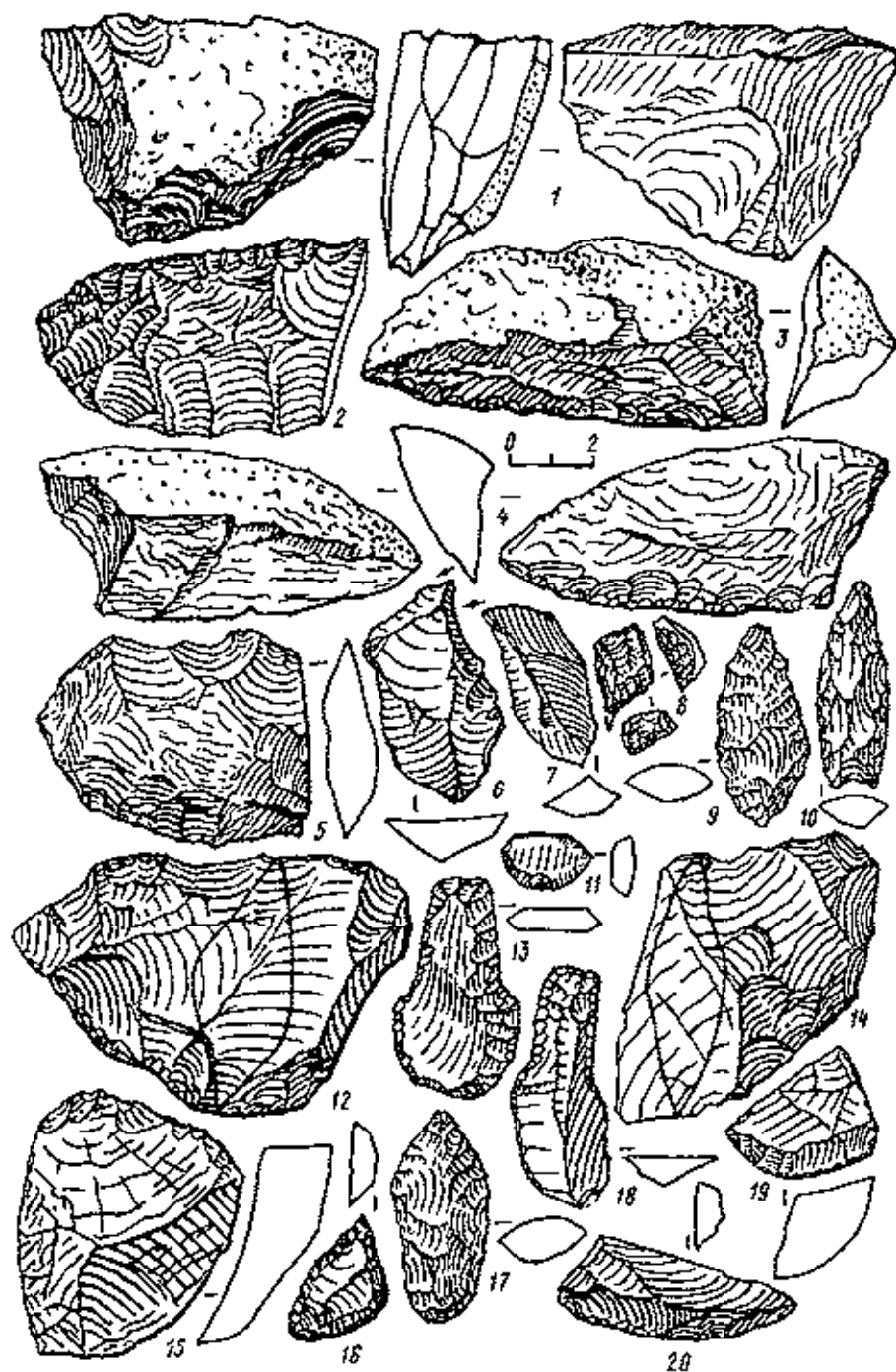


Figure 6. Stone tools. Natalia II, Dwelling 3.

The layer also has combination tools—knife-scrapers—on triangular spalls of triangular cross section ($N=3$). Their working edges, straight for knife and oval-convex for scraper, were worked by the removal of spalls and percussion retouch on one side (Fig. 6:15) and modified by fine pressure retouch on two sides ($N=2$) (Fig. 6:12).

To the combination tools are also assigned tools for working wood and bone. These are a microscraper-spokeshave-graver on a triangular uniaxially convex flake. Its back was formed by the removal of three spalls and the edge by steep pressure retouch and modified by fine retouch on one side (Fig. 6:16). There are also burin-knives on amorphous flakes of lenticular cross section. The oval-convex working edges of the knives were formed by uniaxial fine pressure retouch and the burins by a lateral spall ($N=2$) (Fig. 6:7).

Burin-spokeshaves on flat amorphous flakes have two specimens. The working edge of the spokeshaves was modified by uniaxial fine pressure retouch (Fig. 6:6). A micrograver-knife was made on a leaf-shaped uniaxially convex flake. The working edge of the knife was formed by bifacial fine pressure retouch, and the point of the graver is ground and polished from long use (Fig. 6:11). Single-faceted lateral burins were all made on flat amorphous flakes ($N=4$). Among the finds was a subprismatic core (Fig. 6:1).

On the whole the stone inventory of the room included 44 tools in 10 categories. Characteristic for it was the preparation of tools on flakes ($N=25—59\%$) and on cobble spalls ($N=19—41\%$), a combination of tools uniaxially worked ($N=20$) and bifacially worked ($N=17$), and the presence of combination tools ($N=7$). Quantitatively predominant are artifacts with edge work (60%) on one side ($N=19$) or on two sides ($N=8$). Archaic artifacts without modification of the working edge are present ($N=7$). There is a total of 10 specimens of completely retouched artifacts. Also characteristic is the lack of tools of well-worked form. Part of the tools were made on amorphous flakes ($N=14$).

Ceramics of the cultural layer of the room are represented by fragments of two large vessels with good firing. The vessels are round-bottomed with round bodies, oval in horizontal cross section. They were modeled from paste of well-mixed clay with temper of fine sand and moss. The rim of the vessels is flattened with rounded edges 0.8 cm wide. They are sloped inward. The lateral walls of the vessels are covered with soot on the outside.

The thickness of the lateral walls of the first vessel at the rim is 0.7 cm to 1.0 cm, at the bottom it increases to 1.5 cm. Corresponding fragments of a bottom are 2 cm to 2.5 cm thick. Sherds are dark-brown in the break and on the surface, and the bottom is brick colored on the outside. Their inner and outer surfaces are smoothed. The vessel is undecorated.

The second vessel has thinner walls at the rim—0.5 cm to 0.7 cm. The color of the sherds in the break and on the surface is light brown. Their inner surface is better smoothed than on the first vessel. On some side fragments traces of oblique (sloping in³) cord impression were noted. Fragments of the bottom 1.3 cm to 1.5 cm thick have a brick-colored interior.

Of the bone artifacts found in the cultural layer there was a knife handle of seal bone with penetrating hole for suspension (Fig. 4:3).

In the cultural layer of the room, 202 slate flakes, 6 chalcedony flakes, and 1 siliceous flake, plus 6 secondary and 2 primary cobble spalls were also found.

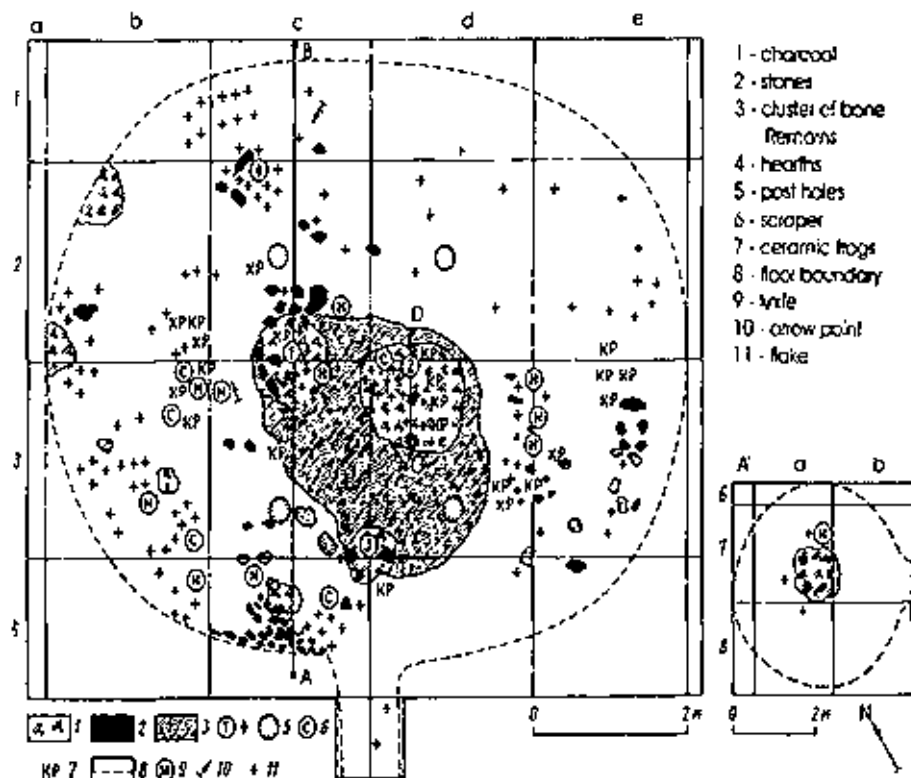


Figure 7. Plan of Dwelling 3, Natalia II. 1 - charcoal; 2 - stone; 3 - distribution of bone remains; 4 - hearths; 5 - post holes; 6 - scraper; 7 - fragments of ceramics; 8 - edge of the floor; 9 - knife; 10 - arrow point; 11 - flake.

The small number of stone artifacts and ceramics, and the almost complete lack of bone artifacts permit the supposition that the inhabitants left the dwelling under peaceful circumstances, having taken all the most valuable objects.

In the room in Quads 2c-3c, 2d-3d, 3c-3d, 4c-4d three hearths were found, denoted by arrangements of large river cobbles and charcoal 0.08 m to 0.15 m thick. Their diameters are correspondingly 1.0 m, 1.3 m, and 0.7 m (Fig. 7).

The distribution of bone remains in the center of the room, including all three hearths, outline the domestic area. The majority of finds were concentrated in this area and near it, and toward the periphery their number decreased significantly.

Two stone structures of three stones each in Quad 2c and a circular stone structure in Quad 3e were used as supports for round-bottomed vessels. This is corroborated by the presence here of the ceramic fragments.

The distribution of flakes predominantly in the western part of the room and at the domestic area attests to the fact that the preparation of tools was carried out here. The main center of preparation of tools was at the border between Quads 1c-2c (noted in the plan by the number 4). Here three large stone anvils were found with traces of blows on the surface, around which were concentrated as many as 100 large and small flakes. Analogous to them was a stone anvil found in Quad 2c.

In the western part of the room, judging by the distribution of skreblos, scrapers, and knives, skin working occurred.

In the southern part of the room in Quad 4c a cluster of stones was encountered. This is possibly a supply of stones for various domestic needs, including tool making.

Carbonaceous stains in Quads 3b, 2b-3b, and 2b are not the remains of hearths, since a layer of subhearth soil is absent.

Since the smallest number of finds were in Quads 1d, 1e, 2d, and 2e, apparently the sleeping places of the occupants were along the edge of the room here.

Pits in Quads 2c, 2d, 3c, and 3d are traces of posts for supporting the roof.

The investigation of the western lateral room of Dwelling 3 revealed the cultural layer at a depth of 0.5 m to 0.75 m. The depth of the deposit and the structure of the cultural layer and stratigraphy of the lateral and central rooms are alike, which proves their simultaneity. The lateral room is round and 4 m in diameter. In its center was found a hearth 1 m in diameter indicated by an arrangement of river cobbles and a thick (0.15 m) charcoal layer (Fig. 7).

In the cultural layer near the hearth was found a scraper on a unifacially convex flake of subtriangular form. The working edge of the scraper was worked by steep

retouch and modified secondarily by fine pressure retouch on one side (Fig. 6:8). Three slate flakes were found here.

The faunal remains encountered in the cultural layer of the central room were bones of pinnipeds (walrus and seal [*tiulen*]), fox, Arctic fox, dog, bird, and the remains of mollusk shells.

The large room was the center of domestic activity, while the lateral room, judging by the small number of finds and the lack of bone remains, was only a place of nightly quarters.

The entryway of Dwelling 3, like the remaining dwellings of the site, is oriented to the southwest, at an angle of 10° to the bank of the river.

Shrine. Investigation of the small hill located in the center of the Nataliia II revealed a cult site at its eastern foot.

Here in a grotto 10 m deep, three artifacts were found. One was double-edged knife-spokeshave on a suboval cobble spall with cobble cortex preserved on the back. Its working edges were formed by bifacial pressure retouch (Fig. 4:8). In technique of manufacture this knife conforms to the stone inventory of Dwelling 3. Two wooden artifacts, evidently of recent origin, were well preserved. These are a ritual wooden arrow (Fig. 8:1) and a wooden spade (Fig. 4:1).

Analogous wooden arrows were found at the grotto in crevices and between rocks (Fig. 8:2-10). In several cases they were accompanied by skulls and bones of the extremities of small animals.

Near the grotto were strewn walrus skulls and the bones of animals (deer, wolverine, bear, dog). Their original order of disposition was disturbed. Judging by the preservation of the bones, this shrine became functional no earlier than 200 to 300 years ago, though this tradition is probably older.

Cape Rifovyi is located 160 km north of Nataliia Bay. Here two early sites and a shrine were noted.

The first, southern site is located on the right bank and at the mouth of an unnamed river. It contains the remains of 10 dwellings. These are single-room and multi-room dwellings of the semisubterranean type with a lateral, tunnel-like entryway. On the surface they are indicated by depressions 0.4 m to 1.2 m deep, 6 m to 12 m in diameter with berms elevated 0.3 m to 0.5 m, and overgrown with grass. A later one-room dwelling nearer the river is interesting. It is 10 m in diameter. Some wood fragments from construction were preserved here. In the center of the dwelling at the corners of a 3 m x 4 m rectangle, four posts were inset—roof supports. Their height is 3 m, and the diameter in cross section is 0.2 m. The walls of the dwelling and the corridor are fortified with pieces of wood and layers of slabs placed horizontally. They are

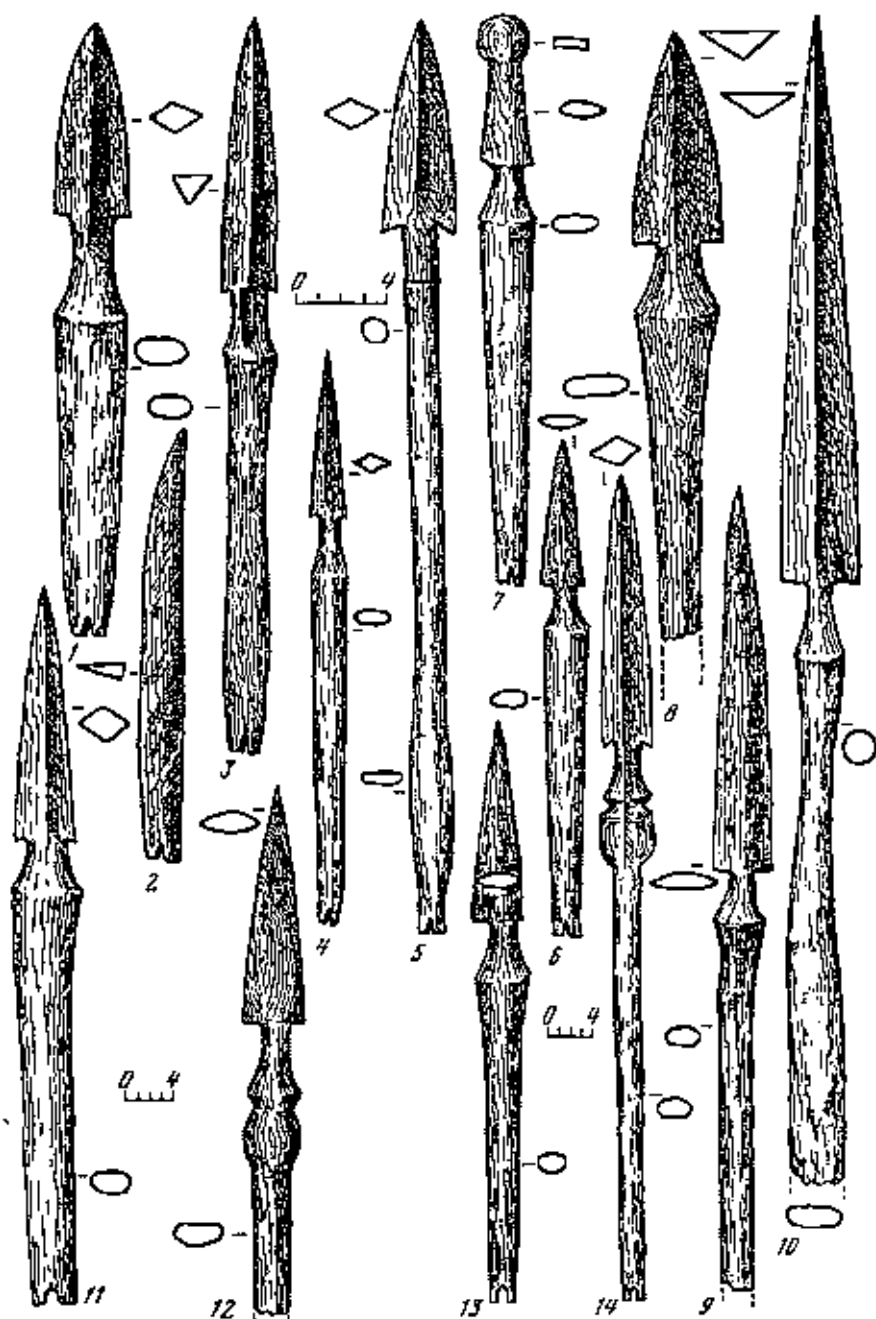


Figure 8. Wooden ritual arrows and darts. 1-7, 9, 10 - Nataliia II, shrine; 8, 11 - Rifovyi, shrine; 12-14 - Opukha I, assortment.

supported by posts sunk vertically 1 m to 1.5 m apart. In the center of the dwelling the remains of a 1.2 m diameter hearth ring are preserved.

The second, northern site is located 2 km north of the first on the top of the terrace. It contains the remains of 15 dwellings, single-room and multi-room. The dwellings are situated in one line parallel to the shoreline of the sea.

Shrine. A shrine is situated on the left bank of the river at the mouth and between the sites. It is located on the top of a low hill. The location of the shrine is indicated by a cluster of walrus skulls scattered in disorder on the hill and at its foot. An oval ritual area measuring 3 m x 5 m was covered by grassy vegetation. The shrine appeared to be disturbed. Its whole surface appeared to have been rummaged through chaotically.

When the area of the shrine was investigated, bone arrow points of walrus tusk with a socketed base ($N=2$) and a wedge-shaped base were found. A knife-scraper on a cobble spall was found. The straight working edge of the knife was formed by pressure retouch, and the oval-convex working edge of the scraper was worked by percussion flaking on one side (Fig. 12:6). Three blue glass beads were found and the core of a walrus tusk with traces of the removal of blades, as well as a fragment of a modeled thick-walled ceramic vessel without decoration. At the foot of the hill were found wooden ritual arrows (Fig. 8:8) and a dart (Fig. 8:11).

The presence of a carbonaceous stratum to the west of the ritual area at a depth of 0.15 m attests to the use of fire in the cult ceremonies.

The type of dwellings at the sites and the inventory of the shrines permit suggesting the same cultural associations as the complexes of the Nataliia I and II sites.

Opukha Lagoon (Myllen)

Opukha Lagoon (formerly called Myllen) is located north of Cape Rifovy (Fig. 9). It was formed by the entry of the Opukha River (Mylyveem) into the Bering Sea. On the south the lagoon is separated from the sea by spits of sandy-gravel beach deposits. On the east and west the lagoon is surrounded by a chain of lightly sloping hills. In the vicinity of the lagoon three early sites were examined, four shrines, a "cache" with walrus skulls, and a burial.

Opukha I site. This site is located at the base of the eastern spit and contains the remains of 40 dwellings (Fig. 10c). The dwellings are situated in conformity with the relief of the spit on the tops of the beach ridges in two lines parallel to the shoreline. The height of the basal terrace at the base of the spit is 8 m to 10 m. At the base of the spit are several small freshwater lakes, and at the foot of the terrace flows a stream. Judging by the remains, one-room dwellings predominate in the site; but two- and

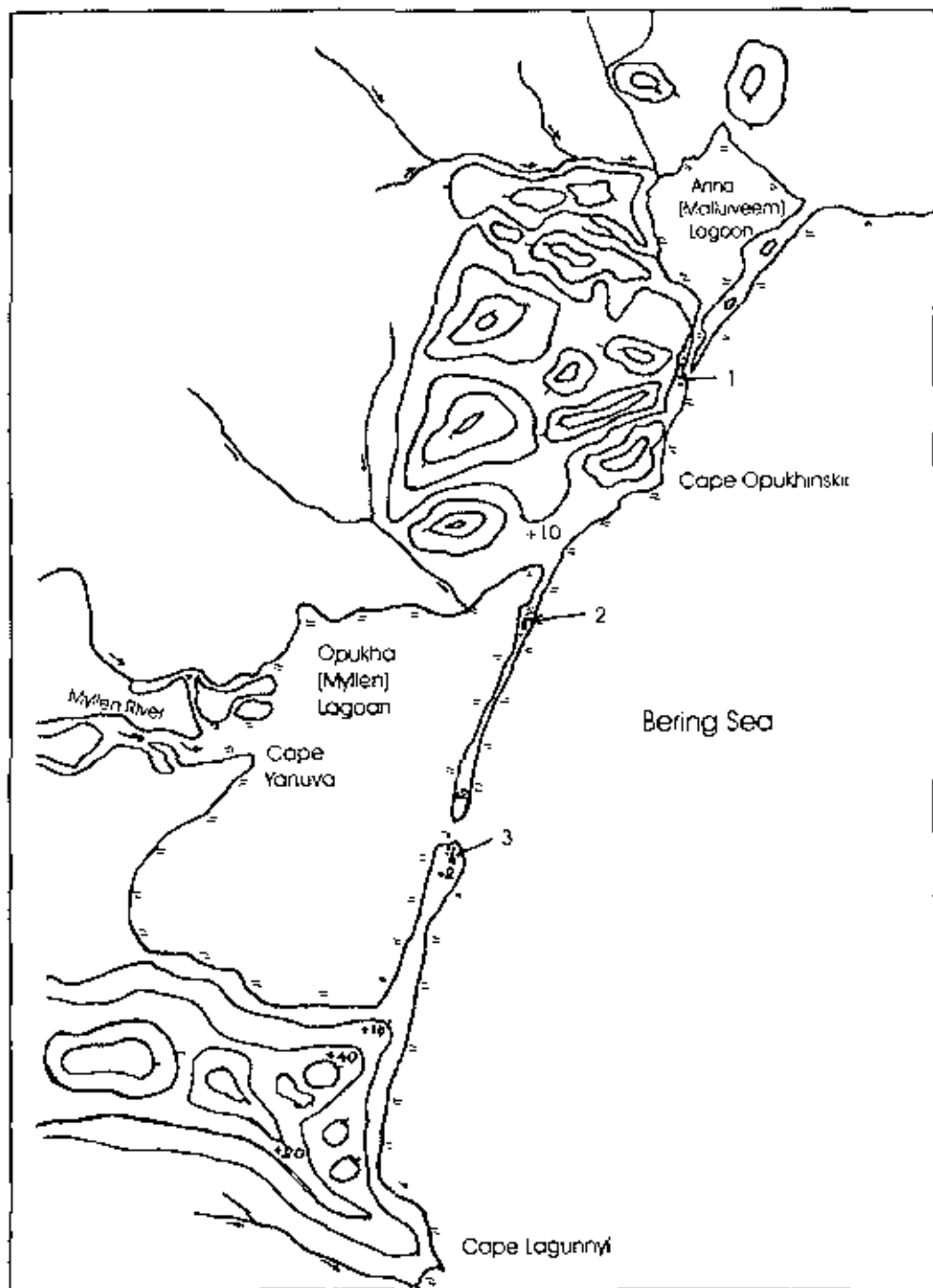


Figure 9. Map of archaeological sites on the shores of Opukha and Anna lagoons: 1. Anna I and shrine; 2. Opukha I and shrine; 3. Opukha II and shrine.

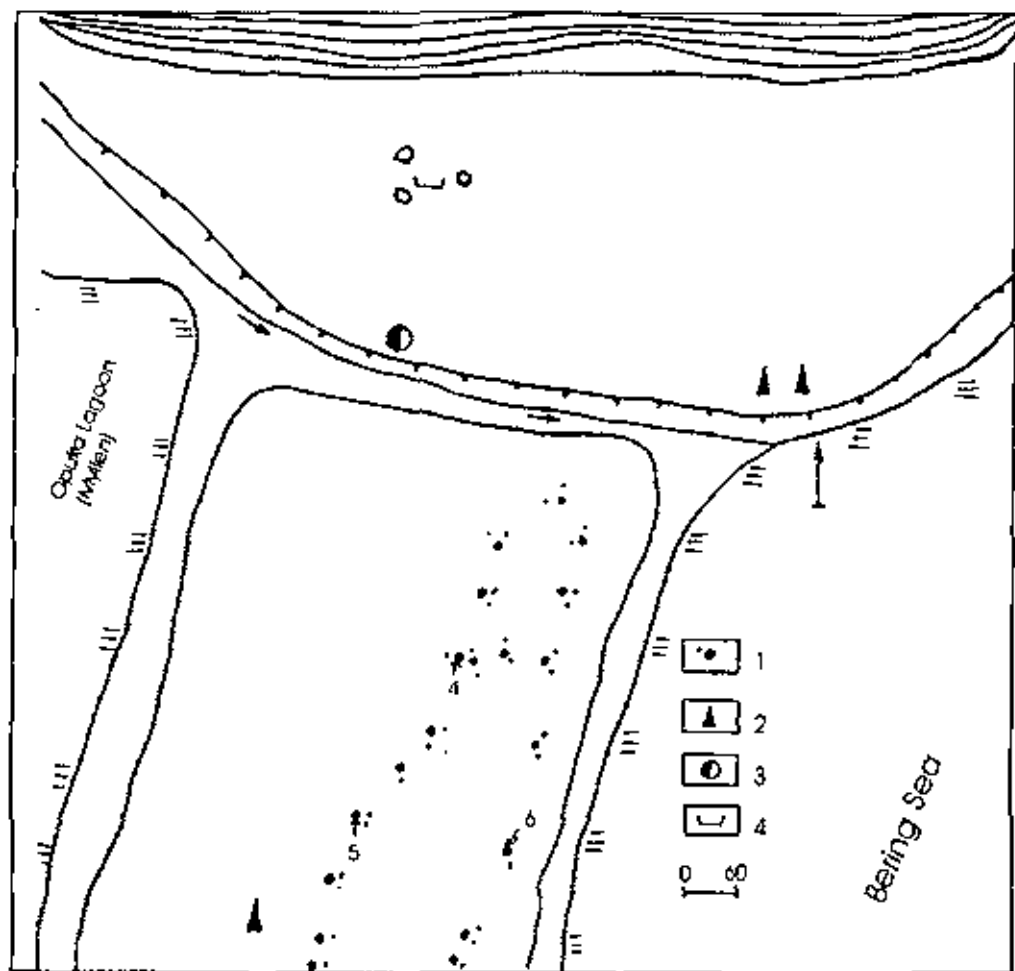


Figure 10. Map of Opukha I site: 1. Dwellings; 2. Shrine; 3. Cache of ivory; 4. Graves.

three-room dwellings were also found. On the surface they are indicated by depressions 0.2 m to 1 m deep with the berms elevated 0.1 m to 0.4 m and grown over with grass. They are 6 m to 12 m in diameter. The tunnel-like passages and entryway of the pithouses were preserved in the form of trenches 1 m to 1.5 m long and 0.2 m to 1.2 m deep. Near the dwellings were numerous pits 0.3 m to 1 m deep and 1 m to 1.5 m in diameter with grass growing over them.

Dwelling 1. The one-room Dwelling 1 was investigated completely (Fig. 11). It is located 800 m from the base of the spit on the top of a low hill. The selection of this dwelling was not random. The interest in it is accounted for by a story told to us by a Kerek guide, I. Uvaugin. At the end of the 1930s, when Uvaugin lived with his parents in this settlement, his mother showed him a half-destroyed pithouse and forbade

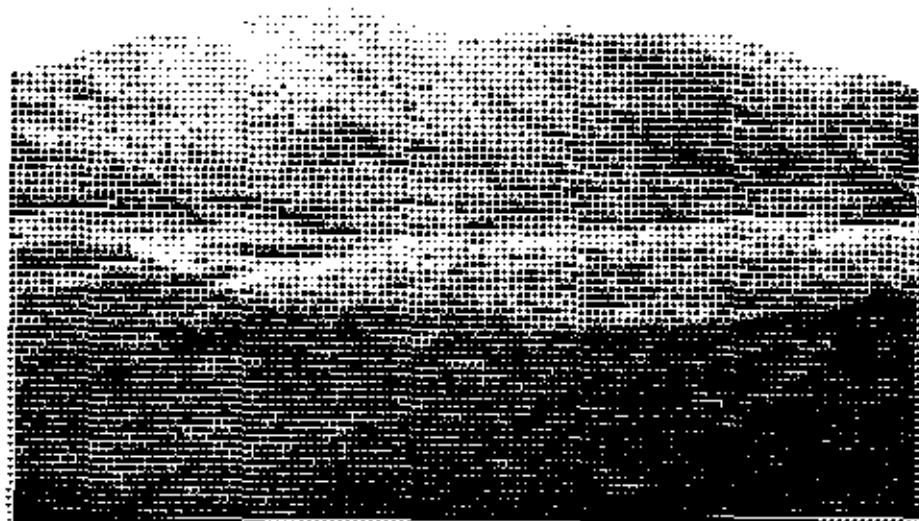


Figure 11. Opukha I site, Dwelling 1.

Dwelling 1. The one-room Dwelling 1 was investigated completely (Fig. 11). It is located 800 m from the base of the spit on the top of a low hill. The selection of this dwelling was not random. The interest in it is accounted for by a story told to us by a Kerek guide, I. Uvaugin. At the end of the 1930s, when Uvaugin lived with his parents in this settlement, his mother showed him a half-destroyed pithouse and forbade him to go near it. The prohibition was the result of the fear the Kereks had for an unknown illness which had struck the inhabitants of this pithouse. This was possibly an epidemic of smallpox. After the death of the occupants of the pithouse, the inhabitants of the settlement filled the entry of the dwelling with earth and left the site for a long time.

It was very tempting to record the inventory of the house, which remained untouchable, and retrieve the [physical] anthropological material. Considering the Kerek custom of burial in the sea, this would be a good stroke of luck. However, either the story did not agree with the events or our informant confused the location of the dwelling, for our hopes went unfulfilled.

The dwelling was indicated by a shallow (0.25 m) depression 6.5 m in diameter, the interior part and berm of which were grown over with grass. Investigations showed that this was a 7 m x 8 m oval dwelling with a lateral tunnel-like entryway. Here two cultural layers were found separated by a sterile layer of brown sandy loam with pebbles. The depth of the deposit of the first layer was 0.2 m to 0.35 m, of the second 0.7 m to 1 m.

In the profile of the room along the line A—B the following stratigraphy was noted: 1 - sod layer 0.08 m to 0.1 m; 2 - humus 0.05 m to 0.08 m; 3 - dark-brown sandy loam with rubble 0.1 m to 0.15 m; 4 - first cultural layer, carbonaceous dark-gray sandy loam with gravels 0.1 m to 0.2 m with carbonaceous inclusions 0.03 m to 0.08 m; 5 - brown sandy loam with gravels 0.35 m to 0.55 m with inclusions of gray sand 0.05 m to 0.1 m; 6 - second cultural layer, dark-gray sandy loam 0.1 m to 0.2 m with two carbonaceous strata 0.01 m to 0.03 m; 7 - small cobble with light-brown loam 0.7 m to 1 m; below this is large gravel.

In the upper part of the profile large flat stones were noted.

The presence of a sterile stratum between the cultural layers attests to a chronological break during the time spent here by the people. Its thickness permits the supposition that this hiatus was long. Consequently, we have a matter not of two cultural layers of one dwelling, but of cultural layers of two different dwellings, the locations of which coincided (dwelling 1a—the second cultural layer, 1b—the first). Evidently the pit of the earlier dwelling was used in the construction of the later.

In the lower, second cultural layer a complex of tools characterizing the domestic occupations of its inhabitants was found.

The most numerous category of tools is knives (N=13). They were made on flakes (N=5) or flat slate slabs (N=8). Knives with a single working edge on flat triangular flakes (N=3) were made on amorphous flakes. Their straight working edges were modified by pressure retouch on the back. On a knife with one working edge made on a blade with rounded end (N=1 and 1 fragment) the convex working edges were formed by percussion flaking and modified by pressure retouch on two sides (Fig. 12:1). A knife with two working edges on a flake with lenticular cross section and with pointed stem has a form approaching a curved knife. Its surface was formed by percussion retouch and the edge by pressure retouch on both sides (Fig. 12:7). Women's knives of the ulu type were also found. They were made on flat shale (slate) slabs. Their surfaces and working edges were ground on both sides. Also found were broad knives with oval-convex working edges of trapezoidal form (N=2 and 1 fragment), of semi-lunar form (N=1 and 1 fragment) (Fig. 14:5), and a narrow knife of subrectangular form with a straight working edge (Fig. 14:1).

Combination knife-scrappers are widely represented: on a flattened oval cobble (Fig. 12:5), on a uniaxially convex cobble spall of semi-lunar form retaining cobble cortex on the back (N=4) (Fig. 12:3), and on amorphous flakes (N=2). The oval convex blades of the knives were formed by percussion retouch on two sides, and the opposite edge was used as a scraper, worked with percussion flaking (on the cobble) or without work. Scraper-knives were made on subtriangular, flat flakes (N=3) (Fig. 13:4). The oval convex lower edge of scrapers and the straight lateral working edges of knives were formed by percussion flaking and modified here and there by pressure retouch on one side.

Tools for working skins are represented by scrapers and skreblos. Side scrapers were made on cobble spalls of lenticular cross section and preserved cobble cortex on the back. They are of oval (N=2) and semi-lunar form (N=2), and subtriangular end scrapers (N=2) (Fig. 13:3). The oval convex working edge of scrapers was formed by uniaxial percussion flaking. A discoid scraper was made on a uniaxially convex spall. Its surface was formed by percussion flaking, and the round working edge was modified by pressure retouch on two sides (Fig. 13:6).

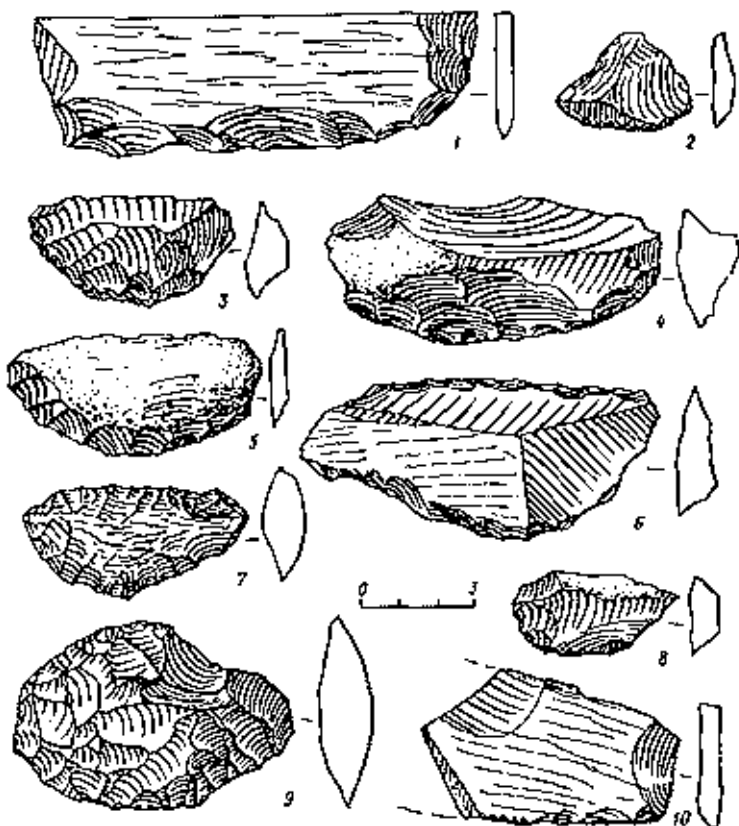


Figure 12. Retouched knives. 1, 3, 5, 7 - Opukha I site, Dwelling 1a; 6 - Rifovyi, shrine; 2, 4, 8-10 - Opukha I site, Dwelling 1b.

Side scrapers were also made on cobble spalls of lenticular cross section. Their form is oval ($N=1$), semi-lunar ($N=1$), and subtriangular ($N=1$).

In the cultural layer a hammer of a round cobble with a groove, made by pecking, for the attachment of a handle was also found. On its lateral working surfaces are pits, traces of blows. Judging by the worn surfaces, the hammer was in use a long time (Fig. 14:7).

Tools for working wood and bone are single-faceted lateral burins ($N=3$) made on amorphous flakes.

The small amount of debitage from production ($N=7$ flakes) attests to the fact that stone tools were generally made outside the dwelling.

In the cultural layer a total of 37 tools in seven categories were found. The tools were made on flakes ($N=13$), spalls ($N=14$), and shale (slate) slabs ($N=8$), as well

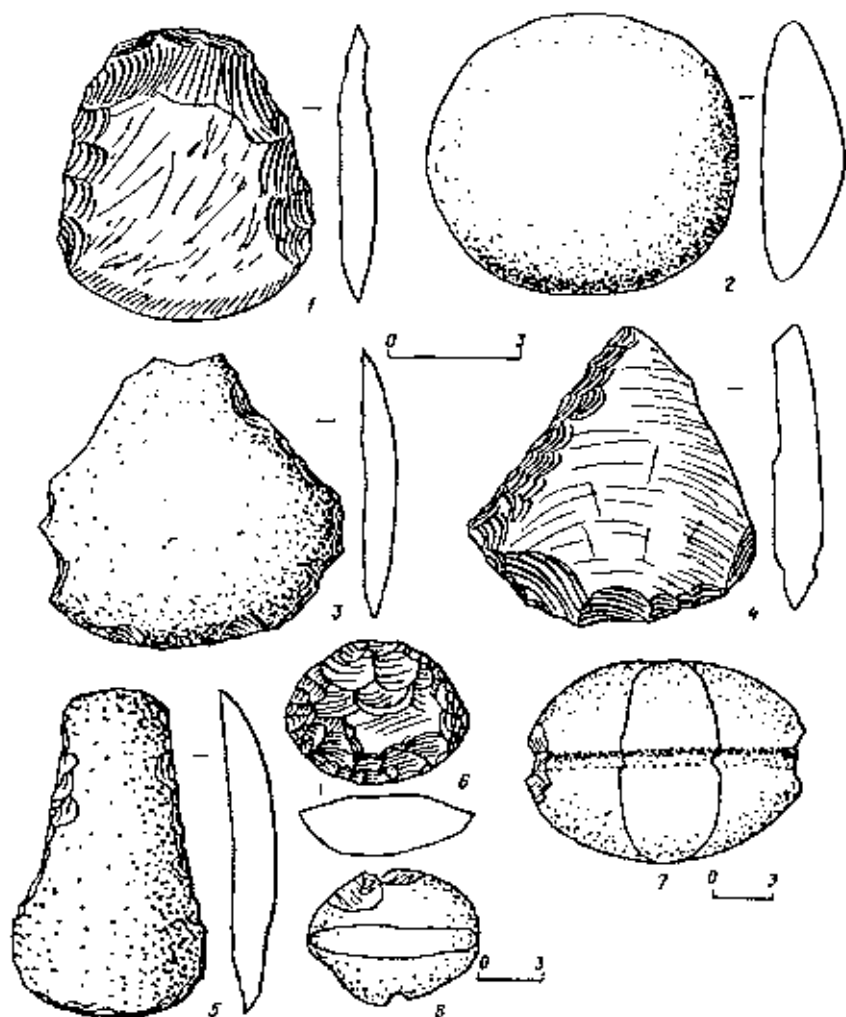


Figure 13. Stone tools. 1 - Opukha II, blowout; 2-6 - Opukha I, Dwelling I; 7 - Opukha I, Dwelling 3; 8 - Etchun I, Dwelling 1.

as on cobbles ($N=2$). Edge working predominates ($N=25$), by percussion and retouch, unifacial ($N=16$) and bifacial ($N=9$). Two tools (knives) were completely retouched on two sides, and six tools (knives) were ground. Also characteristic for the complex is the presence of knives of the ulu type and combination tools ($N=10$). Tools of well-made form are present in the complex, but three tools were made on amorphous flakes.

Also represented in the cultural layer are two bone artifacts: a punch of deer rib with a point polished from long use (Fig. 15:7) and a fragment of a flat spade of walrus

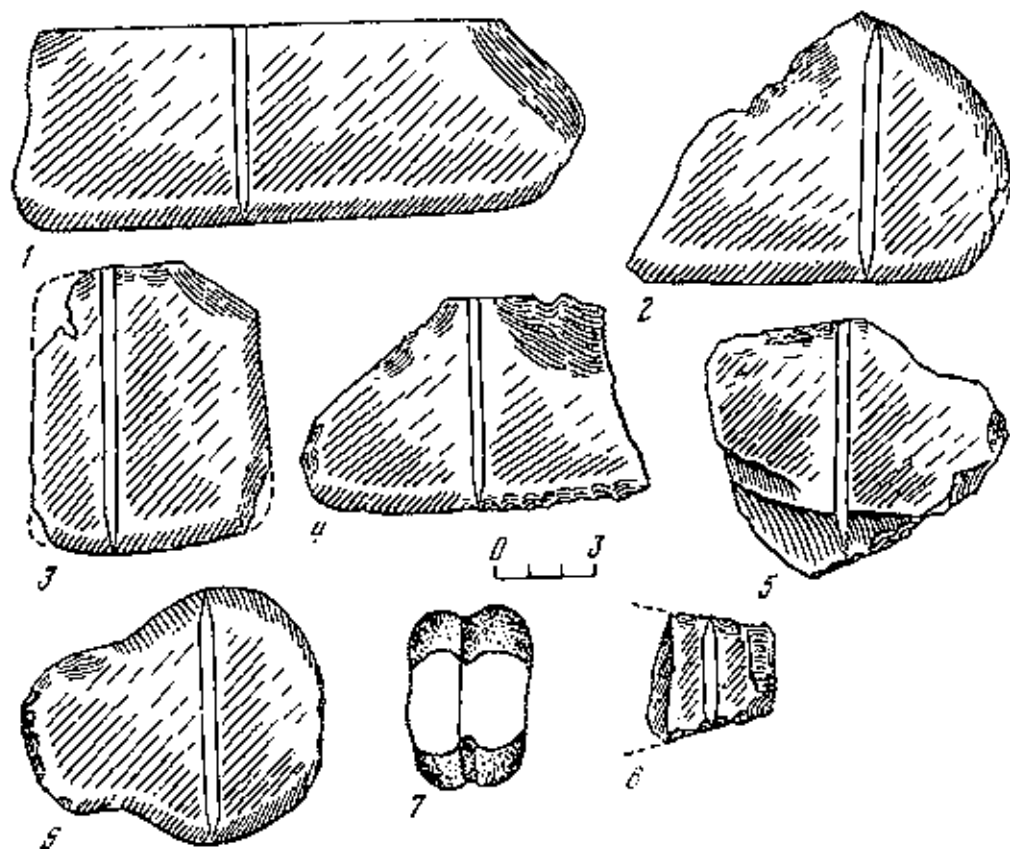


Figure 14. Ground slate knives and hammer (7). 1, 3, 5, 7 - Opukha 1, Dwelling 1a;
2-4, 6, 8 - Opukha 1, Dwelling 2.

bone with an oval hole for fastening a handle. Its working edge has traces of obliteration and scars (Fig. 15:10).

The ceramics from the layer are represented by fragments of two large undecorated vessels of oval horizontal cross section. The vessels are modeled and round-bottomed with round body. They were made from a paste of clay with temper of fine sand and are well fired. The inner and outer surfaces of the sherds are well smoothed.

The rim of the first vessel is round, 0.9 cm wide, with an inward slope. The thickness of the walls is 0.9 cm, increasing toward the bottom part to 2 cm. The color of the sherds in the break and on the surface is brown. The bottom fragments on the outside are of a brick-red color. Fragments of the side walls are covered on the outside with a layer of soot.

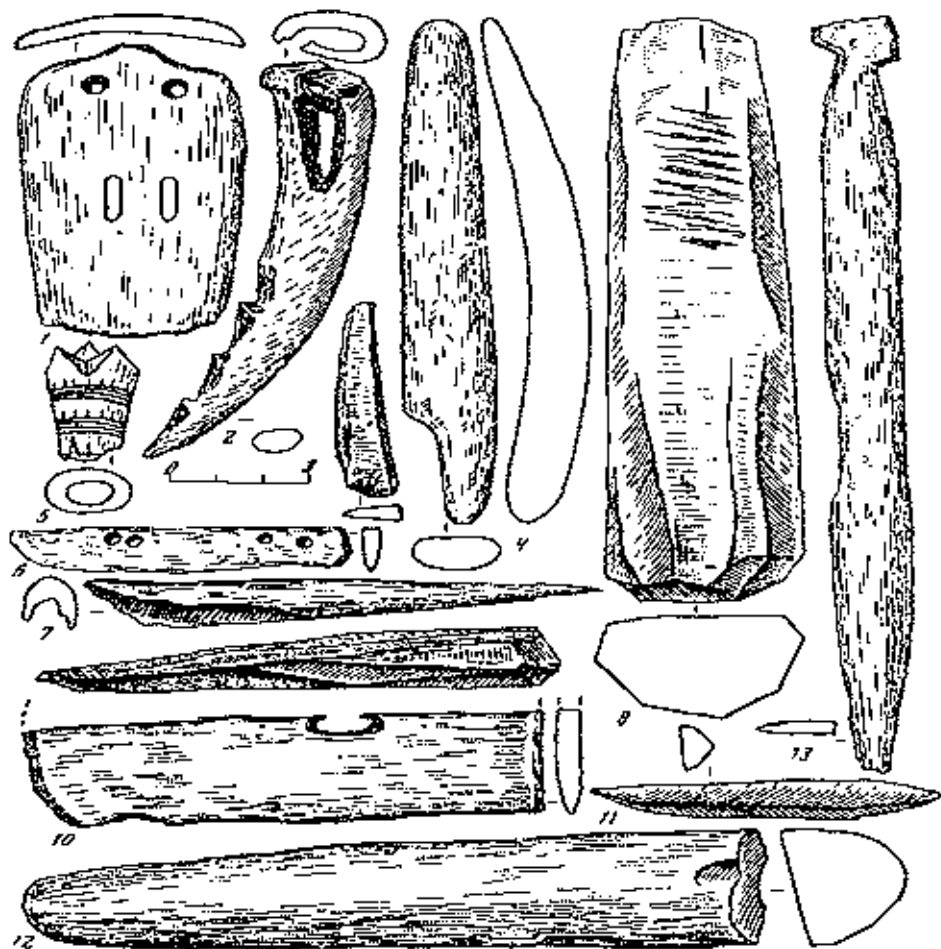


Figure 15. Bone tools and artifacts, Opukha I. 1-6, 11, 12 - Dwelling Ib; 7, 10 - Dwelling Ia.

The rim of the second vessel, with rounded edges, is 0.6 cm thick. It has a slight inward slope. The thickness of the walls of the vessel is 0.5 cm, the bottom part 1.2 cm. The color of the sherds in the break and on the inner surface is brown, the outer surface—dark brown. The bottom fragments were a brick-red color on the outside.

The faunal remains found in the cultural layer are pinnipeds (walrus, two kinds of seals [*tiulen'* and *nerpa*], and sea lion), whale, small land animals, birds, and mollusk shells.

In Quad 3b and on the edge of Quads 3b-4b in the cultural layer two hearths were discovered. The first was about 1 m in diameter, the second 0.6 m. They were

indicated by a ring arrangement of river cobbles and a layer of charcoal 0.25 m to 0.3 m thick (Fig. 16).

The primary part of the find in the cultural layer is concentrated in Quads 1b-2b. Adjoining the hearths, they comprise the domestic area. On the border of Quads 2c-2d-3c-3d and 3c-3d two cache pits were located: the first 0.6 m deep, the second 0.4 m deep. They were filled with the remains of mollusk shells (mussels and cockles) (Fig. 16).

The sleeping places in the room were probably located in Quads 1a, 2a, and 3a. The smallest number of finds were here.

In the complex of stone tools of the first cultural layer (the later dwelling) knives also numerically predominate (N=19). There are knives with a single working edge on flat, subtriangular flakes (N=2) and on an amorphous flake. Their straight working edge was treated by pressure retouch. Knives on cobble spalls with preserved cobble cortex on the back are: of suboval form, subrectangular cross section (N=2) (Fig. 12:4), and on a flat spall (N=1).

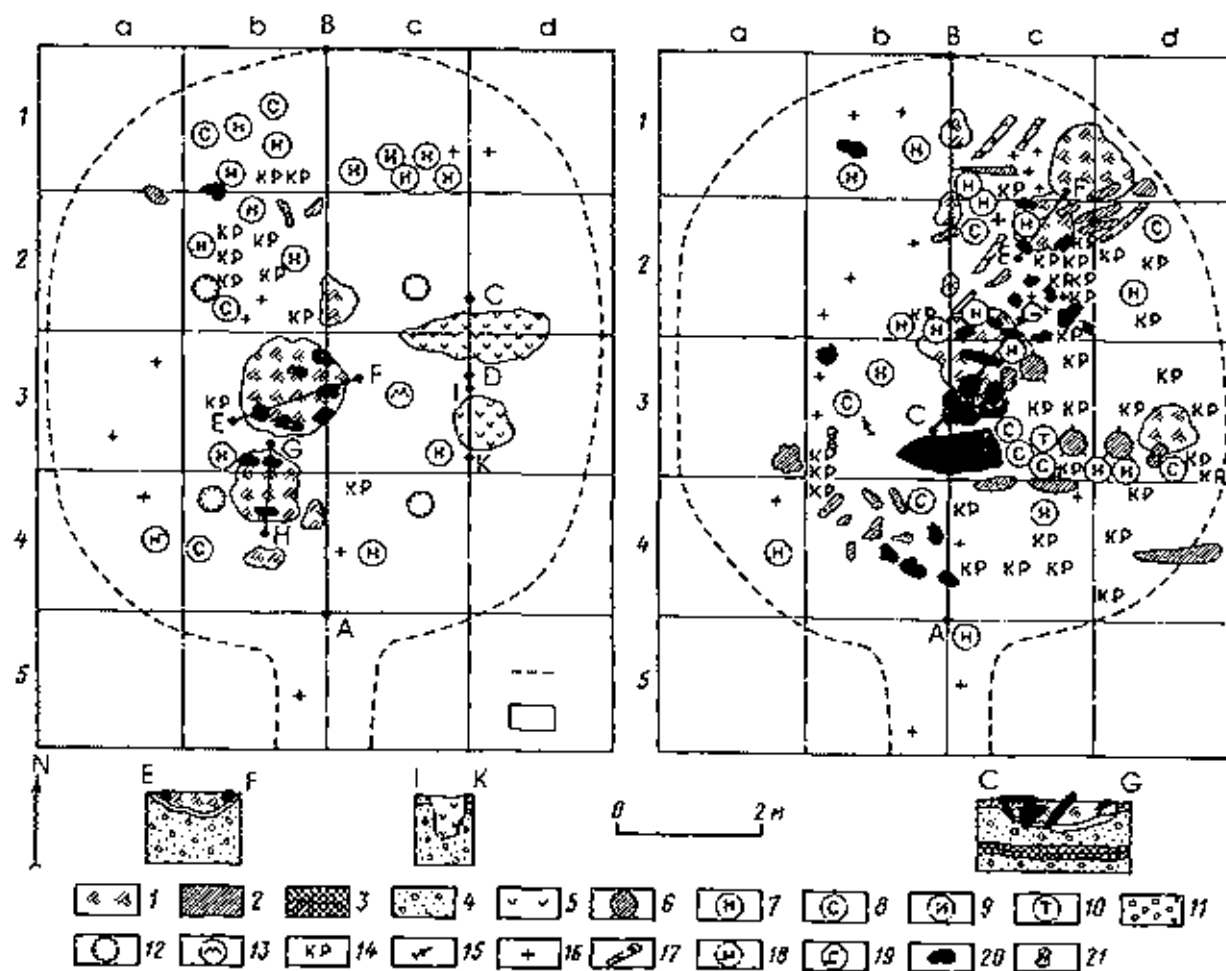
Their oval-convex working edge was formed by percussion flaking and modified by fine pressure retouch on two sides. A stemmed double-edged knife with asymmetrical working edge is close in form to curved knives. A knife on a spall of lenticular cross section has a rounded end. Its surface was formed by flattening retouch, and the edges modified in places by fine pressure retouch on two sides (Fig. 12:9).

Slate knives of the ulu type on flat slabs (N=12) are widely represented. Their surface and working edge were ground on two sides. Among them single-blade knives with oval-convex working edge are trapezoidal (N=3 and 1 fragment) and semilunar (N=3 and 2 fragments) in form and with straight, subrectangular working edge (N=2 and 1 fragment) (Fig. 12:10).

Tools for working skins are represented by scrapers (N=10), skreblos (N=4), and a polisher. Among them are side scrapers on cobble spalls of lenticular cross section with cobble cortex preserved on the back. There are oval scrapers (N=2) and those of semilunar form (N=2). Their oval-convex working edge was formed by unifacial percussion flaking. There are end scrapers of subtriangular form (N=3) and thumbnail form (N=2). Their oval-convex working edge and lateral edge were modified by bifacial pressure retouch.

The polisher is a round cobble spall with convex back, which preserves the cobble cortex. Its rounded working edge, without additional modification, is polished from long use (Fig. 13:2). There is a mattock on a cobble spall (Fig. 13:5).

Skreblos (N=4) were made on cobble spalls of lenticular cross section with the preservation of cobble cortex on the back. There are side skreblos of oval (N=1) and



semilunar (N=1) form. There are end skreblos of subtriangular (N=1) and of thumbnail (N=1) form.

Also present are combination tools (N=4). Knife-scrapers on uniaxially convex cobble spalls with cobble cortex preserved on the back (N=3) (Fig. 12:8). The oval-convex working edge of the knife was formed by percussion flaking and modified by fine pressure retouch on two sides, while the working edge of the scraper is without modification.

A knife-spokeshave was made on a flat, subtriangular flake. The oval-convex working edge of the spokeshave and the straight lateral working edge of the knife were modified by fine bifacial pressure retouch (Fig. 12:2).

Tools of the hunt are represented by a leaf-shaped arrow point with oval-convex base on a uniaxially convex flake. Its surface was formed by percussion flaking, and the edges modified by fine pressure retouch on two sides (Fig. 17:7).

Tools for working wood and bone—an adze, an axe, burins, a graver, a spokeshave, and a drill—were also found in the cultural layer. The adze is of trapezoidal form with lenticular cross section. Its surface was formed by flattening percussion retouch, while the lateral edges and the slightly convex beveled working edge were modified by fine pressure retouch on two sides (Fig. 17:1). The lateral edges of the axe were formed by percussion flaking, and the surface and the working edge were ground (Fig. 17:2).

Single-faceted lateral and central burins and graver were made on amorphous flakes (Fig. 17:8).

The spokeshave was made on a flat flake. Its oval-convex working edge was formed by fine pressure retouch on the back.

The drill on a blade is of triangular cross section. Its oval-convex working edge and lateral edges were worked by fine pressure retouch on the back (Fig. 17:9).

The small quantity of debitage produced attests to the fact that the tools were generally made outside the dwelling.

The complex of stone tools is characterized by 46 specimens in 12 categories. The tools were made on cobble spalls (N=24), blades (N=13), and flakes (N=9). Edge work predominates—uniaxial (N=21) and bifacial (N=5). Grinding is present (N=13), as are complete bifacial retouch (N=3) and 4 tools without additional work.

The types of blanks, secondary working, and types of tools are similar to the complex of the early dwelling. But there are differences; and these are the large diversity and quantity of tools, including ground and flaked forms.

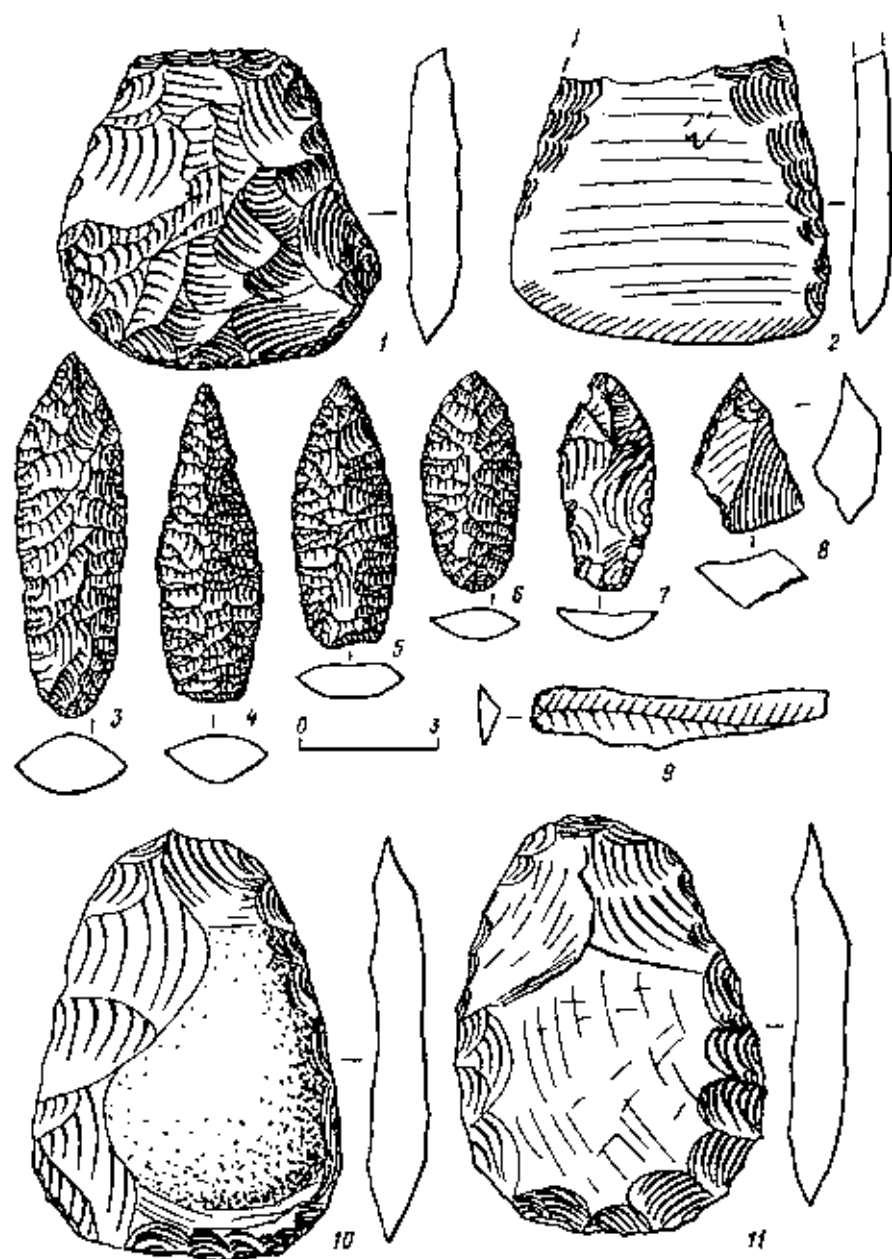


Figure 17. Stone tools. 1, 2, 7, 8 - Opukha I, Dwelling I; 3-6 - Opukha I, Shrine I; 9, 10, 11 - Etchun II, Dwelling I.

The complex of the dwelling is also characterized by the larger number of bone tools. All this confirms the significant chronological break in the functions of the early and late dwellings.

A total of 11 bone artifacts were encountered. This is primarily a hunting-fishing inventory. A spade of walrus bone with two oval and two round holes for fastening a handle. Its working edge has traces of wear and impacts (Fig. 15:1). A blank of a bone point (Fig. 15:9). A point of a compound fishhook of walrus bone. It is unifacially barbed (three barbs) with a depression in the end and a lateral hole for fastening (Fig. 15:2). A decorated socketed arrow-bunt point of walrus tusk (Fig. 15:5). A knife with a single working edge of walrus tusk (Fig. 15:13) and a fragment of a knife of walrus bone (Fig. 15:3).

There are tools for working stone—retouchers of walrus bone (N=2) (Fig. 15:4).

Everyday tools are mattocks made of walrus tusk (N=2) (Fig. 15:8, 12). A fragment of a bone artifact was found with four round penetrating holes (Fig. 15:6).

The rather limited stone and bone inventory, as well as the large percent of fragments, attests to the fact that the earlier and later dwellings were left under peaceful circumstances.

The ceramics of the layer were represented by fragments of three large vessels of oval horizontal cross section, with rims sloping inward. The vessels are modeled and round-bottomed with round body. They are well fired and undecorated. They were made of a paste of clay with a temper of fine sand. The outer and inner surfaces of sherds were smoothed well.

The rim of the first vessel is flattened, with rounded edges, and 0.8 cm broad. The thickness of the walls at the rim is 0.6 cm and on the bottom part 1.5 cm. The sherds in the break and on the surface are brown and covered with soot on the outside. The outer wall of the bottom fragments is brick colored.

The doubled rim of the second vessel is 1.5 cm wide (Fig. 84:11). The thickness of the vessel at the rim is 0.5 cm, body fragments 1.0 cm. The color of the sherds is gray in the break, light-brown on the surfaces.

The rim of the third vessel is flattened and 0.7 cm wide. The lateral walls of the vessel are decorated by oblique (sloping out) cord impression. Their thickness is 0.8 cm, at the bottom 1 cm. In the break of the sherd the color is brown, on the surface light brown.

There are fragments here with holes, bored after firing.

The form and technique of manufacture of the ceramics of the early and late dwellings are identical. The difference is decoration by hatching of one vessel.

Faunal remains in the cultural layer are represented by bones of pinnipeds (walrus and two kinds of seals (*tiulen'* and *nerpa*)), whale, land animals, dogs, birds, and some mollusk shells.

In Quads 2b-2c-3c and 1c-2c two hearths were located. The central hearth was indicated by a ring constructed of river cobbles and large stones and a slab set vertically, as well as by charcoal 0.15 m to 0.25 m thick. Its diameter is about 1 m. In the southern part of the hearth a large (0.35 m x 0.45 m) flat slab was located on top of stones. Judging by the sooty under surface, it covered the hearth. The second hearth of 0.6 m diameter was indicated by an arrangement of river cobbles and a 0.1 m thick layer of charcoal (Fig. 16).

Between the hearths lay stones that were probably used as supports for round-bottomed vessels. This is confirmed by the presence here of ceramic fragments.

A large flat slab 0.5 x 1.3 x 1.15 m in Quad 3b was used, judging by the sooty under surface, as a hearth cover.

Charcoal and ash in Quads 1b-1c, 2b-2c, and 1c-1d were not the remains of hearths since there was no layer of sub-hearth soil.

Quads 3c and 3d contained round whale vertebrae. A whale rib in Quad 4d was probably a construction detail of the walls of the dwelling.

Finds were primarily concentrated in the eastern part of the room and in Quads 3b and 4b of the western part (Fig. 28).

Sleeping places of the inhabitants of the room were located in Quads 1a-1b-2a-3a along the edge of the dwelling. Here the smallest number of finds were recorded.

From the entryway, the dwelling was oriented to the south at an angle of 30° to the shoreline of the sea.

Dwelling 2. By considering the leveling of the micro-relief through the course of time, we tried to choose the earliest dwellings in this site as subsequent objects of investigation. Jumping ahead, it can be said that these assumptions proved completely true. Dwellings 2 and 3, selected for investigation, were located in one row.

Some 600 m west of Dwelling 1, single-room Dwelling 2 of the semisubterranean type was investigated. It was indicated by a shallow (0.2 m) depression with berms elevated to 0.2 m and overgrown with grass. The dwelling, a plan 9 m x 10 m oval, was 0.65 m deep in the ground. At a depth of 0.7 m to 0.8 m from the present surface a cultural layer 0.15 m to 0.3 m thick was found. In a profile of the dwelling along line A—B the following stratigraphy was noted: 1 - sod layer 0.06 m to 0.1 m; 2 - humic layer 0.05 m to 0.1 m; 3 - gray sand 0.2 m to 0.3 m; 4 - brown sand 0.3 m to 0.8 m; 5 - cultural layer, dark-brown sandy loam 0.15 m to 0.3 m with two carbonaceous strata 0.05 m to 0.1 m (6) and inclusions of dark-violet sandy loam 0.05 m to 0.1

m (7); 8 - small pebbles 0.15 m to 0.2 m; 9 - gray sand with small pebbles 1.5 m to 2 m; below this, gravels. In the upper part of the profile a large, flat, vertically set stone was noted.

The presence of the two carbonaceous strata of the cultural layer attests probably to some, though insignificant, chronological break in the operation of the dwelling.

The most numerous category found among the stone tools was knives (N=27). These are retouched and ground knives. The first were made on flat flakes (N=6) and a unifacially convex cobble spall with partially preserved cobble cortex on the back. They are triangular with a single working edge (N=4) and on oval cobble spalls with a double working edge (N=2). Ground knives (N=20) were made on flat slate slabs (ulu type). On several knives with a double working edge and coarsely ground surface, the working edges are partially modified by fine pressure retouch on two sides. They all are of subtriangular form (N=2 and 2 fragments). A fragment of a straight stem was preserved from one knife (Fig. 14:8). The remaining knives have the surface well ground on both sides and straight or oval-convex working edge. These are knives with a single working edge and irregular rectangular form (N=2 and 3 fragments), trapezoidal (N=2 and 2 fragments) (Fig. 14:4), and semilunar form (N=1). Knives with a double working edge and rounded end (N=2) (Fig. 14:2) have an irregular rectangular form (N=2) (Fig. 14:3) and pear-shaped form with round stem (N=1) (Fig. 14:6).

Tools for working skins are represented by a scraper and a polisher. A side scraper was made on an oval cobble spall of lenticular cross section with preserved cobble cortex on the back. Its oval convex working edge was formed by percussion flaking on the back. The polisher on a round flattened cobble is unworked. Its edge is polished from extended use.

The hunting-fishing inventory is represented by a fragment of a leaf-shaped arrow point of lenticular cross section. Its surface was formed by flattening retouch, and the edges were modified by fine pressure retouch on two sides. The base is straight.

Tools for working wood and bone are represented by lateral single-faceted burins on amorphous flakes (N=3). A combination knife-burin on an amorphous spall was also found. The working edge of the knife was formed by fine pressure retouch on the back.

In the cultural layer 36 slate flakes were found. Their small number attests to the fact that tools were predominantly prepared outside the dwelling. The small number of tools for working skins, in comparison with Dwelling 1, allowed the supposition that skins here were generally worked outside the dwelling.

The complex of stone tools (N=34) in six categories is characterized by a large number of ground knives (N=20). However, their high percentage can be explained to

a certain extent by the extremely small, in comparison to Dwelling 1, number of tools (with the exception of knives). Tools were primarily made on blades ($N=20$), as well as on flakes ($N=10$), cobble spalls ($N=3$), and a pebble ($N=1$). The predominance of blades distinguishes Dwelling 2 from Dwelling 1. Types of blanks, types of tools, and techniques of secondary work bring together the complexes of both dwellings. But in the complex of Dwelling 2, grinding predominates ($N=20$), and also represented are unifacial edge retouch and percussion flaking ($N=12$), complete bifacial retouch ($N=1$), and an unworked polisher. In distinction from Dwelling 1, the bifacial working of tools ($N=21$) predominates at the expense of ground knives.

In distinction from Dwelling 1b the complex of bone tools amounts to six artifacts. Basically these are everyday objects. There are two fragments of a shovel of whale bone. The working edge of one shovel is sharpened and has traces of wear (Fig. 18:1). On the other shovel are two round holes for fastening a handle (Fig. 18:2). A bone needle of walrus tusk has an oval hole. Its point is cracked from moisture (Fig. 18:3). A pressure flaker is of walrus bone (Fig. 18:5).

There are two hunting tools. A pyramidal socketed arrow point is of walrus bone (Fig. 18:7). The handle of a knife is constructed of seal bone with a hole for extraction of the blade (Fig. 18:4).

The ceramics in the cultural layer reflect an abundance of vessels ($N=9$). They are all of large dimension, round-bottomed with round body, and well fired. The ves-

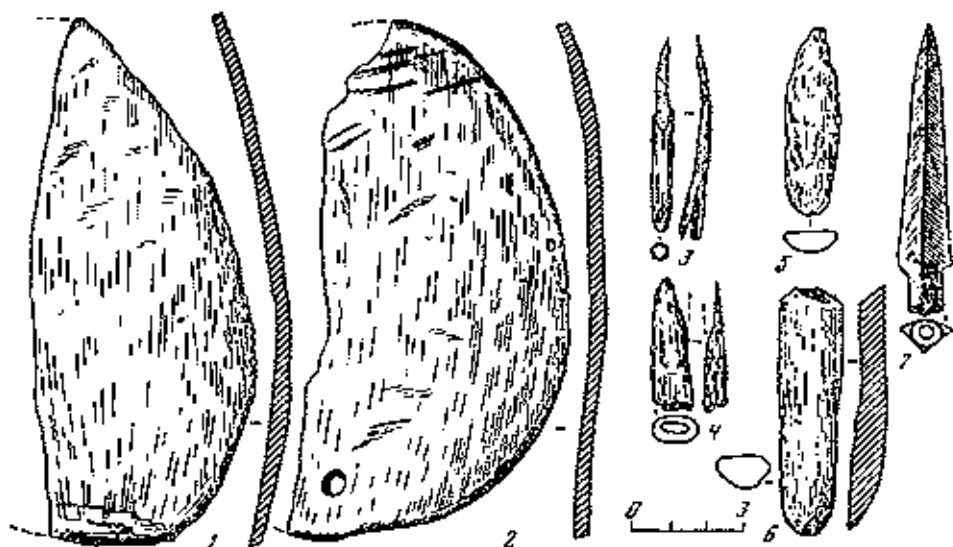


Figure 18. Bone tools and artifacts from Dwelling 2, Opukha 1 site.

sels are modeled of a clay paste with temper of fine sand, and in some cases moss as well. The rims of the vessels slope in. Their inner and outer surfaces are rather well smoothed. On the outside the side fragments are covered with soot, and the bottom pieces are of brick color. On the inner surface of three vessels oval impressions—finger marks—are preserved. Seven vessels are variously decorated. This is the characteristic distinction of the ceramics of this complex.

The rim of the first vessel is flattened and 0.7 cm to 0.8 cm wide. Its edge is rounded with a small inner projection. The thickness of the walls is 0.7 cm, the bottom part up to 1.3 cm. The vessel is undecorated, oval, 30 m x 34 cm at the rim in horizontal cross section, and 25 cm high.

The rim of the second vessel is round and 1 cm wide. The thickness of the walls is 0.8 cm to 1 cm, the bottom 0.7 cm. The outer surface, except the bottom, is decorated by oblique (sloping out) cord impression (Fig. 19:3). The vessel has an oval horizontal cross section 28 cm x 30 cm at the rim and 24 cm high.

Sherds of this vessel are brown in the break and on the surface.

The third vessel has a flattened rim 0.6 cm thick with round edges. The thickness of the walls is 0.6 cm to 1 cm, the bottom 2.5 cm to 3 cm. The color of the shards in the break is dark gray, on the surface brown. In two-sided fragments are holes, bored in the fired clay. The vessel is not decorated.

The fourth vessel has a flattened rim 0.7 cm thick. Thickness of the walls is 0.8 cm, the bottom 1.2 cm. The color of the sherds in the break and on the surface is dark brown. On one flake are five lines (Fig. 19:2).

A fragment of the fifth vessel is decorated by two rows of oblique strokes. Its thickness is 0.8 cm. The color of the sherd in the break and on the surface is brown (Fig. 19:5).

A fragment of the sixth vessel is decorated by oblique (sloping out) cord impression. Its thickness is 0.7 cm. The color of the sherd in the break is dark gray, the surface brown (Fig. 19:4).

Fragments of three vessels are decorated with rectangular-dentate impressions (2 teeth). The decoration is zonal (6 rows) at the rim. The impression was applied at an angle of 30° (sloping out) to the surface of the vessel. The rim of the first vessel is flattened, 0.9 cm wide, and with inner projection. The thickness of the walls is 0.8 cm (Fig. 20:1). The rim of the second vessel is somewhat thicker—1.1 cm. The thickness of the walls is 0.8 cm to 1 cm (Fig. 20:2). The third vessel, represented by one fragment, is decorated by a larger impression. The thickness of the walls is 0.7 cm (Fig. 20:3). The color of the sherds of these vessels is dark gray in the break, on the surface light brown.

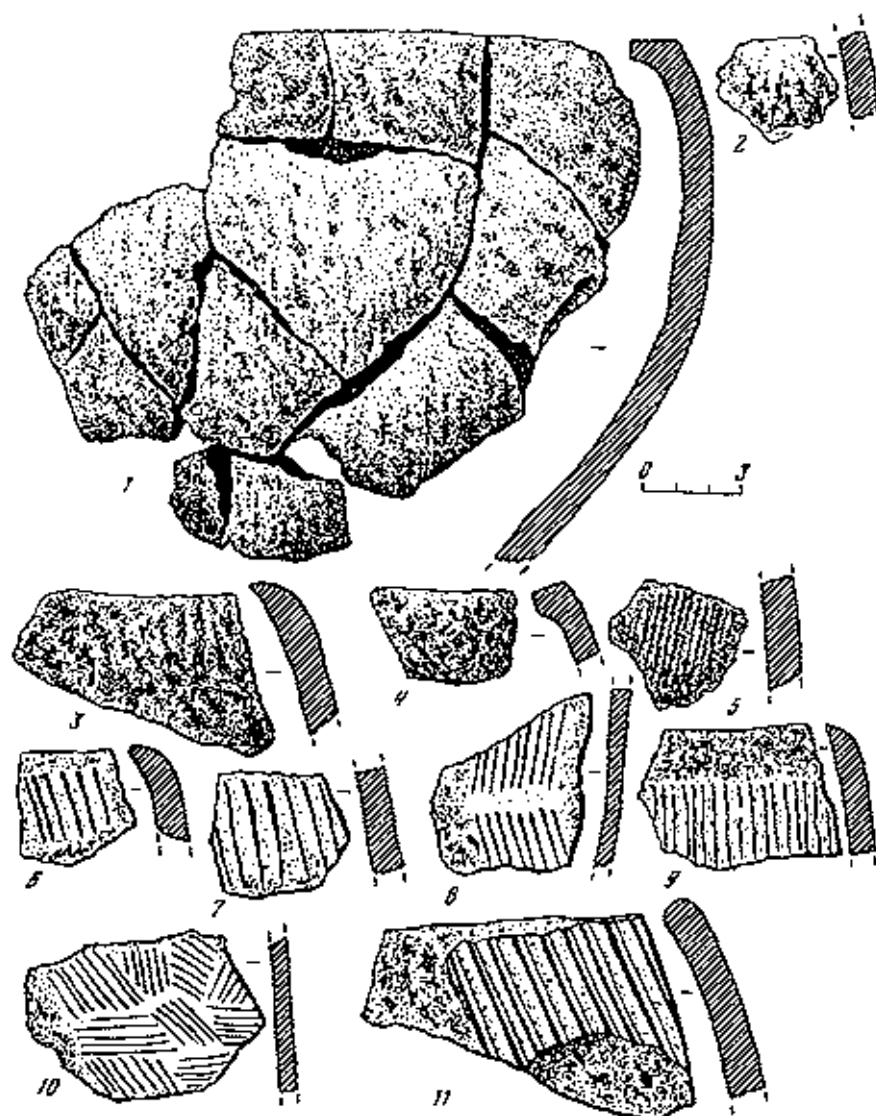


Figure 19. Fragments of ceramics with decoration. 1 - Orianda I-1, Layer I; 2-5, 9 - Opukha I, Dwelling 2; 6 - Anna II, Dwelling 1; 7, 8, 10 - Opukha I, Dwelling 3; 11 - Yankinen, surface.

In Quads 3c-4c, 2c-2d-3c-3d, 2f, and 3e-4d-4e in the semisubterranean dwelling were four hearths. They were indicated by a ring constructed of river cobbles and charcoal 0.15 cm to 0.2 m thick. The diameters of the hearths are correspondingly 0.85 m, 0.4 m, 0.6 m, and 0.8 m.

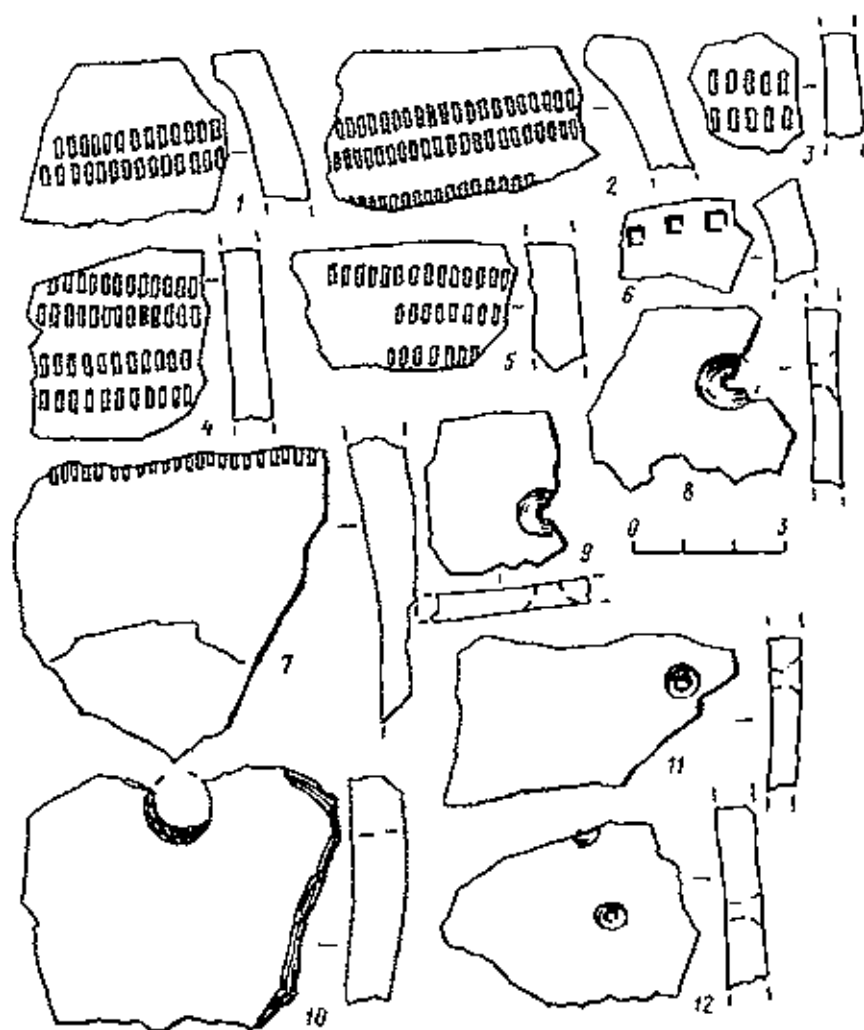


Figure 20. Fragments of ceramics. 1-4, 7-9 - Opukha I, Dwelling 2;
6, 10 - Yankinen, surface; 5, 11, 12 - Opukha I, Dwelling 3.

The finds were concentrated in the central and eastern parts of the dwelling.

A cluster of flakes and a stone anvil with traces of blows in Quads 2c-3c indicates that they made stone tools here (Fig. 21).

In Quads 3c, 3e, and 4d three large whale vertebrae were found, and in Quad 3b a skull.

Flat slabs in Quads 3d-4d, judging by the sooty lower surface, were used as covers for hearths.

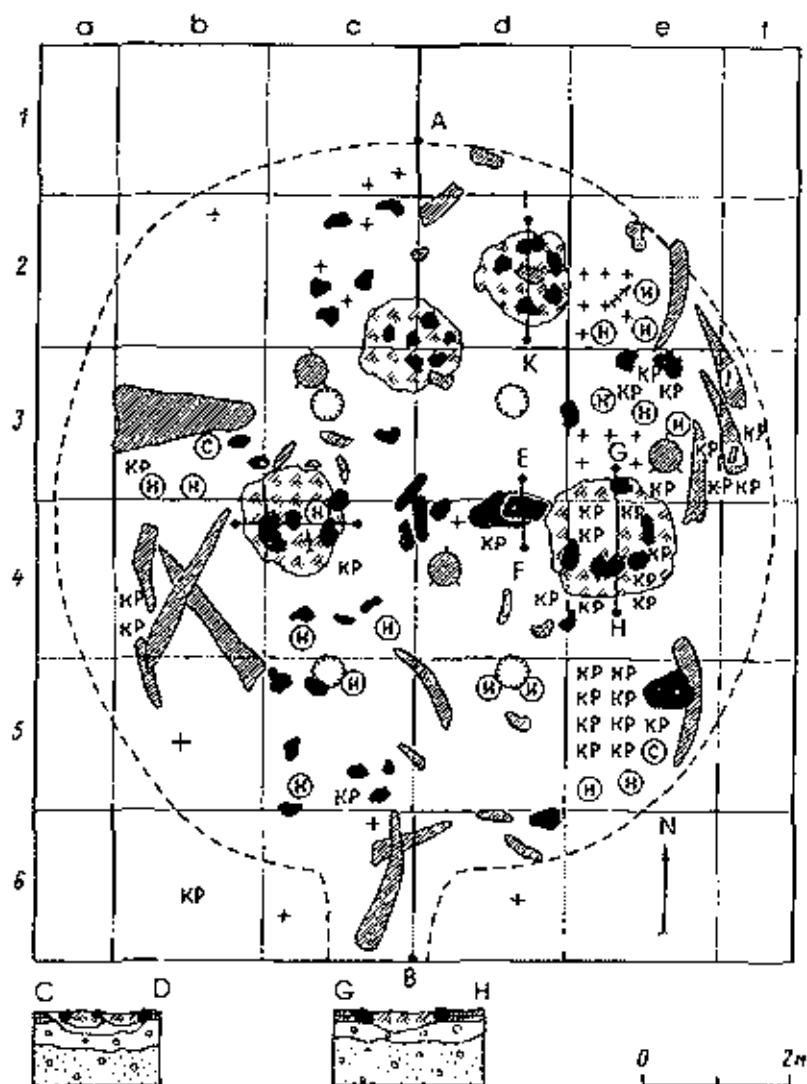


Figure 21. Plan of Dwelling 2 of Opukha I site and profile of hearths. The legend is the same as Figure 12.

Clay vessels were preserved in the eastern part of the dwelling where almost all the fragments of vessels were found. Stones found here probably served as supports for round-bottomed vessels (Fig. 37).

The lower jaws and rib of a gray whale in Quads 2e, 3e-3f, 4b, and 6c, covering the cultural layer, were construction components of the walls and roof of the dwelling. On the lower surface of the halves of Jaws I and II in Quads 3e-3f schematic incised illustrations were noted.

On Jaw I are two illustrations, one of an animal (Fig. 22:2), the other difficult to determine (Fig. 22:1). On Jaw II is the representation of a bird's foot, probably a raven, and in the same place (30 cm lower) an illustration of a toadstool (Fig. 22:3, 4).

Faunal remains in the dwelling were represented by a predominance of gray whale bones. The bones of pinnipeds (walrus and two kinds of seals [*tiulen'* and *nerpa*]), small land animals, birds, and mollusk shells were also encountered.

The tunnel-like entryway of the dwelling was oriented to the south at an angle of 10° to the shoreline of the sea.

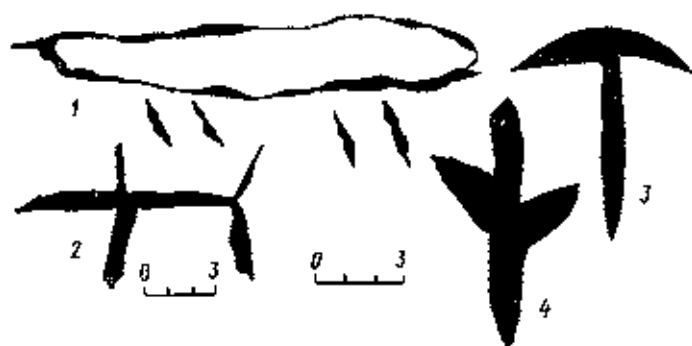


Figure 22. Drawings on lower jaws of whales. Opukha I, Dwelling 2.

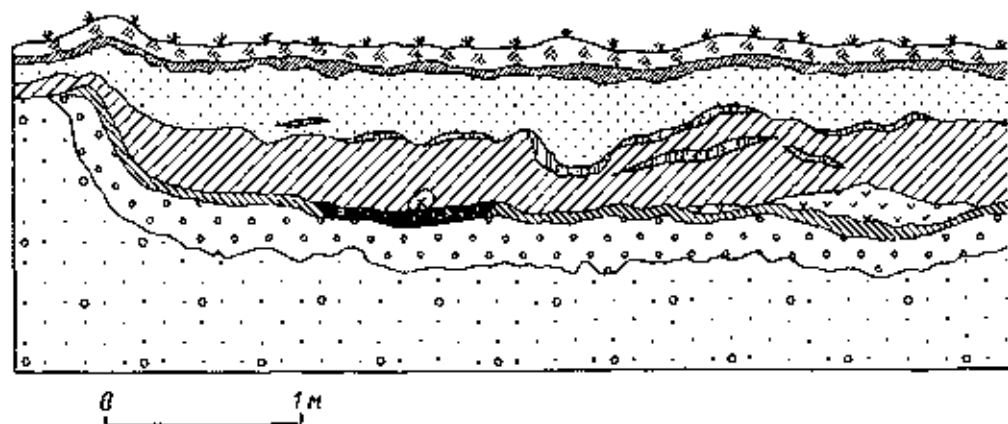
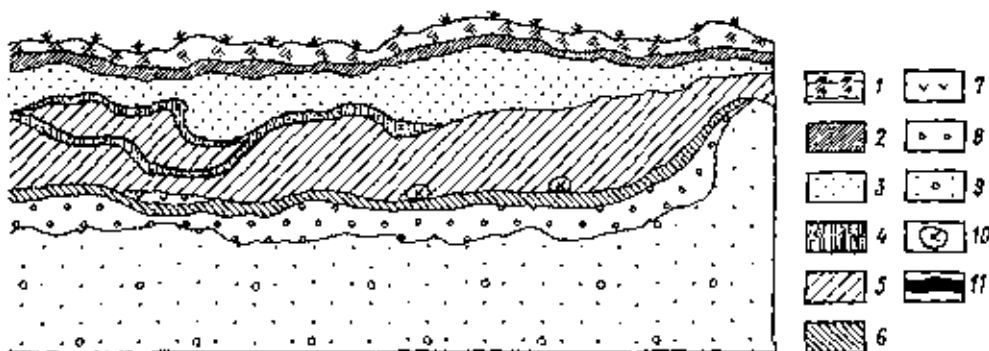


Figure 23. Profile along line AB of Dwelling 3, Opukha I site. 1 - sod; 2 - humus; 3 - gray sand; 4 - strata of yellow sand; 5 - light-brown sandy loam; 6 - cultural layer, dark-gray sandy loam; 7 - mollusk shells; 8 - small pebbles; 9 - gray sand with pebbles; 10 - stone; 11 - charcoal.

Dwelling 3. Some 100 m east of Dwelling 2, single-room semisubterranean Dwelling 3 was investigated. It was indicated by a shallow (0.15 m) depression with edges elevated to 0.1 m and overgrown by grass. The room, a 7 m x 8 m oval, had been dug to 0.65 m and earlier had a lateral tunnel-like entryway. A cultural layer 0.1 m to 0.15 m thick was found here at a depth of 0.7 m to 0.9 m. In the profile of the room along line A—B the following stratigraphy was recorded (Fig. 23): 1 - sod layer 0.08 m to 0.1 m; 2 - humic layer 0.05 m to 0.08 m; 3 - gray sand 0.1 m to 0.4 m; 4 - strata of yellow sand 0.03 m to 0.08 m; 5 - light-brown sandy loam - 0.15 m to 0.4 with inclusions of yellow sand 0.05 m to 0.08 m; 6 - cultural layer, dark-gray sandy loam 0.08 m to 0.15 m with charcoal of a hearth 0.1 m to 0.5 m (7) and inclusions of mollusk shells 0.05 m to 0.25 m (8); 9 - small pebbles 0.15 m to 0.25 m; 10 - gray sand with pebbles 0.9 m to 1.3 m; below this, gravels.

On the whole the stratigraphies of Dwellings 2 and 3 (with the exception of the structure of the cultural layer) are almost identical.

In the complex of stone tools of Dwelling 3 knives predominate in number (N=16). They all have a single working edge and were made on flat flakes and blades. There are subtriangular knives with a straight working edge (N=2). There are knives with an oval-convex working edge and leaf-shaped form (N=2), as well as on amorphous flakes (N=2). The working edges of these knives were made by fine pressure retouch on one side. The straight working edge of one knife of an irregular rectangular form was made by bifacial retouch. Bifacially ground knives were made on slate slabs (N=9). They have a straight working edge (N=3 fragments) and oval-convex working edge with irregular rectangular form (N=2 and 4 fragments) (Fig. 24:1, 4).



Tools for working skins are represented by scrapers (N=2), skreblos (N=2), and a polisher. Side scrapers are oval, unifacially convex on a cobble spall with partially preserved cobble cortex on the back (Fig. 24:5), and on a flake (Fig. 24:2). Their surface was formed by the removal of several spalls, and the opposite oval-convex working edges were made by bifacial pressure retouch and modified by fine secondary retouch. Side skreblos are on oval cobble spalls of lenticular cross section with cobble cortex preserved on the back. Their oval-convex working edge is unmodified. The polisher is on a flattened suboval unworked cobble (Fig. 24:6). Its edges are polished by extensive use.

A combination knife-spokeshave-burin on a flat amorphous flake was found. Its two opposite straight working edges were made by fine bifacial pressure retouch (Fig. 24:3).

Tools for working wood and bone are represented by an adze and burins. The adze has a trapezoidal form and lenticular cross section. Its surface was formed by percussion flaking, and the edges modified by fine pressure retouch on two sides (Fig. 24:7). Single-faceted lateral burins were made on amorphous flakes (N=3) (Fig. 24:8).

The hunting-fishing inventory is represented by an arrow point and sinkers. This is a fragment of a leaf-shaped arrow point of lenticular cross section. Its surface was formed by flattening retouch, and the edges modified by fine pressure retouch on two sides. Four sinkers for nets on flattened-oval cobbles with two lateral grooves were found (Fig. 13:8).

In the cultural layer seven slate flakes were found. Consequently, as in Dwellings 1 and 2, tools were generally made outside Dwelling 3.

The complex of stone tools of this dwelling consists of an even smaller number of objects than the complex of Dwelling 2, but it is more diverse. Tools of nine categories were primarily made on flakes (N=13), blades (N=9), cobbles (N=5), and cobble spalls (N=4). The technique of secondary working is most similar to the complex of Dwelling 2. Edge working is unifacial (N=9), bifacial (N=4), complete bifacial retouch (N=2), and unworked (N=3). The difference is the presence of sinkers. Common for the three complexes of the dwellings are types of blanks and types of tools. All this speaks of common traditions of the stone industry and common cultural association.

The complex of bone tools in Dwelling 3 is close (quantitatively and qualitatively) to the complex of Dwelling 1 (first layer). A total of 11 artifacts were encountered here. These are mattocks of walrus tusk and bone (Fig. 25:1, 2) (N=1 and 2 fragments). There are two fragments of bone artifacts (Fig. 25:3, 8), a fragment of a rod of walrus bone (Fig. 25:5), a fragment of a retoucher of walrus tusk (Fig. 25:4), a fragment of a walrus tusk with cuts (debris from production) (Fig. 25:7), a fragment of a needle case of swan bone (Fig. 25:9), a fragment of a knife handle of walrus tusk

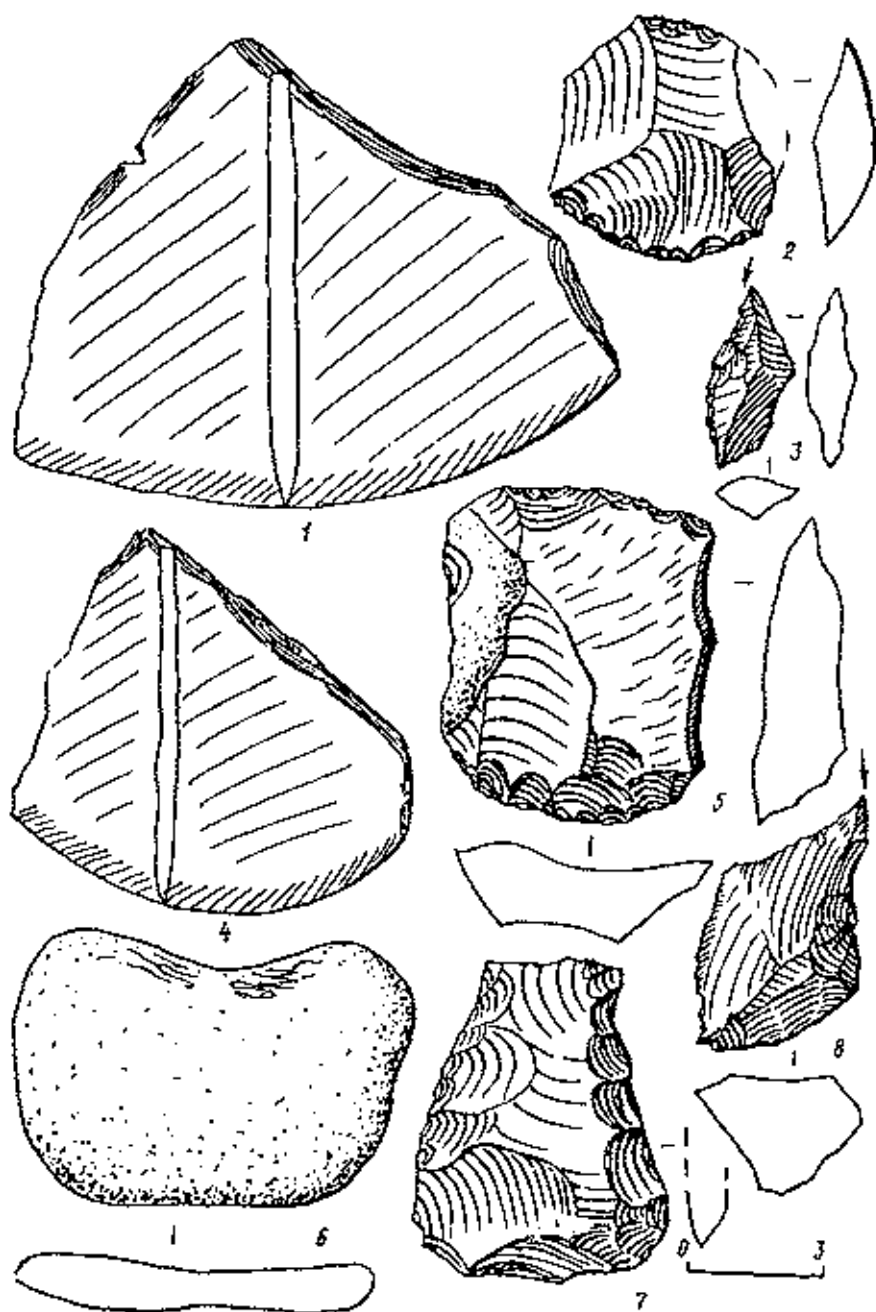


Figure 24. Stone tools of Dwelling 3, Opukha I site.

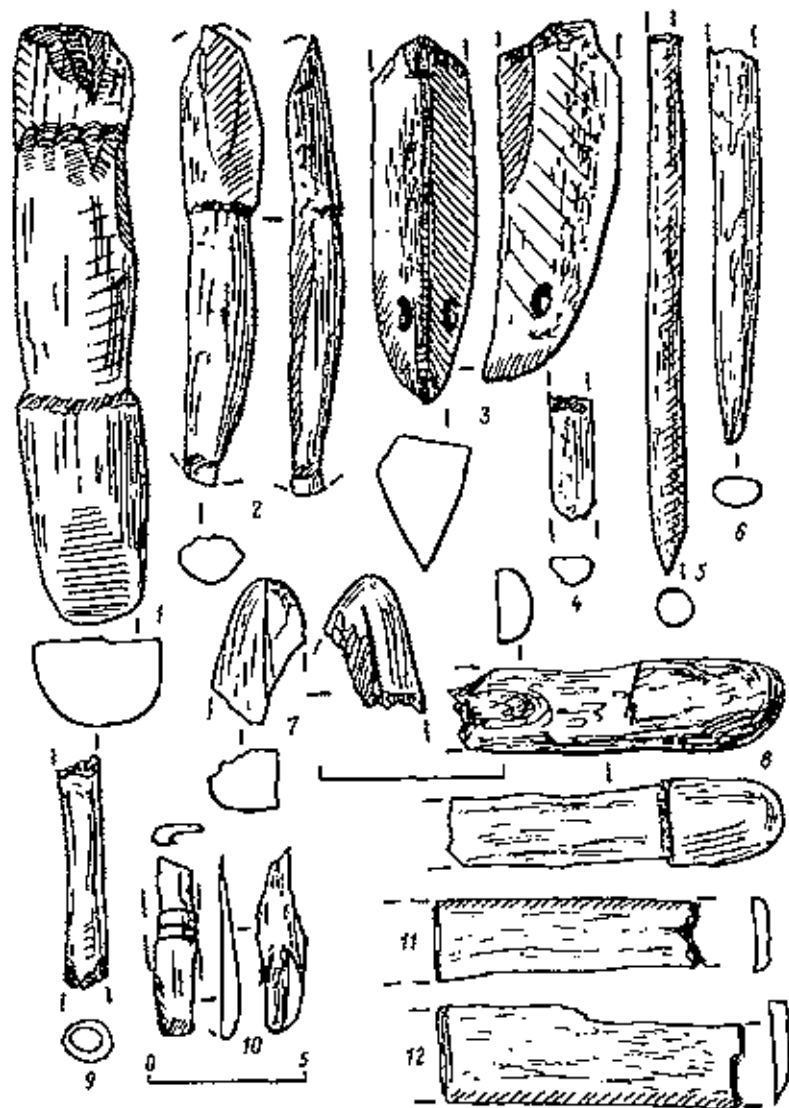


Figure 25. Bone artifacts and tools of Dwelling 3, Opukha 1 site.

decorated with parallel incised lines (Fig. 25:10), and fragments of sled-runner shoes of whale bone (Fig. 25:11, 12).

The primary part of the stone and bone inventory is represented by fragments. These attest to the fact that the dwelling was left under peaceful circumstances.

The ceramics of Dwelling 3 are represented by fragments of seven large vessels. In number and decoration they are closest to the complex of Dwelling 2. All the vessels are modeled, round-bottomed with round body, and well fired. Their outer and

inner surfaces are well smoothed, and in the bottom depressions—finger marks—are preserved. The walls of the vessels are covered with black soot. The bottom fragments are brick colored on the outside. The rims of the vessels slope in. Four vessels are not decorated.

The first vessel has a flattened rim 1 cm thick, with small interior projection. The thickness of the walls is 0.8 cm, the bottom 1 cm. The color of the sherds in the break is black, on the surface dark brown. The vessel has an oval horizontal cross section of 30 cm x 36 cm at the rim, and 26 cm high.

The second vessel has a rounded rim 0.7 cm thick. Its walls are 0.6 cm thick. The color of the sherds in the break is light brown, on the surface dark brown.

The third vessel has a flattened rim 1.5 cm thick, with small inner projection. The thickness of the walls is 1 cm. The color of the sherds in the break is dark gray, on the surface light brown.

The fourth vessel has a flattened rim, with rounded edges, 1.2 cm thick. The thickness of the walls is 0.8 cm. The break and the surface of the sherds are dark brown. Two fragments of this vessel have holes bored after firing.

A fragment of a fifth vessel is decorated by rectangular-dentate impression. The impression was made at an angle of 40° (sloping out). The sherd is 0.9 cm thick, in the break a dark, gray color, and on the, surface light brown.

A fragment of a sixth vessel has a flattened, outwardly rounded rim 0.8 cm thick. The walls are 0.7 cm thick. The sherd in the break and on the surface is brown. The vessel is decorated with external oblique (sloping out) cord impression (Fig. 19:9).

There are two fragments of the thin-walled (0.4 cm) seventh vessel. The sherds are brown in the break and on the surface. The vessel is decorated with disordered strokes (Fig. 19:10).

In Quads 2b-2c-3b-3c, 2c-2d, and 3e of the dwelling were three hearths (Fig. 22). The first hearth, 1 m in diameter, and the third, 0.7 m in diameter, were indicated by a ring constructed of river cobbles and a 0.2 m thick layer of charcoal. The second hearth, 0.8 m in diameter, was indicated by a 0.2 m thick layer of charcoal. Above the hearth lay two large flat slabs that, judging from the sooty under surface, covered the hearth.

In Quad 1b a round cache pit 0.2 m deep and filled with mollusk shells was found. Clusters of mollusk shells were encountered as well on the edge of Quads 2c-3c and 2d-3d (Fig. 26).

The primary part of the ceramics was concentrated in Quads 1d and 3b.

In Quad 1c was a large whale vertebra.

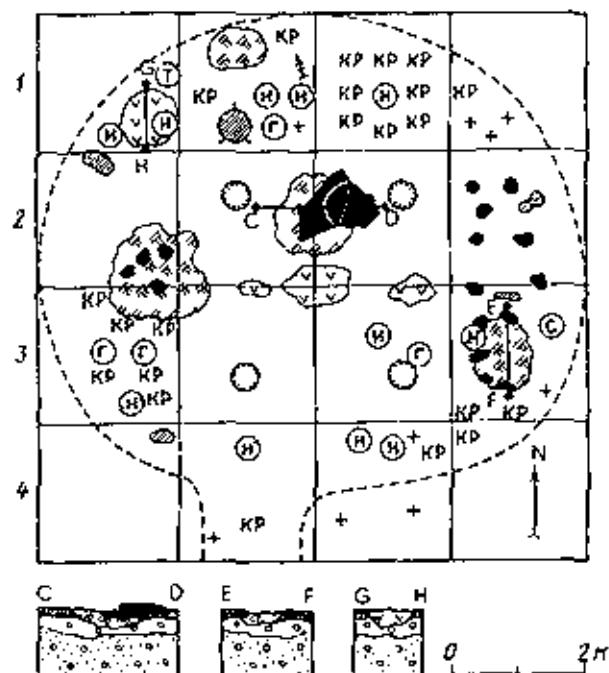


Figure 26.

Plan and profile of hearths of Dwelling 3, Opukha I site. Legend the same as in Figure 12.

In Quads 2c, 2d, 3c, and 3d were round areas 0.25 m to 0.3 m in diameter where the cultural layer was missing. These were traces of support posts for the roof of the dwelling. They were situated at the corners of a 2 m x 2.5 m rectangle.

The faunal remains in the cultural layer were represented by bones of whale and pinniped (walrus and two kinds

of seals [*tiulen* and *nerpa*]) and mollusk shells. These remains were significantly fewer than in Dwellings 1 and 2.

Shrines. Three shrines were also investigated at this site. The primary, large Shrine 1 was located in the center of the early site (Fig. 27). On the surface it was indicated by a 5 m x 7 m oval ritual area covered by luxuriant grassy vegetation. Approximately in the center of this area half of a lower jaw of a gray whale was set in the ground leaning toward the sea. Earlier it had been 2 m to 2.5 m high, according to the information of informant I. Uvaugin. In the course of time it deteriorated (1.5 m), and at the side lay fragments of this jaw 1 m to 2 m long. The plane of the bone was oriented vertically. On the surface of the ritual area and around the shrine walrus skulls were arrayed in disorder.

The stratigraphy of the shrine along line A—B appears in the following way: 1 - sod layer with bones, the remains of wood, and bone points of arrows, darts, bird spears, and fish spears 0.05 m to 0.1 m; 2 - brown sandy loam with rubble, containing the remains of wooden artifacts, wood, bone, and bone and stone artifacts 0.35 m to 0.45 m; 3 - below this is gray sand with pebbles.

Faunal remains are represented by whale bones, as well as the skulls and bones, predominantly of the extremities, of walrus, two kinds of seals [*tiulen* and *nerpa*], sea lion, bear, wolverine, deer, fox, arctic fox, dog, ground squirrel, and birds. The skulls, as a rule, were broken through on the right side.



Figure 27. Shrine 1, Opukha 1.

In the cavity of the installed whale's jaw, 22 bone arrow points of walrus tusk were found. These are predominantly socketed points, as well as having both a wedge-shaped base and a conical stem. Two arrow points of walrus tusk with the remains of a shaft were placed here not long ago (1920s to 1940s), judging by the color and preservation.

Here in the cavity of a jaw were the remains of arrow shafts, wooden ritual arrows, and beads of glass, porcelain and porphyrite, as well as seed beads.

On the surface of the shrine were three arrow points of walrus tusk ($N=2$) and of the frontal part of a walrus skull. Two of them are socketed, and one with a flattened, wedge-shaped base. In this same place were a wooden ritual arrow and a fragment of a similar arrow, and at the base of the spit on the shore of the lagoon three ritual wooden darts (Fig. 8:12, 14).

In the cultural layer of brown sandy loam with rubble, at a depth of 0.15 m to 0.45 m, 220 bone points of various forms were found in the vicinity of the ritual area during the investigation. These are points of arrows and darts of walrus tusk and bone of the frontal part of walrus skulls and two points made of deer antler. The finds were concentrated primarily in the western part of the ritual area.

Changes in appearance of bone points from the lower horizon of the deposit at 0.45 m to the upper at 0.15 m are not observable. The same types of points are represented that were found in the cavity in the whale's jaw. These are predominantly socketed points (N=141), as well as flattened wedge-shaped (N=43), awl-like (N=14), bifurcate (N=7), and conical (N=8) stems. Also encountered were bone points represented by one or a few specimens.

Of the socketed points 35 (25%) were decorated on the socket with incised linear-geometric decoration.

In this same place, at a depth of 0.3 m, were found a punch of walrus tusk, a button of seal bone, and three fragments of runner shoe of whale bone for a sled.

Also found were nine stone artifacts at a depth of 0.45 m. Among them were six leaf-shaped arrow points of lenticular cross section. Their surface was formed by flattening retouch and the edges modified by fine pressure retouch on two sides. These points have oval-convex (N=3) (Fig. 17:3, 6), straight (N=2) (Fig. 17:4), and concave bases (Fig. 17:5), as well as a knife with single working edge on an amorphous cobble spall. Its oval-convex working edge was formed by percussion flaking and modified by fine pressure retouch on the back. There are also a ground segmented knife on a flat, slate slab with an oval-convex working edge and a side skreble on a unifacially convex spall of suboval form. Its oval-convex working edge was formed by percussion flaking on the back.

The ceramics of the shrine are represented by fragments of a well-fired vessel with a round body. The vessel was modeled from a clay paste with temper of fine-grained sand. The walls are 1 cm thick. The sherd in the break is light brown, on the surface brown. The vessel is not decorated. In one piece a hole had been drilled after firing.

At a depth of 0.15 m eight beads of saphirite, 24 of glass, and one of porcelain were found, as well as glass and porcelain seed beads.

At this same depth were 10 badly preserved fragments of wooden ritual arrows analogous to those found in the cavity of the whale's jaw.

North and east of the whale's jaw that had been set up at the shrine were two areas of about 2 m diameter each with six carbonaceous strata. Their stratigraphy is as follows: 1 - sod layer 0.1 m; first carbonaceous stratum 0.03 m; 2 - brown sandy loam with rubble 0.03 m; 3 - second carbonaceous stratum 0.03 m; 4 - brown sandy loam with rubble 0.03 m; 5 - third carbonaceous stratum 0.03 m; 6 - brown sandy loam with rubble 0.03 m; 7 - fourth carbonaceous stratum 0.035 m; 8 - brown sandy loam 0.03 m; 9 - fifth carbonaceous stratum 0.035 m; 10 - brown sandy loam 0.04 m; 11 - sixth carbonaceous stratum 0.04 m; 12 - below this is gray sand with pebbles.

The depth of the deposit of the sixth carbonaceous stratum (0.44 m) corresponds to the lower level of the deposit of the finds at the shrine. The centers of the ritual fires, with only minimal deviation, coincide in all six strata. This attests to a stable tradition, probably in accordance with a ritual. Strata of sandy loam between the carbonaceous strata indicates the existence of a definite chronological break in the practice of the ritual.

The stone inventory of the shrine (types of blanks, secondary working, types of tools) is closest to the complexes of Dwellings 2 and 3. The presence of the characteristic socketed points in the complex of Dwellings 1a and 2 confirms the unified cultural association of the shrine and the dwellings. The stratigraphy permits drawing conclusions about the simultaneous first use of the shrine and Dwellings 2 and 3.

On a terrace at the base of the spit were two more shrines, Shrines 2 and 3. They were indicated by a disordered cluster of walrus skulls. In front of Shrine 3 could be traced a carbonaceous stain 1.5 m in diameter, and evidence of a large bone was preserved that had been inset here earlier. The areas of both shrines were badly damaged. Judging by the insignificant number of walrus skulls and dimensions of the ritual areas (1.5 m x 1.5 m), these shrines are of later origin than Shrine 1.

Burial. Near the site at the foot of the hill at the base of the spit a solitary burial was investigated. It was located between two stones as tall as a man. According to information from the informant I. Uvaugin here in the 1930s to 1940s Upynit, the chief of the village, was buried.

On the surface, the burial was indicated by a 1.8 m x 0.8 m oval and a 0.2 m high structure of flat stones that covered the 0.3 m deep oval funeral pit, according to the dimensions of the body—1.6 m x 0.6 m. The body position was extended, supine, with arms extended and pressed to the sides, and head oriented to the east.

The remains of fur clothing were preserved. The burial inventory consisted of the personal items of the deceased. Attracting the most attention were a wooden staff 1.1 m long placed on the right of the body and a wooden handle 0.25 m long, to which amulets were attached, placed on the left of the body, at the head. Next to the burial were the scattered remains of a sled. The skull from the burial was found 2 m west of the burial.

On the surface 50 m west of the burial were fragments of another skull, but the burial to which it belonged was not located.

Around the burial and along the whole terrace, as far as the edge, we noted "tracks" stamped into the sod. They are strikingly reminiscent of a chain of human tracks.

At the base of the spit, at the edge of the terrace, a "burial" of walrus skulls with tusks (N=50) was found. We provisionally called it a "hoard." The skulls were

placed at depths of 0.3 m to 0.5 m, the tusks down, in an area 25 m square. No artifacts were found around the skulls. Evidently, this did not reflect a definite ritual. This was possibly done for "preserving" the tusks (in order to avoid rapid drying and splitting). And it is possible that this is really a hoard, where skulls with tusks were hidden from outsiders.

Opukha II site. The western site was located on the spit to the right of the neck of Opukha Lagoon. It consists of the remains of 10 dwellings (Opukha II). The height of the spit in the vicinity of the site is 3 m to 4 m and is 500 m to 600 m wide. The remains of the dwellings were situated in a single line parallel to the shoreline of the lagoon.

A coastal, denuded area 800 m west of the neck of the lagoon was inspected. This area contained the remains of two cultural layers separated by a sterile layer of dark-brown sandy loam with gravel 0.2 m to 0.25 m thick. The depth of the deposit of the first cultural layer was 0.6 m to 1.2 m, the second cultural layer 1.1 m to 1.4 m. Here the following stratigraphy was noted (Fig. 28.2): 1 - sod layer 0.08 m to 0.1 m; 2 - brown sandy loam with gravel 0.7 m to 1.1 m with inclusions of dark-brown sandy loam 0.1 m to 0.2 m (3); 3 - the first cultural layer, dark-brown sandy loam with charcoal 0.05 m to 0.08 m; 4 - dark-brown sandy loam with gravel 0.2 m to 0.25 m; 5 - second cultural layer, dark-gray sandy loam with charcoal 0.05 m to 0.12 m; 6 - dark-brown sandy loam with gravel 0.7 m to 1 m; below this, gravel with brown sand.

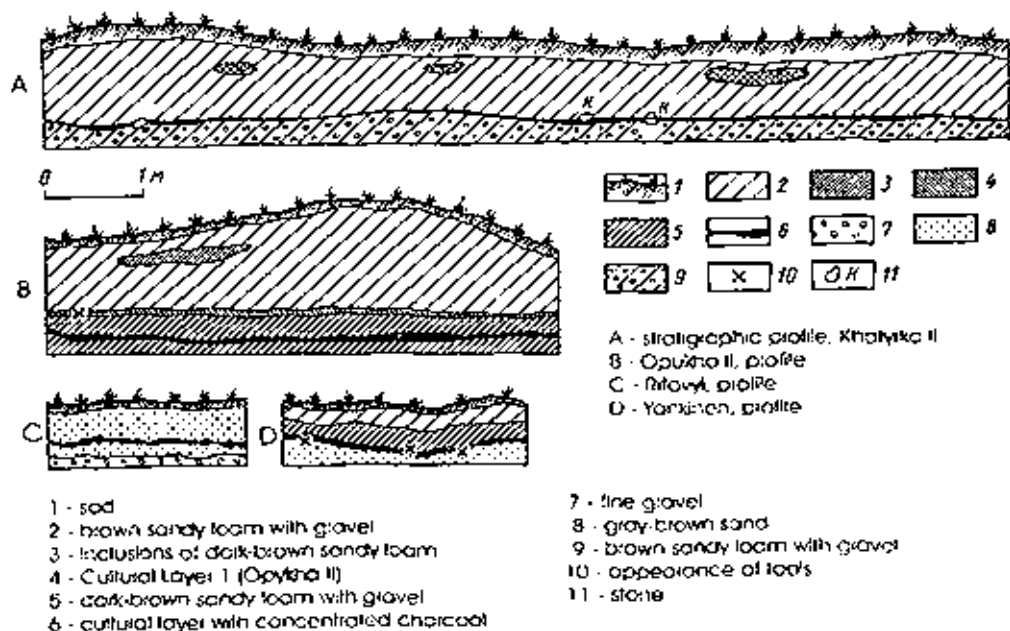


Figure 28. Stratigraphy of denuded area.

In the first cultural layer at a depth of 0.8 m a suboval end skreblo with an expanded working edge was found. It was made on a flat cobble spall with cobble cortex preserved on the back. The edges of the skreblo were formed by percussion flaking, and the working edge was ground and polished from extended use (Fig. 13:1).

Some 200 m to the east, another section of a 5 m denuded area was inspected. Here also two cultural layers were found, but the depth of their deposition was less. The following stratigraphy was noted in this exposure, on the whole analogous to the stratigraphy of the above-described exposure: 1 - sod layer 0.08 m to 0.1 m; 2 - brown sandy loam with gravel 0.35 m to 0.4 m; 3 - first cultural layer, dark-brown sandy loam with charcoal 0.03 m to 0.05 m; 4 - brown sandy loam with gravel 0.2 m to 0.25 m; 5 - second cultural layer, dark-gray sandy loam with charcoal 0.04 m to 0.07 m; 6 - dark-brown sandy loam with gravel 0.5 m to 0.8 m; below this, gravel with brown sand. In the first cultural layer five bone artifacts were found while profiling at a depth of 0.45 m. These are two whale bone elements from a dog-sled harness (Fig. 29:1, 3), a fragment of a sled-runner shoe of whale bone (Fig. 29:5), a blank of a point of walrus tusk (Fig. 29:2), and a bone point on a thin slab (Fig. 29:4).

The cultural layers of the first and second exposures are probably the remains of living areas of surface dwellings, possibly tent-like. The stratigraphy permits correlating them (in time) with the complexes of Dwellings 2 and 3 of the Opukha I site.

In the center of the Opukha II site was a shrine. It was indicated by a disordered cluster of walrus skulls. The oval 2 m x 3 m ritual area was covered by luxuriant grassy vegetation. The integrity of the shrine had been partially destroyed. In the center of the area a depression was preserved, marking the location of the large bone, which had been set into the ground earlier.

The following stratigraphy was recorded along line A—B in the profile of the shrine: 1 - sod layer with the remains of bone, woody materials, and containing bone points 0.1 m

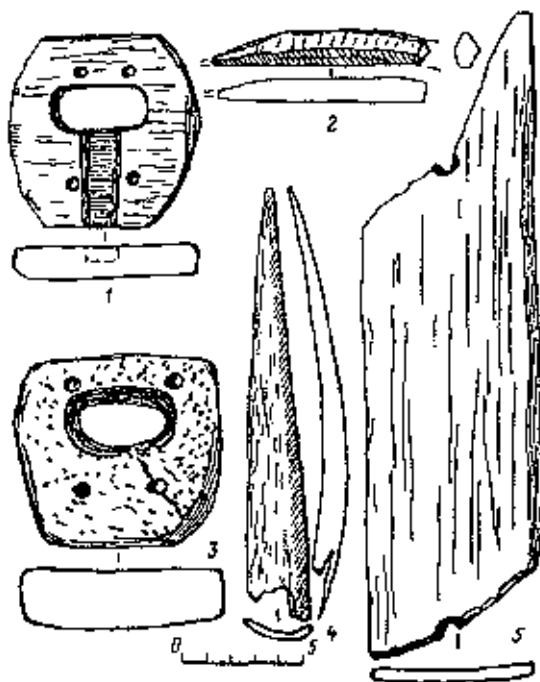


Figure 29. Bone artifacts.
Opukha II, denuded area, Layer I.

to 0.15 m; 2 - brown sandy loam with the remains of bone, containing bone points 0.25 m to 0.3 m; 3 - brown sandy loam with gravel 0.5 m to 0.8 m without cultural material. The faunal remains of this shrine are analogous to those of Shrine 1 of the Opukha I site.

With the investigation of the shrine, at a depth of 0.2 m to 0.4 m, 98 bone arrow points varying in form and made of walrus tusk and bone from the forehead part of the walrus skull were found. These points had socketed (N=47), wedge-shaped (N=22), awl-like (N=23), and bifurcate (N=1) bases, as well as with conical stem (N=5). There were points of these same types in Shrine 1 of the Opukha I site. This indicates that they were associated with the same culture.

The smaller dimensions of the cultural area, stratigraphy, and a smaller number of points permit the supposition that the time of the origin of the shrine of the Opukha II site was later than Shrine 1 of the Opukha I site. However, the chronological break was probably not great.

Ten points (21%) were decorated on the socket with linear-geometric designs.

Opukha III site. On the shore of a lake 35 km up the Opukha River from the mouth, the remains of five dwellings were found. This was a seasonal, summer site connected with fishing (according to information from informants). Single-room dwellings of semisubterranean type were indicated on the surface by depressions of 0.5 m measuring 6 m to 8 m in diameter with berms rising to 0.4 m and overgrown with grass. In one of the late dwellings were two wooden scoops (Fig. 30).

The channel joining Lake Kyplen with the river is partitioned by a bow-shaped dam consisting of stone and sod. The dam is curved at the side of the river.

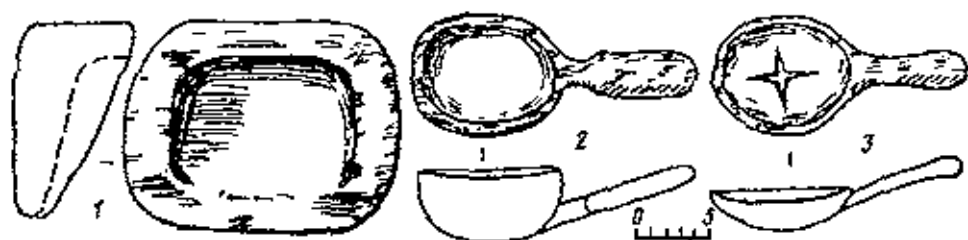


Figure 30. Wooden artifacts. 1 - lamp support; 2, 3 - scoops.

Anna Lagoon

Anna Lagoon is located 10 km north of Opukha Lagoon. It is small, separated on the south from the sea by a wave-constructed spit of sand and gravel 3 km long (Fig. 31). On the north, east, and west the lagoon is surrounded by hills with steep slopes. In the vicinity of the lagoon two early sites were examined.

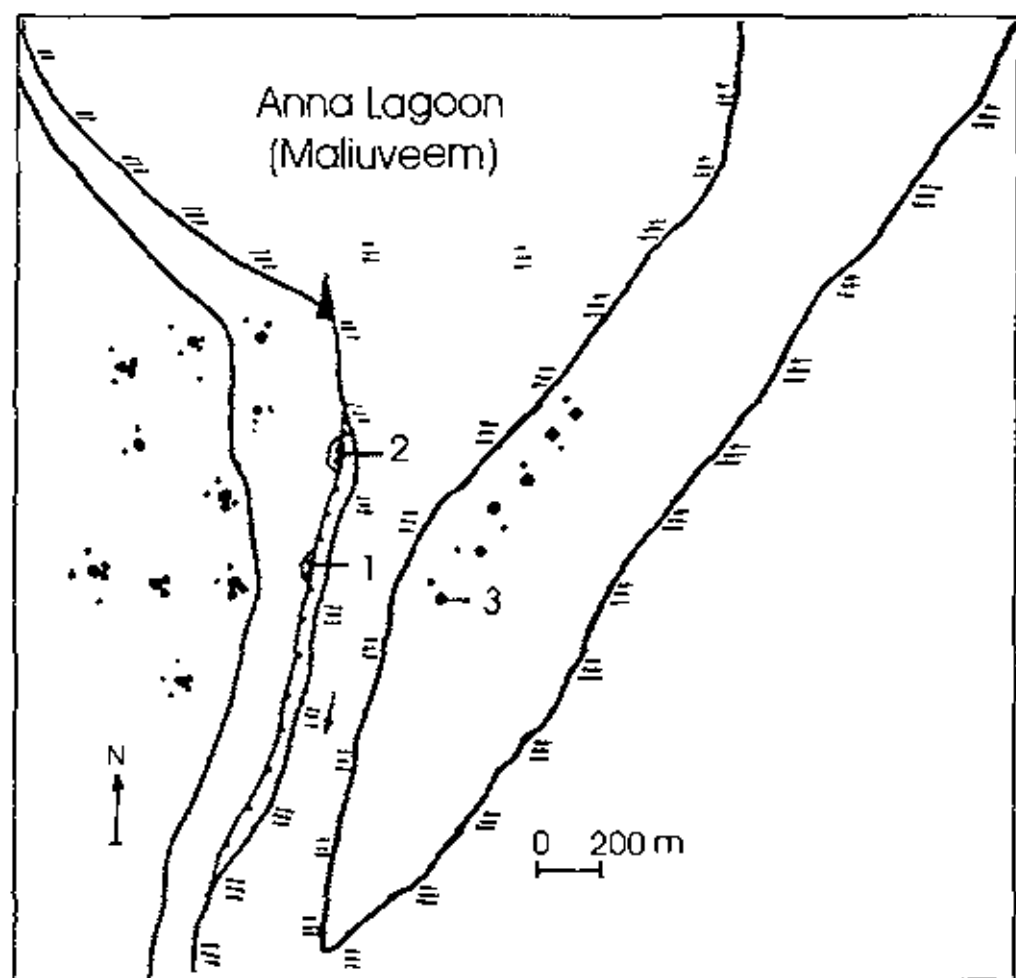


Figure 31. Map of sites on the shore of Anna Lagoon: 1. Fortified Dwelling I; 2. Fortified Dwelling II; 3. Anna II site dwellings.

Anna I site. The first site, consisting of the remains of 10 dwellings, is located on the spit on the left, 800 m from the neck of the lagoon (Anna I). The remains of the dwellings are situated in a line parallel to the shoreline of the lagoon. The height of the spit in the vicinity of the site is 1.5 m to 2 m and 300 m wide. The entryways of the dwellings are oriented to the south at an angle of 40° to the shoreline. On the site are single-room and multi-room, semisubterranean dwellings 6 m to 10 m in diameter with lateral tunnel-like entryway. On the surface the dwellings were indicated by 0.3 m to 0.6 m depressions with berms elevated 0.3 m to 0.5 m and overgrown by grass.

A 2 m x 2 m test excavation was placed in Dwelling 1, the first and closest to the neck of the lagoon. At a depth of 0.5 m in the test excavation a cultural layer was found. The following stratigraphy was noted on the northern wall of the test: 1 - sod layer 0.07 m to 0.1 m; 2 - brown sandy loam with gravel 0.4 m to 0.45 m; 3 - cultural layer, dark-brown sandy loam with charcoal 0.05 m to 0.07 m; 4 - small gravel 0.15 m to 0.2 m; below this, gravel with gray sand.

The dwelling is round and 8 m in diameter. Its depression was 0.6 m and the berm, overgrown with grass, elevated 0.4 m.

In the cultural layer, in the test excavation, part of a hearth was found. It was indicated by a ring constructed of river cobbles and a 0.1 m thickness of charcoal. Beside the hearth was a side scraper on a flat oval flake. Its oval-convex working edge was formed by retouch on the back. A slate flake was also found here.

Anna II site. The primary part of the site is located on the right of Anna Lagoon neck, on the top of the basal terrace at the foot of a hill. It contains the remains of 25 dwellings (Anna II). Judging by the layout of the remains, three-room semisubterranean dwellings with lateral tunnel-like entryways predominate. The remains of the dwellings are situated in two lines parallel to the shorelines of the sea and the lagoon.

One kilometer from the neck of the lagoon at the edge of the terrace are two fortified dwellings (dwelling-forts). Their western part was preserved, the eastern eroded away. Each fortified dwelling is composed of two round 8 m to 10 m diameter rooms. They were joined by a tunnel-like passage. The dwellings are enclosed by an earthen berm 2 m wide and 1.5 m to 2 m high. The depth of the depressions of the dwellings is 0.5 m. Their borders, elevated to 0.4 m, and the berm are covered with dense grassy vegetation.

At the foot of the terrace, in the slump of the cultural layer of Fortified Dwelling 1 several (N=14) objects were collected. Among them were knives with a single oval-convex working edge on slate slabs, as well as coarsely ground, suboval knives with the working edge retouched on two sides (N=2). There were also well-ground knives of semilunar (N=4 and 1 fragment), suboval, and trapezoidal form.

A combination knife-scraper was made on a segmented cobble spall of lenticular cross section. On the back it partially preserves the cobble cortex. The oval-convex working edge of the scraper was formed by bifacial percussion flaking and was polished from extended use. The straight working edge of the knife was formed by pressure retouch on the back.

Side skreblos were made on cobble spalls of sub-lenticular cross section. Their oval-convex working edges were formed by percussion flaking on the back. Segmented skreblos were found ($N=2$) (Fig. 32:5), as was a triangular skreblo with two opposite edges retouched on the back (Fig. 32:4) and an oval skreblo, uniaxially convex without modification.

The oval-convex working edge of an end scraper on a flat, suboval flake was made by fine pressure retouch on two sides. The rounded working edge of a uniaxially convex discoid scraper was made by percussion flaking and modified by fine pressure retouch on two sides (Fig. 32:7).

A fragment of a lamp made of silicified sandstone has a rounded projection containing a conical pit for fastening (Fig. 33:7).

All these objects are assigned to the cultural layer of Fortified Dwelling 1, the remains of the northern room of which were examined (Fig. 34). In this room the cultural layer was found at a depth of 0.6 m to 0.85 m. In the profile of the room along line A—B the following stratigraphy was noted: 1 - sod layer 0.08 m to 0.1 m; 2 - humic layer 0.1 m to 0.2 m; 3 - brown sandy loam with gravel 0.4 m to 0.8 m; 4 - light-brown sandy loam 0.1 m to 0.2 m; 5 - cultural layer, dark-brown sandy loam with charcoal 0.1 m to 0.2 m; 6 - dark-brown sandy loam with gravel 0.3 m to 0.4 m; 7 - small gravel with brown sand 0.8 m to 1.4 m; 8 - bedrock base.

With the profiling of the exposure of the cultural layer of the room, the following were found: a spoon of walrus tusk with a decoration of two concentric circles on the handle (Fig. 35:2) and a net float of porous whale bone with a hole (Fig. 35:4).

Among the stone tools found in the cultural layer the largest category is knives ($N=21$). There are retouched knives on flakes. Knives are on flat amorphous flakes ($N=3$) and leaf-shaped flakes ($N=1$). Their straight working edge was formed by pressure retouch on the back. There are also suboval knives with double working edge, lenticular in cross section ($N=1$ and 1 fragment). Their surface was formed by percussion flaking, and the oval-convex working edge was modified by pressure retouch on two sides. Also represented are ground knives on slate slabs. These are knives with a single working edge with a coarsely ground surface and slightly convex working edge, worked by fine pressure retouch on two sides. The end of these knives is rounded ($N=3$). There are knives with well-ground surface and oval-convex working edge. They are of semilunar ($N=3$ and 1 fragment), subtriangular and subtrapezoidal (1 specimen each) form, as well as with two working edges lying side by side ($N=1$) and of pentagonal

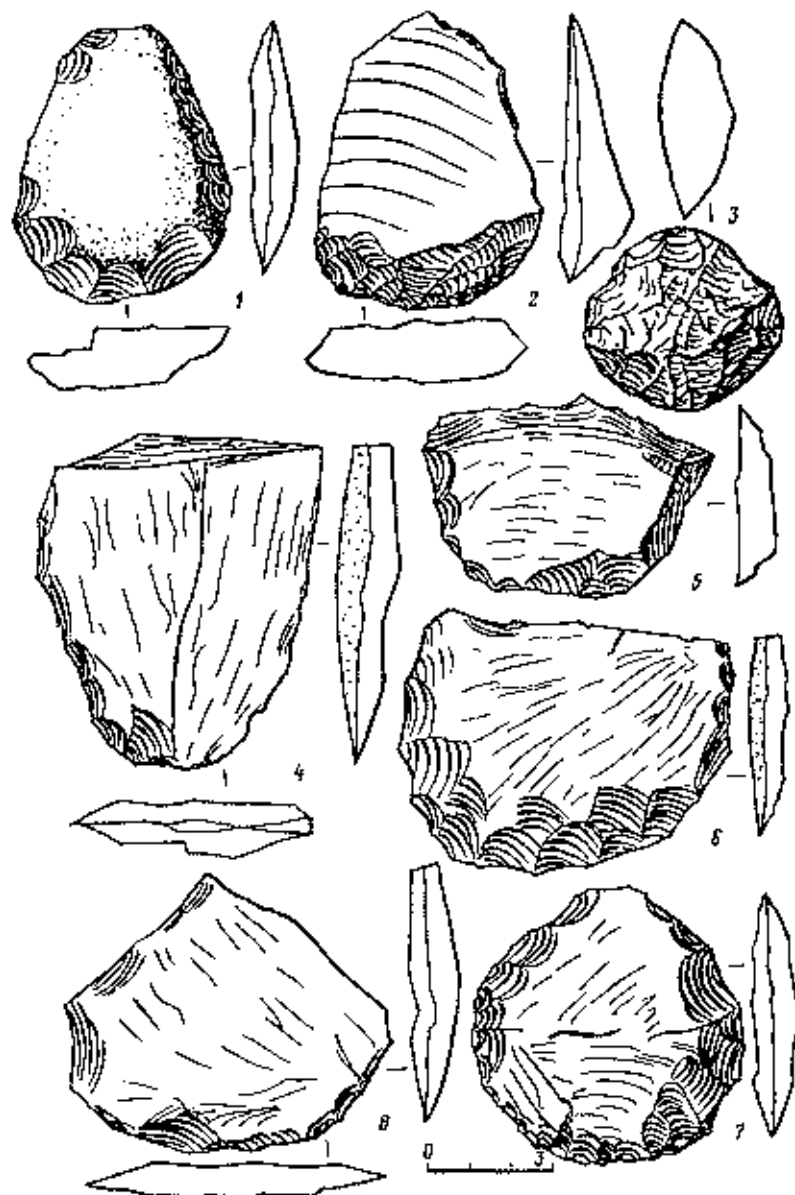


Figure 32. Scrapers and skreblos. Anna II. 1-3, 5, 6, 8 - Dwelling 1; 4, 7 - denuded area

form with three straight working edges lying side by side ($N=1$). Also, four fragments of knives with a single straight working edge were found.

Tools for working skins were represented by scrapers ($N=6$) and skreblos ($N=5$). Among them were three side scrapers with oval-convex working edge. There are a scraper on a uniaxially convex spall of semilunar form (Fig. 32:5) and one on a flat

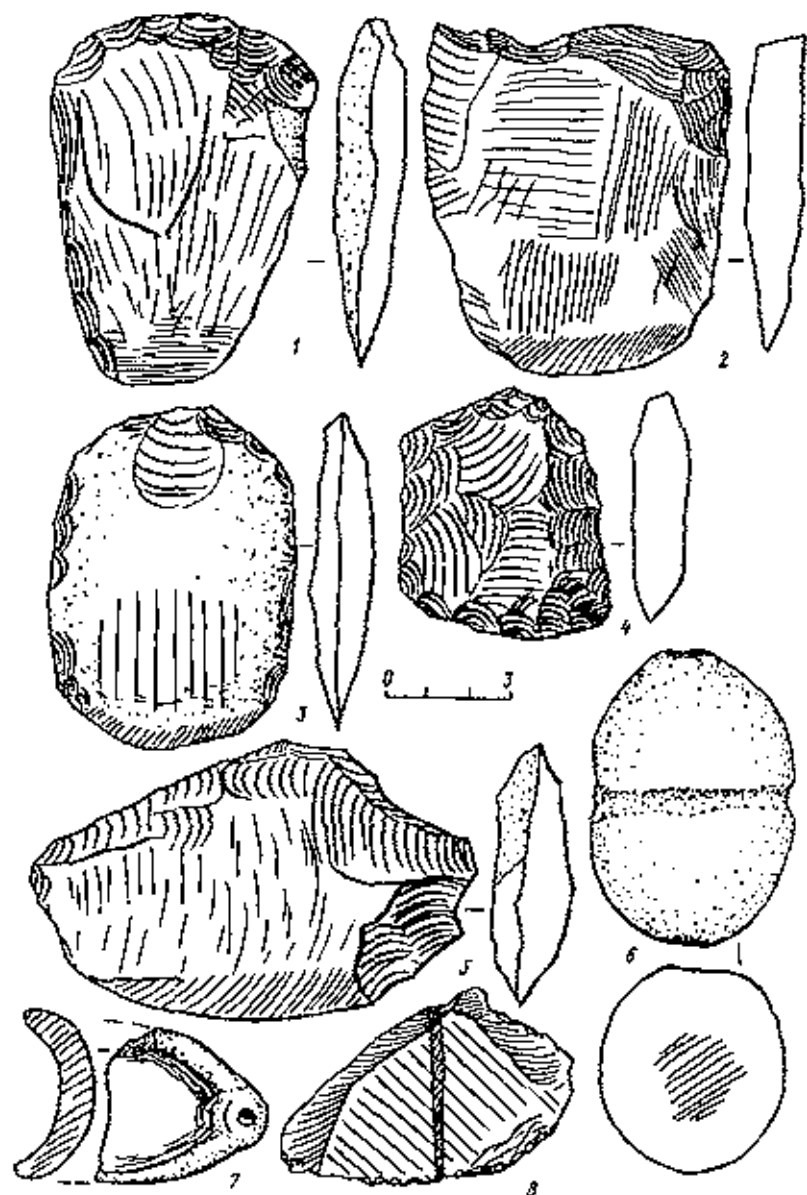


Figure 33. Stone tools and artifacts. Anna II. 1-4, 6, 8 - Dwelling I; 5, 7 - denuded area.

flake of subtriangular form. The working edge of these scrapers was formed by percussion flaking on the back. There is a scraper on a subtriangular blade. Its slightly convex working edge was made by pressure retouch on two sides (Fig. 32:8). There are two end scrapers on unifacially convex, pear-shaped blanks. There is a scraper on a cobble spall with partial preservation of a cobble cortex on the back (Fig. 32:1) and on a flake

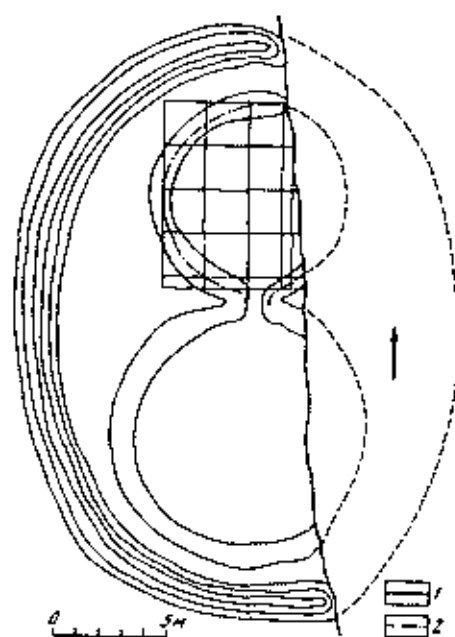


Figure 34. Plan of Fortified Dwelling I.
1 - contours of dwelling and berm; 2 - contours of floor of dwelling.

(Fig. 32:2). The oval-convex working edge of the first was formed by percussion retouch, the second by pressure retouch and modified by fine retouch on two sides. There is also a discoid scraper of lenticular cross section. Its surface was formed by flattening retouch, and the rounded working edge was modified in places by fine pressure retouch (Fig. 32:3).

Five skreblos were made on large flat flakes. The oval-convex working edge of a suboval side skreblo was formed by percussion retouch on one side (Fig. 32:6). The end skreblos were made from irregular rectangular pieces (N=2 and 2 fragments). Their slightly convex working edge was formed by pressure retouch on the back.

In the cultural layer a hammer on an egg-shaped cobble was found. Around its center ran a groove, made by pecking, for fastening a handle. On the end surfaces of the hammer there were percussion marks (Fig. 33:6).

Tools for working wood and bone were represented by axes (N=3) and an adze. The axes are on cobble spalls of oval and suboval form with a cobble cortex preserved on the back. Their edges were worked by percussion retouch and modified in places by fine pressure retouch on two sides and the oval-convex working edge ground. Among them were a unifacially convex axe with a narrowing working edge (Fig. 33:1) and two axes with lenticular (Fig. 33:3) and sublenticular (Fig. 33:2) cross section. The adze is of trapezoidal form on a spall of lenticular cross section. Its surface was formed by flattening retouch, and the lateral edges and slightly convex beveled working edge were worked by percussion retouch and modified by pressure retouch on two sides (Fig. 33:4).

The small number of slate flakes (N=5) attests to the fact that tools were manufactured primarily outside the dwelling.

The stone tool complex of the dwelling was represented by 51 tools in eight categories. It should be considered that 60% of the dwelling was preserved. The tools

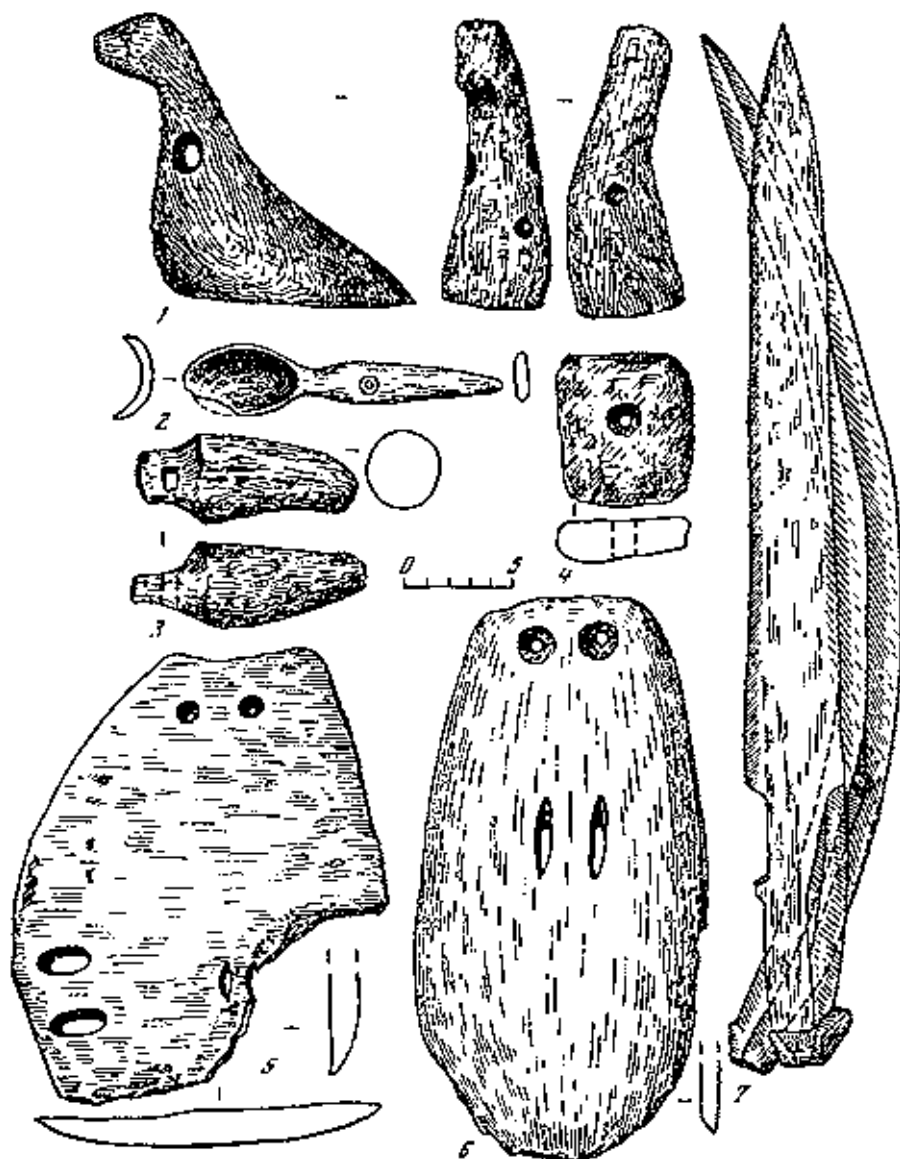


Figure 35. Wooden (1, 3) and bone (2, 4-7) artifacts. Anna II.

were characteristically made on slate slabs ($N=25$), as well as flakes ($N=14$), cobble spalls ($N=11$), and cobbles ($N=2$). Secondary work is characterized by a predominance of grinding ($N=23$) (primarily knives of the ufu type— $N=20$), as well as unifacial ($N=12$) and bifacial edge retouch ($N=9$), spalls, and complete bifacial retouch ($N=4$), as well as combined grinding and retouch ($N=8$). Two tools (a hammer and a lamp) were made by pecking. In general, by types of blanks, secondary work, and types of tools, the com-

plex of the dwelling is quite similar to the complexes of the Opukha I site (especially Dwellings 2 and 3).

In the cultural layer 14 bone artifacts were found. Tools of collecting and construction predominate. Among them are two mattocks of walrus bone (Fig. 36:1), of walrus tusk with oval hole for mounting on a handle (Fig. 37:2), and a fragment of a wedge of walrus tusk (possibly a mattock) (Fig. 36:4). There are two picks of walrus tusk (Fig. 36:2) and of walrus bone with a hole for fastening a handle (Fig. 36:3) and a spade of walrus bone with an oval hole for fastening a handle (Fig. 36:5). The working edge of the latter was sharpened and has traces of wear. There are two shovels of whale bone with two oval and two round holes for fastening a handle (Fig. 35:5, 6).

The hunting-fishing inventory is represented as well. These are a blank of a compound fishhook (Fig. 37:3), a knife handle (Fig. 37:1), and a dagger-like knife of walrus tusk (Fig. 37:5).

Also found were a retoucher of walrus bone (Fig. 37:4) and a core of a walrus tusk with traces of the removal of slabs. A club of walrus rib in the form of a sword is interesting (Fig. 35:7).

In general, the bone inventory is also similar to the complexes of the Opukha I and II sites.

Three artifacts of wood were also found here: 1. A fragment of a round, in cross section, stick for making fire. Its end was charred (Fig. 37:6). 2. A figurine of an aquatic bird with a hole in the upper part for suspension. On the back it is decorated by parallel incised lines, and on its breast and back there are depressions with scorched edges with traces of rotation of the wooden stick. In profile the head is greatly reminiscent of the head of a seal. It is possible this is a composite form (Fig. 35:1). 3. A net float (Fig. 35:3).

The ceramics of the dwelling are represented by fragments of four large modeled vessels. Their flattened rims slope inward. The vessels are round-bottomed with a round body and are well fired. They were made of clay paste with a temper of fine-grained sand. On the inner surface of the bottom of the vessels small round impressions of fingers were preserved. The inner and outer surface of the sherds is smoothed. The bottom fragments are brick red on the outside, and the side fragments are covered with black soot.

The rim of the first vessel is 0.7 cm thick. The thickness of the side walls is 0.5 cm to 0.7 cm, the bottom 0.8 cm to 1.1 cm.

The rim of the second vessel is 1 cm thick. The thickness of the side walls is 1 cm to 1.2 cm, the bottom 1.1 cm to 1.5 cm. The sherds of these two vessels are dark gray in the break and brown on the surface.

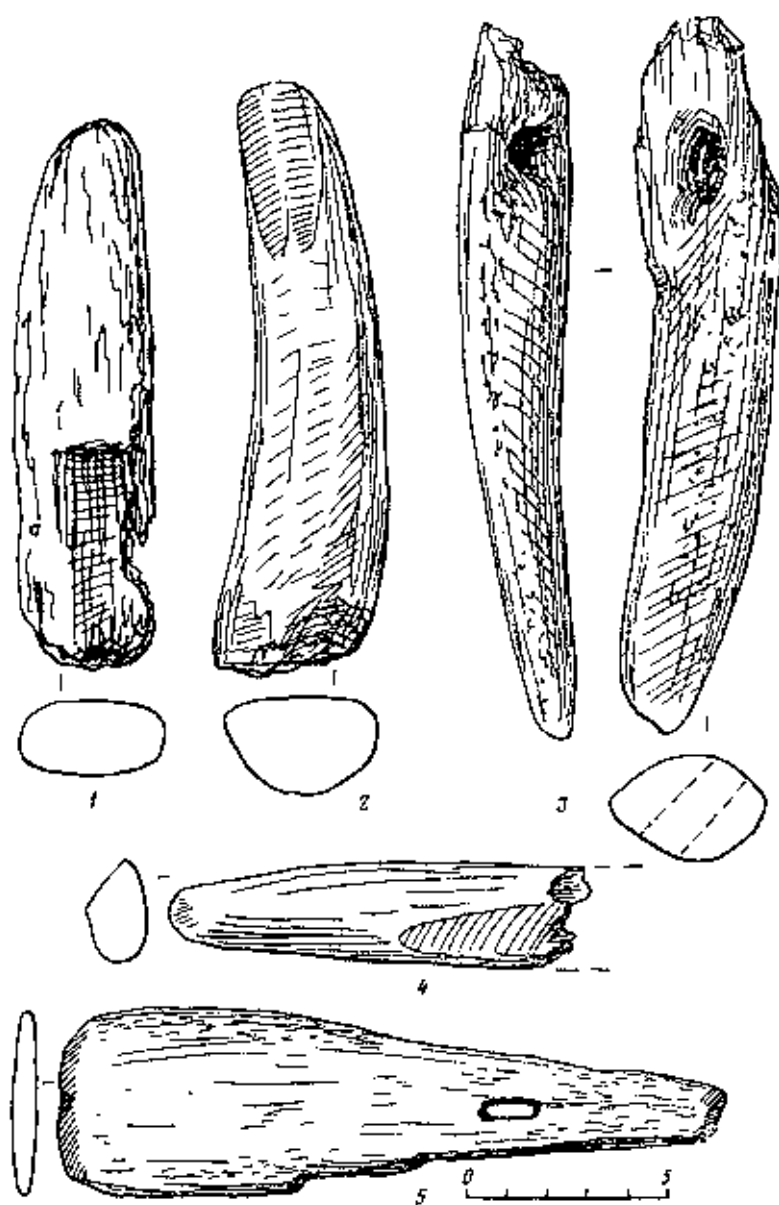


Figure 36. Bone tools. Anna fl.

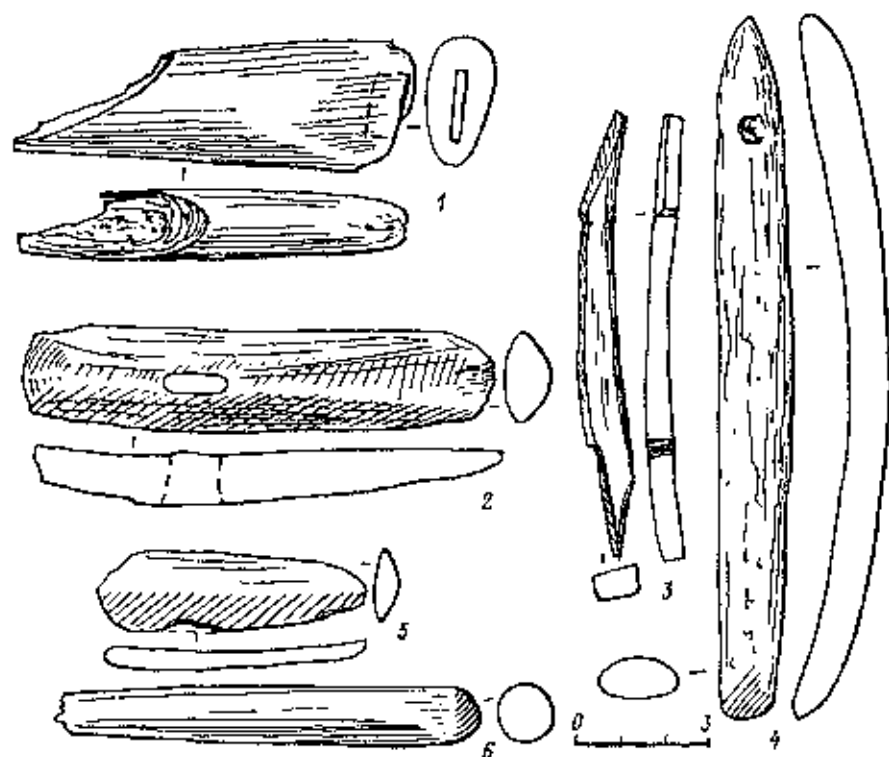


Figure 37. Bone and wooden (6) artifacts. Anna II.

The rim of the third vessel is 0.9 cm thick with a small inner projection. The thickness of the walls is 0.6 cm. Its outer surface is decorated with an oblique (sloping out) cord impression.

The fourth vessel is represented by a fragment of a side wall 0.8 cm thick. On the inner surface six stripes are drawn, but it is difficult to say whether this is decoration (Fig. 19:6).

The sherds of the two last vessels are light brown in the break and on the surface.

The form and decoration of the vessels of the dwelling are similar to the ceramics of the Opukha I site.

The common traditions of the stone and bone industry and the ceramics attest to the cultural unity (possibly even chronological proximity) of the complex of Fortified Dwelling 1 of the Anna II site and the complexes of the Opukha I site.

In the dwelling in Quads 2c-2d, 3b, and 3c-3d-4c-4d were three hearths about 1 m in diameter each. The hearths were indicated by a ring constructed of river cobbles and a layer of charcoal 0.1 m to 0.15 m thick (Fig. 38).

The finds were generally concentrated near the hearths; and toward the periphery of the dwelling, the abundance of artifacts in the cultural layer sharply diminished.

In Quads 2b-2c a 0.4 m deep cache pit filled with the remains of mollusk shells was found.

The sleeping areas were probably located on the eastern side, the part of the dwelling not preserved.

Shrine. A place of rituals was located near the Anna II site, 2 km from the neck of the lagoon on the top of a 15 m cape. It was marked by the lower jaw of a gray whale 1 m high set in the ground, as well as walrus skulls in disarray. No artifacts were found here. The surface of the shrine had been cleared to bedrock. Evidently, this occurred as a result of disturbance of the surface layer.

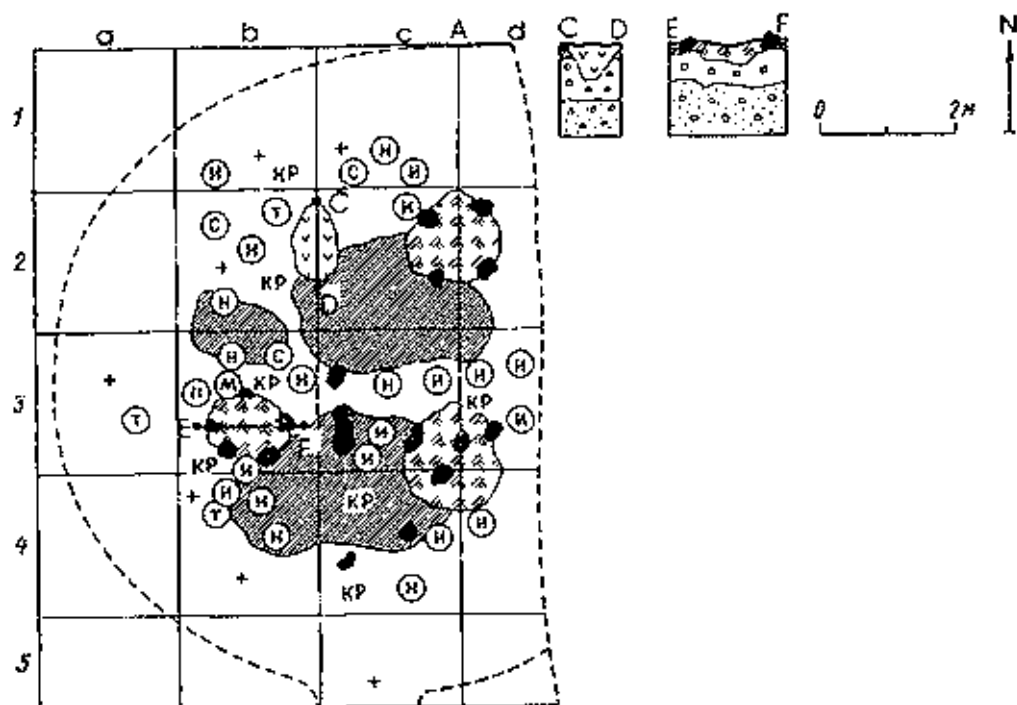


Figure 38. Plan of Room 1 of Fortified Dwelling I, Anna II. Key the same as in Figure 28.

Khатырка Lagoon

Khатырка Lagoon is located 80 km north of Anna Lagoon. The lagoon was formed at the entrance of the Khатырка River into the Bering Sea. It is surrounded by sloping hills and separated from the sea by a sand and gravel surf-formed spit about 6 km long (Fig. 39). Here two early sites and a shrine were investigated.

Khатырка I site. The site is situated on a sandy cape to the right of the neck of the lagoon, at the foot of the three Kamakannon Hills (sacred hills). This is a seasonal summer site, according to information of informants, which consists of the remains of 10 dwellings (Fig. 40). The remains of the dwellings are distributed on the tops of three beach ridges in three lines parallel to the shoreline. Judging by the remains on the surface, three-room dwellings of semisubterranean type with lateral tunnel-like entryway predominate. The rooms are 6 m to 10 m in diameter. Around the dwellings were preserved the remains of cache pits. A stream passes some 200 m south of the site.

Three-room Dwelling 1 at the end of the row of dwellings nearest the sea was investigated with a trench and a test pit. The large, central 8 m diameter room (A) was connected by a tunnel-like passage to the side rooms (B and C), each 5 m in diameter. Each room had its own entryway. The depressions of the rooms were 0.7 m deep with berms elevated 0.4 m and densely covered with grass.

In Room A, in the 1 m x 4 m trench, six horizons marked by charcoal and separated by sterile strata of sand were found. This speaks of chronological breaks during the course of occupation here by the inhabitants.

The following stratigraphy was noted in the western wall of the trench: 1 - sod layer 0.08 m to 0.1 m; 2 - gray sand 0.2 m to 0.3 m; 3 - first cultural layer, light-brown sandy loam with charcoal 0.02 m to 0.03 m; 4 - brownish-gray sand 0.05 m to 0.1 m; 5 - second cultural layer, gray sand with charcoal 0.03 m to 0.04 m; 6 - brownish-gray sand 0.01 m to 0.1 m; 7 - third cultural layer, brown sand with charcoal 0.03 m to 0.04 m; 8 - gray sand 0.2 m to 0.4 m; 9 - fourth cultural layer, light-brown sandy loam with charcoal—0.02 m to 0.03 m; 10 - gray sand 0.03 m to 0.15 m; 11 - fifth cultural layer, dark-violet sandy loam with charcoal 0.03 m to 0.05 m; 12 - gray sand with gravel 0.03 m to 0.07 m; 13 - sixth cultural layer, brown sandy loam with charcoal 0.03 m to 0.04 m; 14 - gray sand with gravel.

A few objects were found in the trench in the third cultural layer, at a depth of 0.5 m to 0.7 m, and in the fifth, at a depth of 0.9 m to 1 m.

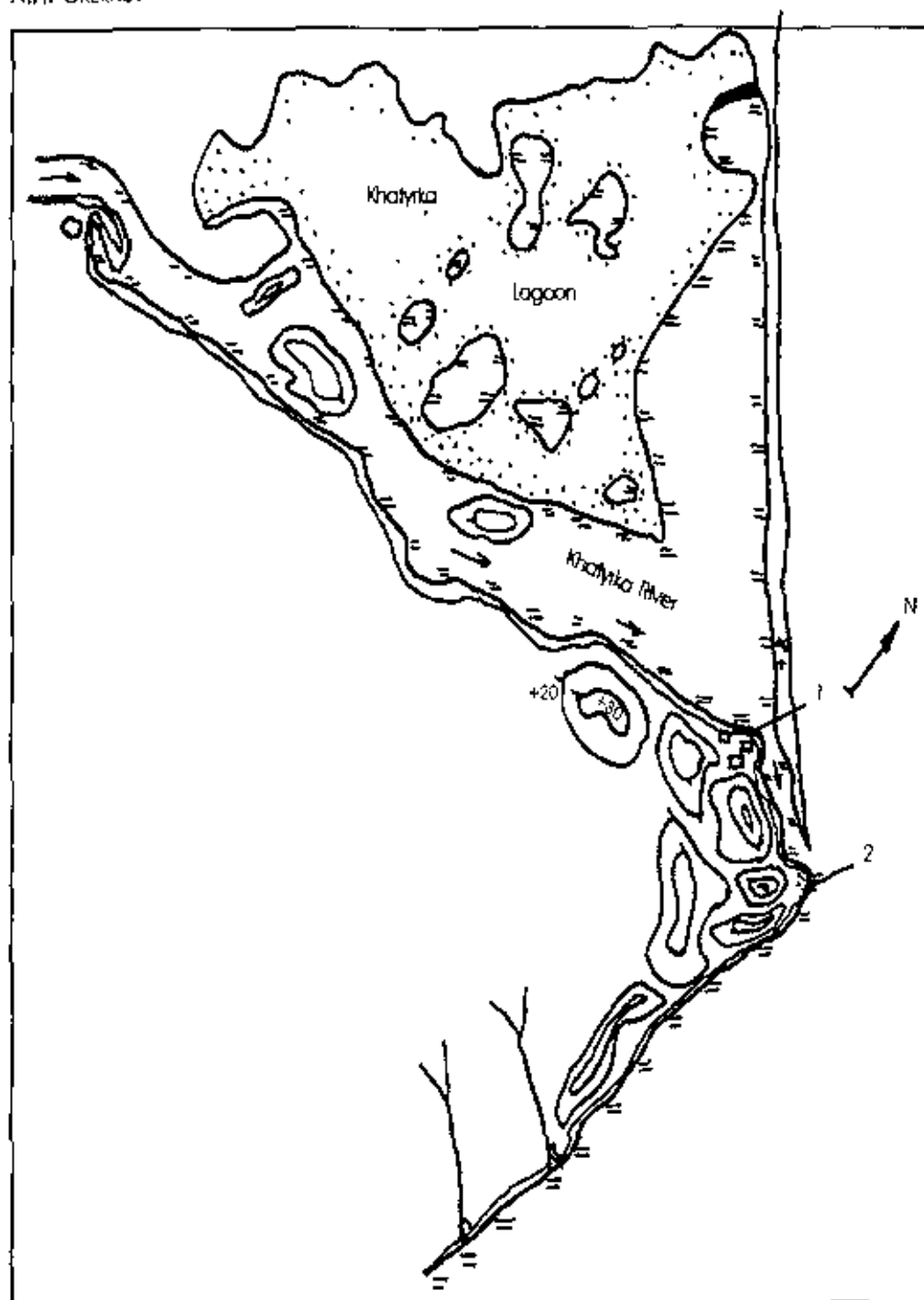


Figure 39. Map of archaeological sites on the shore of Khatyrka Lagoon: 1. Khatyrka I site; 2. Khatyrka II site and shrine.

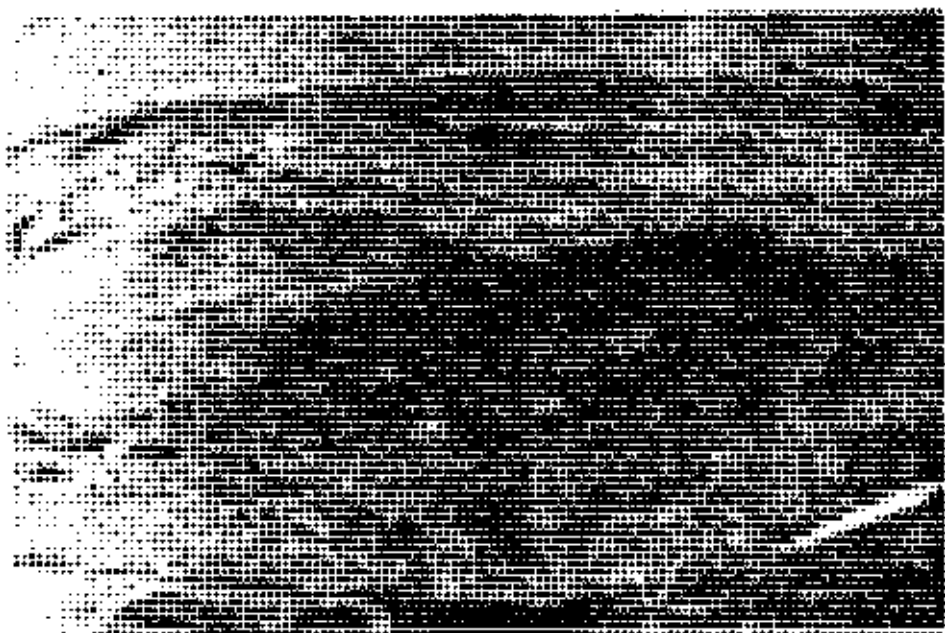


Figure 40. Khatyrka I site. View from above.

In the third cultural layer a slate flake was found. At the western wall of the trench, in the center, part of a hearth was revealed, indicated by a scorched stone and a 0.1 m thick layer of charcoal (Fig. 41). Beside it were burned fragments of wood and in the northern part of the trench an other stain.

The faunal remains of the layer are represented by bones of walrus, seal, a whale vertebra, and a tooth of a deer.

In the fifth cultural layer two tools were found. One of these was a knife on a slate slab with ground surface and straight stem. Its oval-convex upper working edge was retouched, and the lower was ground on two sides (Fig. 42:2). An adze-like tool on an oblong cobble, split lengthwise, with a cobble cortex preserved on the back was found. Its oval-convex edge was formed by percussion flaking on the ventral side (Fig. 42:1).

At the eastern wall of the trench, in the center, a hearth 0.7 m in diameter was partially revealed. It was indicated by vertically upright, flat, stone slabs and a 0.1 m layer of charcoal (Fig. 41). A charcoal stain 0.6 m in diameter, probably also a hearth, was also encountered in the northern part of the trench at the western wall.

In the northern part of the trench a floor was found paved with flat sandstone slabs well fitted to each other.

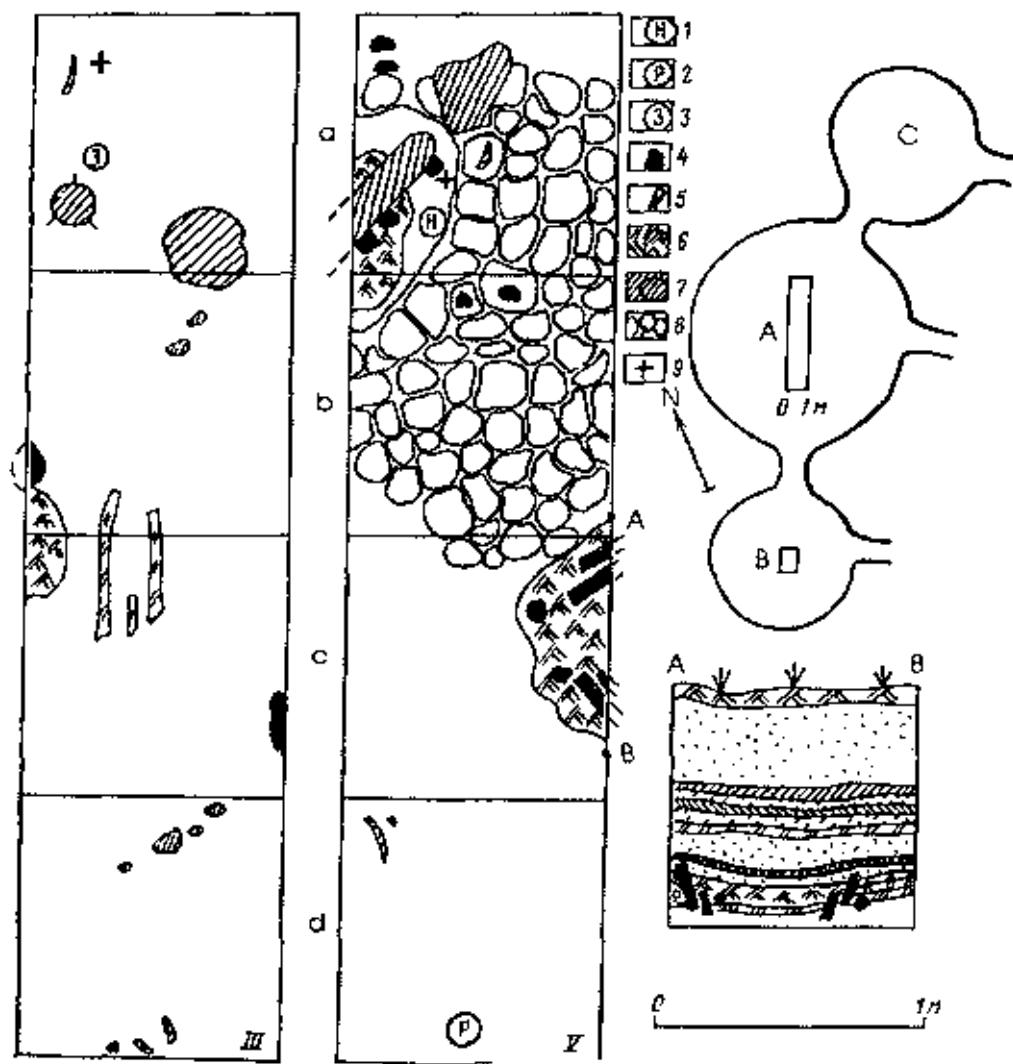


Figure 41. Kharyrka I. Plan of trench (Layers III and V). Plan of Dwelling 1. 1 - knife; 2 - burin; 3 - deer tooth; 4 - stone; 5 - burned wood; 6 - charcoal; 7 - bone; 8 - stonework; 9 - flake. Profile of hearth, Layer V, along line AB. For most keys in the legend, see Figure 16.

The faunal remains were represented in the cultural layer by a rib of a deer, the lower jaw of a whale that was probably a construction component for the roof, and a whale scapula.

In side Room B, in the 1 m x 1 m test pit, stratigraphy analogous to Room A was noted. This speaks of synchronic functioning of the rooms. Here in the fourth

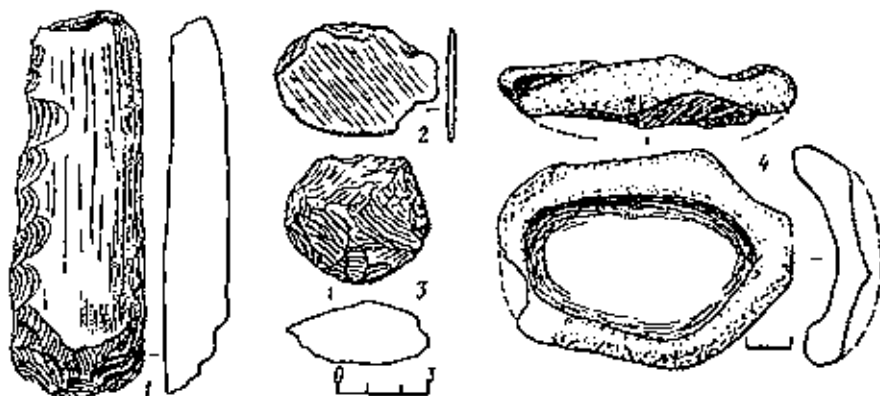


Figure 42. Stone tools and artifacts. Khatyrka I. 1-3 - tools of gray siliceous slate; 4 - artifact from a cobble.

cultural layer a lamp was found made of a flattened oval cobble with a depression created by pecking (Fig. 42:4).

Near Room A, north of the entryway, in the back dirt of a ground squirrel burrow a discoid scraper of lenticular cross section was found (Fig. 47:3). In this same place was a fragment of a knife with double working edge and lenticular cross section. The surface of this tool was formed by percussion flaking and the working edge by fine pressure retouch on both sides.

The inventory of the third, fourth, and fifth cultural layers was quite poor, but when combined with the type of dwelling it permits speaking of cultural unity with the complexes of the Opukha I and the Anna II sites.

The stratigraphy permits assigning the complex of the fifth cultural layer (and the sixth layer) to an earlier period than the complexes of Dwellings 2 and 3 of the Opukha I site, and even more so for Fortified Dwelling 1 of the Anna II site.

The large number of cultural layers allows the supposition that they were connected with numerous dwellings built in the same place over time.

On the tops of the Kamakennon Hills were the remains of several semisubterranean dwellings. Their diameters were 6 m to 8 m. On the surface they were indicated by depressions of 0.6 m and berms elevated to 0.3 m and overgrown with grass. The permafrost immediately below the sod did not permit examining these dwellings.

Shrine. A shrine is located on the top of the second hill from the sea. It was indicated by half a lower jaw of a gray whale set in the ground and a cluster of walrus skulls. The shrine was completely demolished as a result of construction work in the 1950s. No artifacts were found here.

Khatyrka II site. At the location of the long and larger early (Khatyrka II) site, the present village of Khatyrka was built. It is located on the shore 4.5 km north of the Khatyrka I site. This is primarily an early winter site, according to information from informants.

The following stratigraphy was noted in a 10 m area of a coastal exposure 500 m west of the neck of the lagoon (Fig. 28:1): 1 - sod layer 0.15 m to 0.2 m; 2 - brown sandy loam 0.6 m to 0.8 m; 3 - cultural layer, black carbonaceous sandy loam 0.03 m to 0.05 m; 4 - brown sandy loam with gravel 0.6 m to 0.7 m; below is gravel.

Stones and thickening of the cultural layer are the remains of hearths. This is probably the exposure of the cultural layer of a two-room dwelling. In profiling the exposure three artifacts were found in the cultural layer: a grinding stone of silicified sandstone, a pyramidal arrow point of walrus tusk with wedge-shaped base (on the upper edge of its tip of triangular cross section are five deep incisions), and a fragment of an arrow point of walrus bone with conical stem. Three slate flakes were also found here.

The bone points are analogous to points from Shrine I at the Opukha I site, which suggests a single cultural association. The stratigraphy allows the supposition of synchronicity of this dwelling with the fifth cultural layer of Dwelling 1a.

According to information from informants, the remains of an early site destroyed by construction work were also on the spit.

Vaamochka Lake

This early site is located at the base of a spit on the southeastern shore of Vaamochka Lake (Yankinen), 18 km south of the village of Meinypil'gyno. This is a seasonal, summer site, according to the information of informant E. Khatkan. Even in the 1940s and 50s, the Kereks came here in summer. The site consists of the remains of 10 dwellings. Single-room dwellings of semisubterranean type are distributed in two groups: at the base of the spit and on the top of the basal terrace 6 m to 8 m high (three dwellings). On the surface they are indicated by depressions of 0.3 m to 0.8 m with berms rising to 0.3 m to 0.5 m and overgrown by grass. They are 4 m to 8 m in diameter. The tunnel-like entryways are oriented at an angle of 30° to the shoreline of the lake.

In a shoreside exposure of the terrace at a depth of 0.35 m to 0.4 m in an area of 7 m, a carbonaceous cultural layer of dark-gray sandy loam could be clearly traced.

The following stratigraphy was noted in this exposure (Fig. 28:4): 1 - sod layer 0.06 m to 0.1 m; 2 - brown sandy loam with rubble 0.25 m to 0.3 m; 3 - cultural layer, dark-gray sandy loam with charcoal 0.04 m to 0.07 m; 4 - brown sandy loam with rubble 0.5 m to 0.7 m; 5 - cobbles 0.2 m to 0.3 m; 6 - bedrock. This exposure is the cultural layer of a single-room, semisubterranean dwelling 7 m in diameter. In the slump of this cultural layer several stone and bone artifacts and ceramics were collected.

In number stone knives predominated (N=7). Among them were three knives on flat amorphous flakes. Their straight working edge was formed by fine pressure retouch on the back. There were knives on slate slabs of subtriangular (N=2) (Fig. 43:7) and trapezoidal (N=2) (Fig. 43:9) form. Their surface and slightly convex working edge were ground.

A combination knife-scraper on a unifacially convex amorphous flake was found. Its surface was formed by percussion flaking. The oval-convex working edge of the knife was modified by fine pressure retouch on the back, and the oval-convex working edge of the scraper was unworked.

Tools for working skins were represented by scrapers and skreblos (N=2). Among them was a side scraper on an oval cobble spall of lenticular cross section. On its back, the cobble cortex was preserved. The oval-convex working edge of the scraper was formed by percussion retouch on the ventral side (Fig. 43:2).

An end skreblo-scraper was made on a pear-shaped, unifacially convex cobble spall (Fig. 43:1). On its back was the preserved cobble cortex. The skreblo has two opposite oval-convex working edges. The lower is formed by percussion flaking and modified by pressure retouch, and the upper worked by pressure retouch on the back. A flat discoid skreblo on a spall was formed by percussion, and the rounded working edge was modified by pressure retouch on two sides (Fig. 43:5).

Tools for working wood and bone are represented by a flat adze with two working edges on a cobble spall of an irregular hexagonal form. On its flaked edges there are grooves on two sides for fastening a handle. The surface and working edge of the adze were ground on two sides (Fig. 43:4).

A total of 12 stone tools in five categories were found. They were made on flakes (N=4), cobble spalls (N=4), and blades (N=4). Unifacial edge work predominates (N= 6), with grinding (N=4) and complete bifacial retouch represented.

By the type of blanks, secondary work, and types of tools represented, this complex of stone tools is similar to the complexes of the Anna I and II and the Opukha I sites. This attests to their unified cultural association. Based on the stratigraphy, the complex is chronologically close to the complex of Dwelling Ia of the Opukha I site.

The ceramics from the exposure are represented by fragments of four large modeled vessels. All the vessels are round-bottomed with round body and well fired.

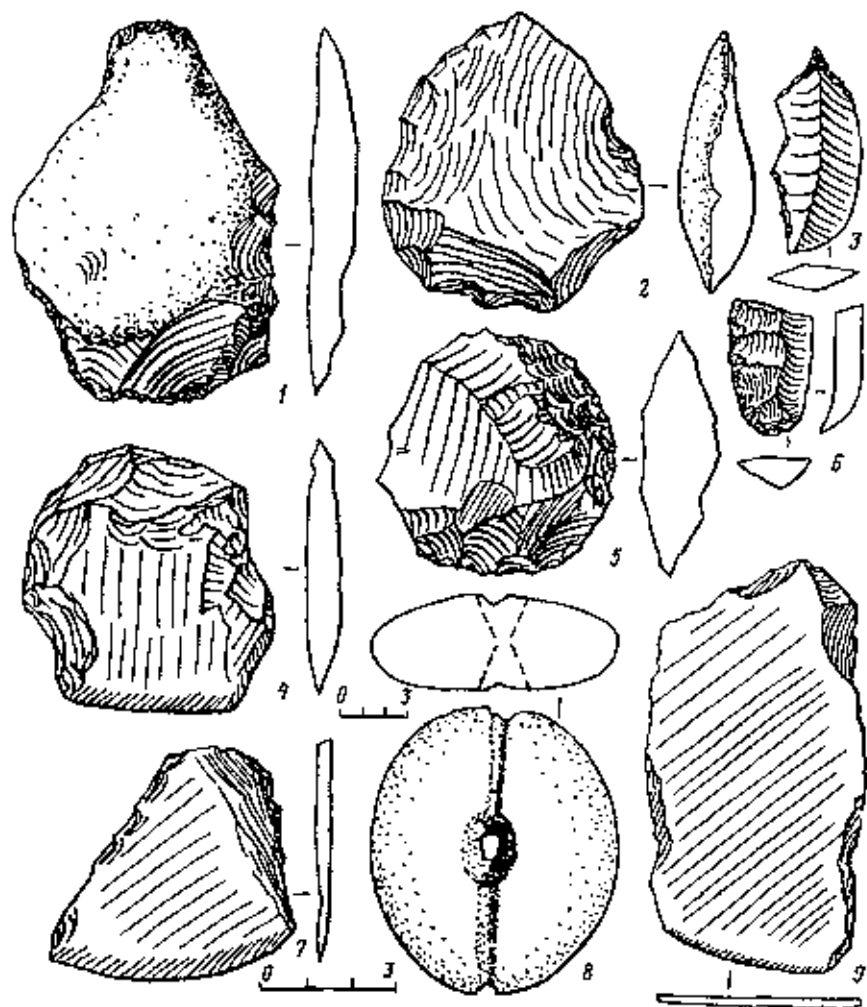


Figure 43. Stone tools. Yankinch. 1-6, 9 - denuded area, 7, 8 - assortment.

Their rims slope inward. The vessels were made of clay paste with a temper of fine-grained sand and moss. On the inner side of the bottom fragments, oval impressions of fingers were preserved.

The first vessel has a rounded rim 1 cm thick. The thickness of the walls is 1.5 cm, the bottom 2.3 cm to 2.5 cm. The sherds are dark brown in the break and on the surface.

The second vessel has a flattened rim 0.9 cm thick with a small inner projection. The thickness of the walls is 0.5 cm to 1 cm, the bottom 0.7 cm to 1 cm. The sherds are dark gray in the break and light brown on the surface. The vessel is deco-

rated on the rim by a single row of rectangular impressions (Fig. 20:6). The inner and outer surfaces of the sherds of both vessels are very smooth. The bottom fragments are brick red on the outside.

The third vessel is represented by fragments of side walls 0.7 cm thick. The vessel was decorated by broad-lined ornamentation (Fig. 19:11).

A fragment of a fourth vessel has a round hole 1.2 cm in diameter made before firing (Fig. 20:10). The hole was probably used for suspending the vessel. The thickness of the walls is 1 cm. Large-grained sand was used in the paste of clay, which produces in the break the impression of friability, but provides sufficient durability. The sherds are dark gray in the break and brown on the surface of the last two vessels.

The form, technique of manufacture, and decoration of the vessels of this complex are similar to the complexes of ceramics of the dwellings of the Opukha I site. The decoration of the second vessel is unusual, as is the hole for suspension in the forth vessel.

In the same place a fragment of a whale rib with an incised schematic representation of a flying bird was found (Fig. 44:1).

On the shore of the lake, at the site, a sinker on a flattened-oval cobble with lateral grooves was found. In its center is a hole with a two-sided groove radiating out. The hole and the grove were made by pecking (Fig. 43:8).

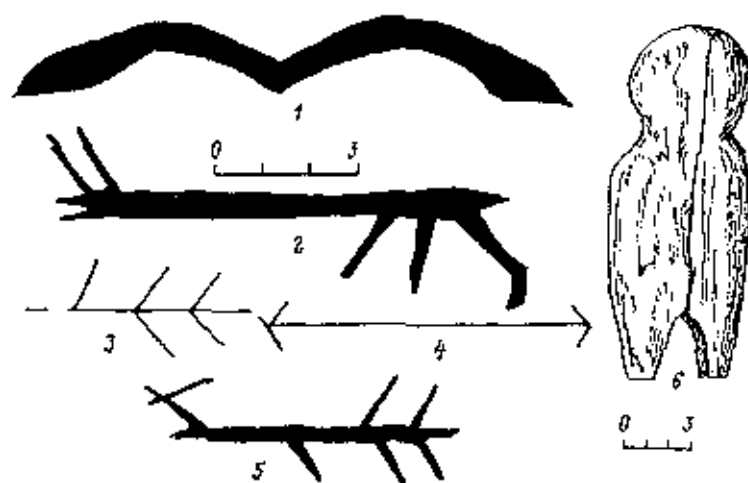


Figure 44. Images on whale ribs. 1 - Yankinen; 2-5 - Etchun II, Dwelling 1; 6 - wooden anthropomorphic figure. Etchun II, assortment.

Pekul'neiskoe Lake

This early site is located 6 km north of the village of Meinyipil'gyno on the spit on the left bank of the channel joining Pekul'neiskoe Lake with the Bering Sea (Fig. 45). The narrower part of the spit at its base, where the remains of dwellings are located, bears the name Etchun (a Chukchi toponym). The elevation of the spit here is 4 m to 5 m, and the width is 600 m to 650 m.

Etchun I site. One kilometer from the base of the spit a 2 m x 2 m area with an exposed cultural layer was found. The layer was exposed as a result of the sod removal. This was probably the result of the activity of topographers.

On the surface of the area in disorderly array were fragments of bone artifacts related to this damaged upper subsod cultural layer. Among them were a fragment of an artifact of walrus rib (Fig. 46:7), a piece of a sled-runner shoe of whale bone (Fig. 46:3), a blank of a knife handle (Fig. 46:8), a punch, and fragments of parts of a dog-sled harness (Fig. 46:9-11).

In this same place a large, suboval side skreblo, evidently for working with two hands, was taken from a piece of sod. It was made on a cobble of lenticular cross section split lengthwise that retained the cobble cortex on the back. The oval-convex working edge of the skreblo was formed by percussion flaking on two sides (Fig. 47:1).

With the investigation of this area a second, lower cultural layer marked by a charcoal horizon was found (Fig. 48).

The following stratigraphy was noted on the eastern wall of the excavation: 1 - sod layer 0.05 m to 0.08 m; 2 - first cultural layer, dark-brown sandy loam with charcoal 0.05 m to 0.1 m; 3 - brown sandy loam 0.2 m to 0.35 m; 4 - second cultural layer, dark-gray sandy loam with charcoal 0.02 m to 0.1 m; 5 - small gravel with brown sandy loam 0.15 m to 0.25 m; 6 - gravel.

The depth of the deposit of the second cultural layer increased from north to south from 0.25 m to 0.45 m, and its thickness grew accordingly from 0.02 m to 0.1 m.

In the excavation in the second cultural layer stone and bone artifacts were found.

Among the stone tools the most numerous category was knives (N=28). Among them are knives on flat amorphous flakes with single working edge (N=11 and 9 fragments) (Fig. 49:1, 2, 4) and two working edges (N=6) (Fig. 49:6-9, 11). The slightly convex working edges of these knives were formed by percussion retouch and modified by pressure retouch on one side (N=20) (Fig. 49:1, 2, 6) and on two sides (N=5)

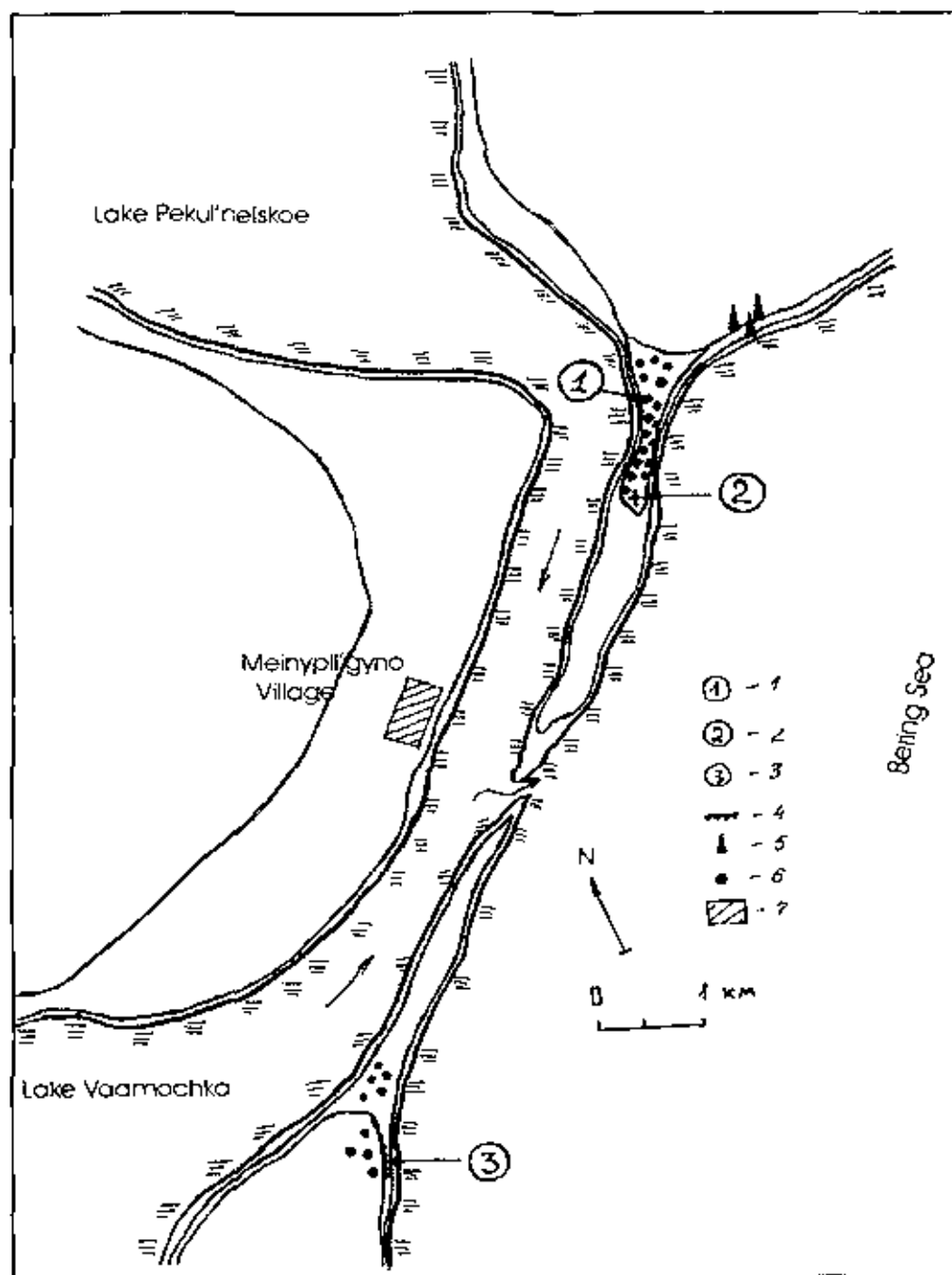


Figure 45. Map of sites on the shore of Pekul'neiskoe and Vaamochka lakes: 1. 1. Dwellings investigated; 2. Excavation; 3. Vaamochka site; 4. Outcropping of cultural layer; 5. Shrine; 6. Dwellings; 7. Village.

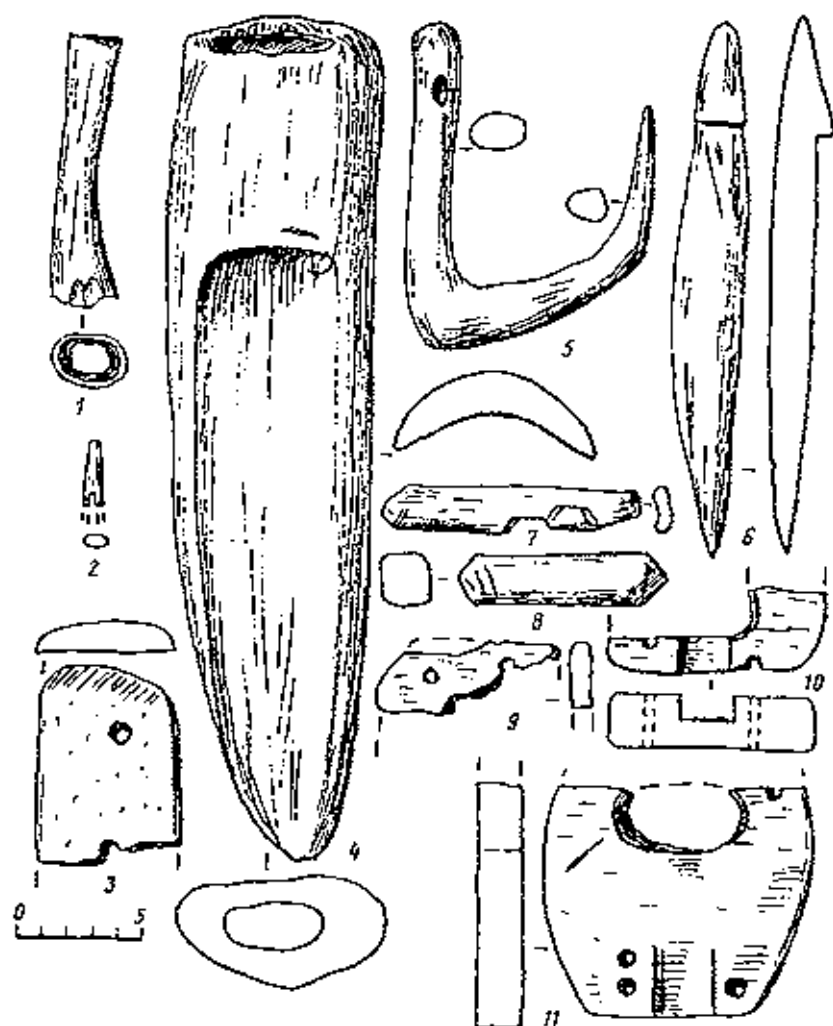


Figure 46. Bone tools and artifacts. 1-3, 7-11 - Etchun I, Dwelling I; 4-6 - Etchun II, Dwelling I.

(Fig. 49:4, 7, 9, 11, 12). Knife-scrapers were made on cobble spalls, preserving areas of cobble cortex. Their working edges were modified by percussion flaking and percussion retouch on the back. Knives of subtriangular form ($N=2$) (Fig. 49:3) and with a stem (Fig. 49:8, 10) were also found.

Tools for working skins were represented by scrapers ($N=2$) and skreblos ($N=7$). Among them is an end scraper on a pear-shaped flake. Its oval-convex working edge was partially modified by pressure retouch on the back (Fig. 47:6). There is also a blank of a discoid scraper on a cobble spall with partial preservation of cobble cortex

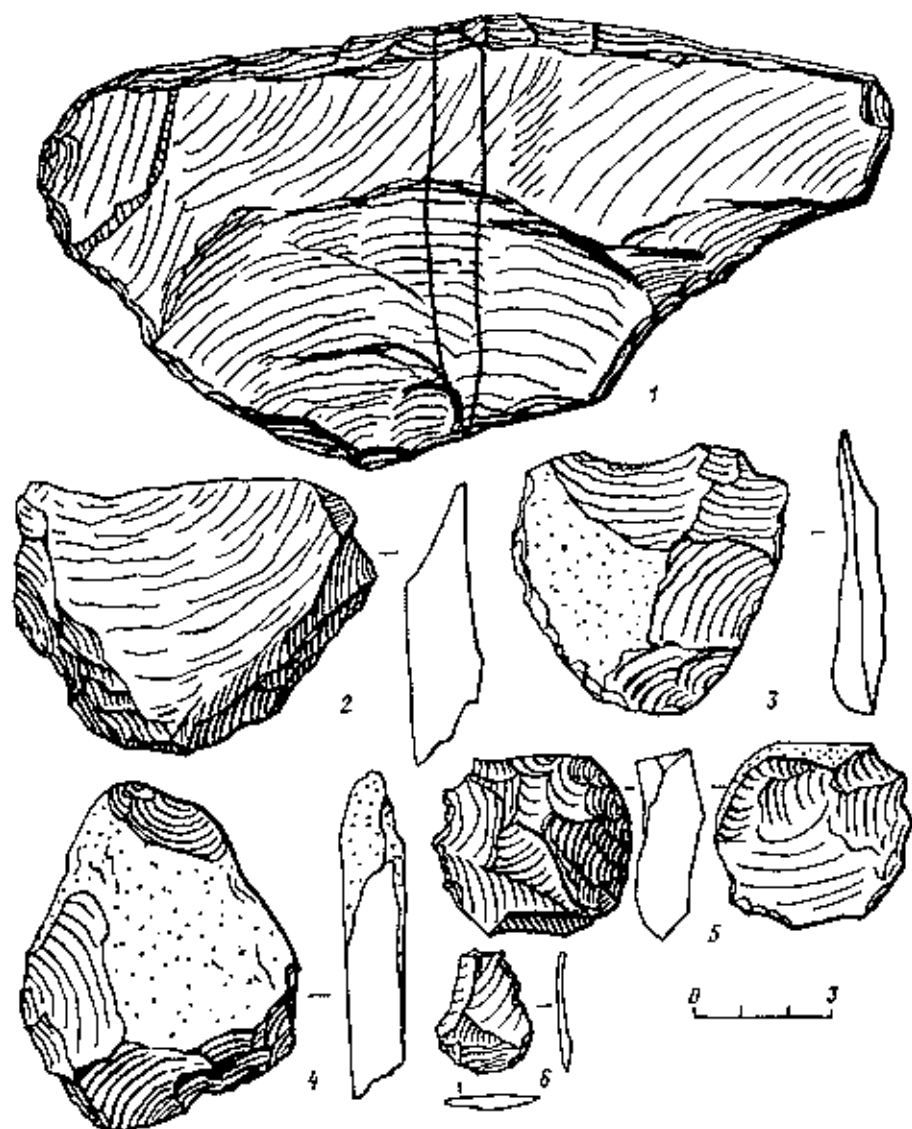
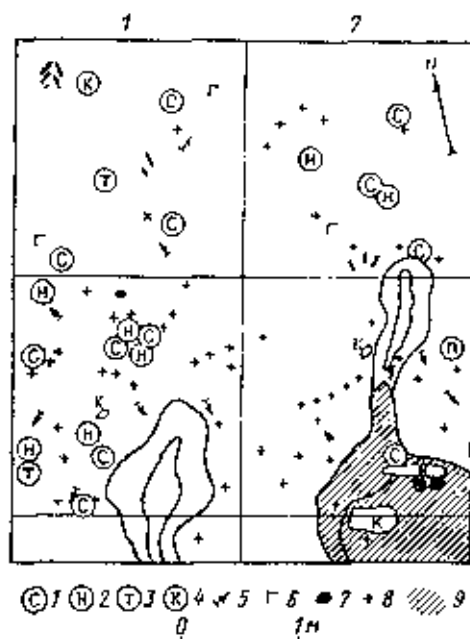


Figure 47. Scrapers and skreblos. Etchun I.

on the back. Its surface was formed by percussion flaking and the rounded working edge by percussion retouch and modified by pressure retouch on two sides (Fig. 49:5).

The skreblos were made on flat cobbles (N=2), cobble spalls with the cobble cortex preserved on the back (N=3), and on large flakes (N=2). Their oval-convex working edge was formed by percussion flaking and modified by percussion retouch

Figure 48. Plan of excavation. Etchun 1. 1 - scraper; 2 - knife; 3 - adze; 4 - stone; 5 - arrow point; 6 - sinker; 7 - bone; 8 - flake; 9 - charcoal.



on one side. Among them are semilunar side skreblos (N=5) (Fig. 47:2, 3; Fig. 43:1) and end skreblos of pear-shaped (Fig. 47:4) and suboval (Fig. 50:4) form.

The hunting-fishing inventory is represented by arrow points (N=2) and sinkers (N=3). There are small, leaf-shaped arrow points on flat flakes with a convex base. Their edges were modified by retouch on one side (Fig. 50:5) and two sides (Fig. 50:6). The sinkers were made on flattened-oval cobbles with lateral grooves for fastening to nets (Fig. 50:7).

Tools for working wood and bone are represented by an adze-like tool and adzes (N=2). The adze-like tool was made on a cobble, split lengthwise, with cobble cortex preserved on the back. Its working edge was formed by the removal of several spalls from the back (Fig. 50:2). The adzes are of trapezoidal shape with lenticular cross section. Their surface was formed by percussion flaking, and the working edge and lateral edges were modified by percussion flaking and retouch on two sides (Fig. 50:8). On one adze the working edge is slightly ground (Fig. 50:3).

The presence in this layer of only one slate and one obsidian flake attest to the fact that the occupants did not occupy themselves with making tools here.

On the whole the complex is characterized by 45 tools in seven categories. The tools were predominantly made on flakes (N=30), as well as on cobble spalls (N=9) and cobbles (N=6). Also characteristic for the complex is a significant predominance of unifacial edge work on tools (N=33). Bifacial work of the edges (N=6) and complete bifacial work (N=3) are represented, as well as the combination of percussion flaking,

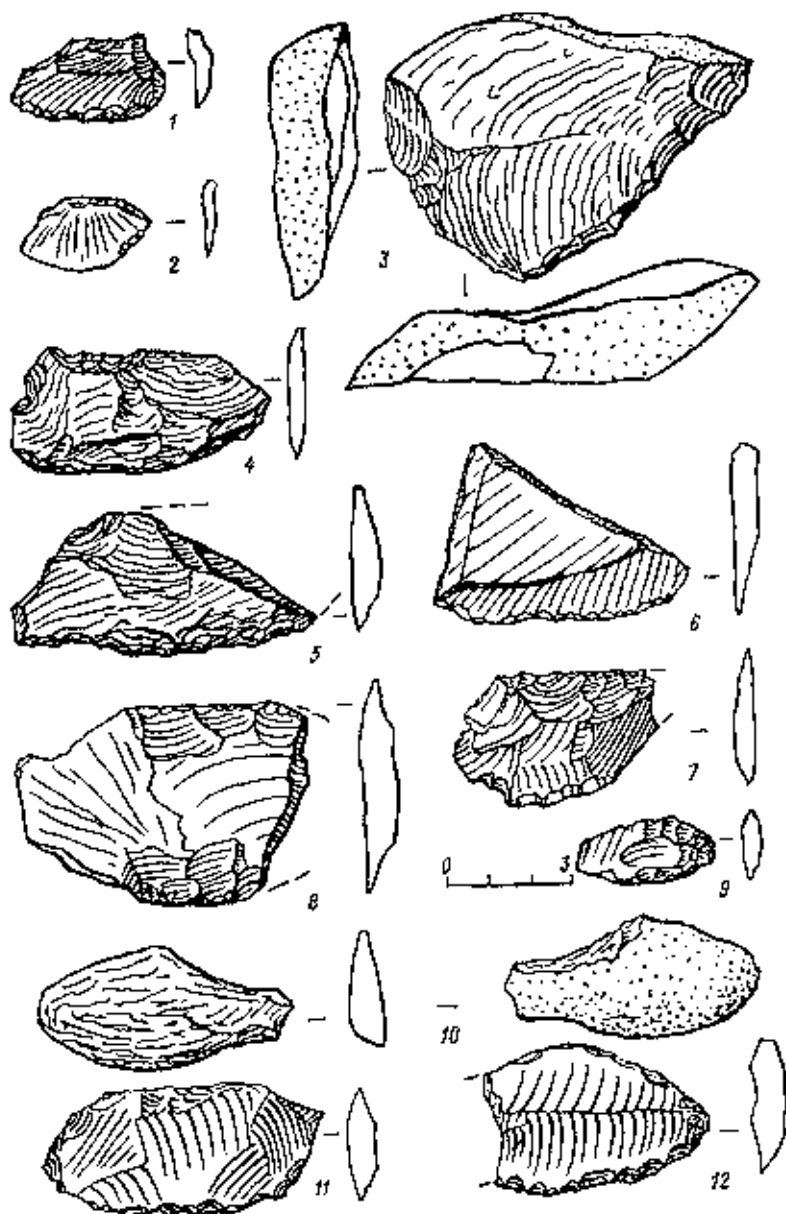


Figure 49. Retouched knives. Etchun I.

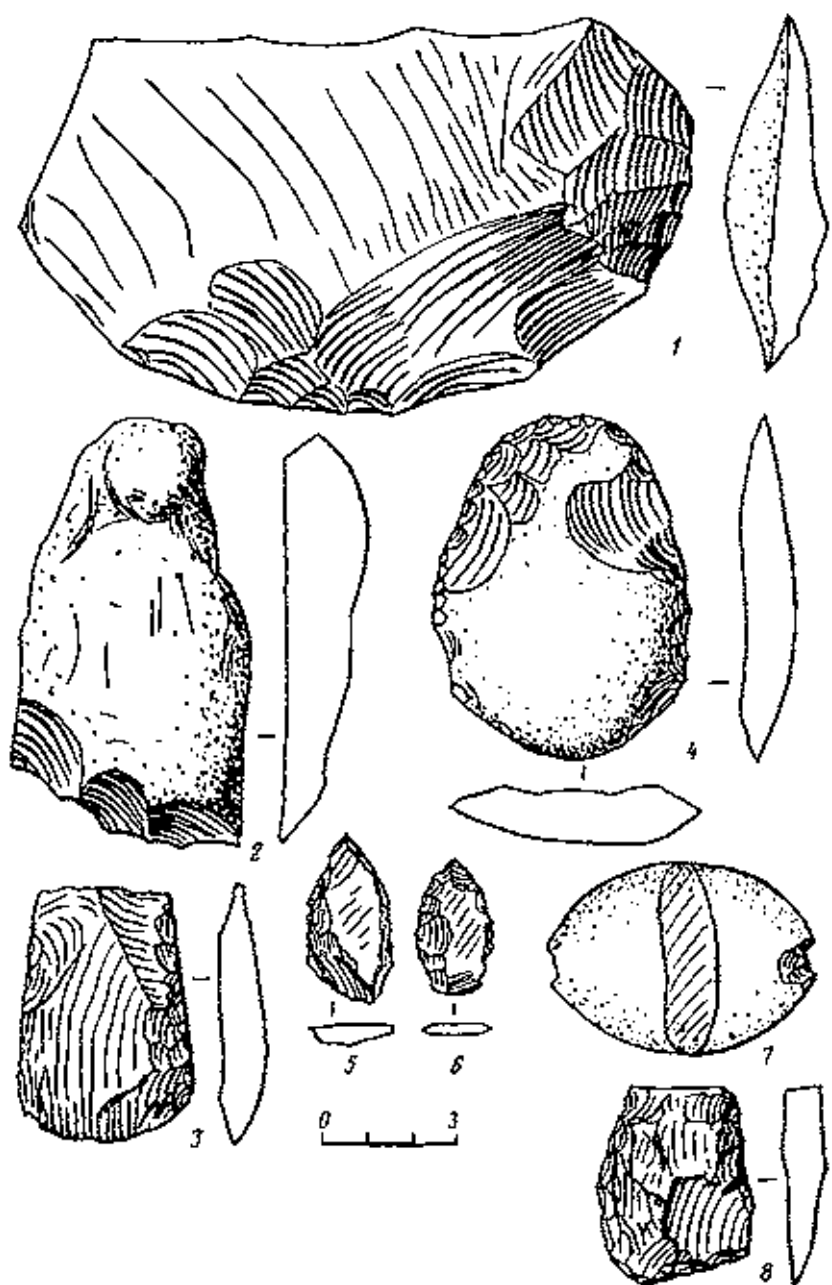


Figure 50. Stone tools. Etchun I. 1, 4-6 - gray siliceous slate; 2 - brown silicified clay; 3 - andesite-basalt; 7 - pebble; 8 - gray silicified clay.

retouch, and grinding ($N=1$). A peculiarity of the complex also consists of a large number of tools on amorphous flakes and spalls.

Types of blanks, secondary work, and types of tools in the complex are in general similar to the complexes of the Opukha I site. This attests to their unified cultural association. But here ground knives on blades and ceramics are absent. However, the stratigraphy does not permit assigning the complex to an earlier period than the complexes of Dwellings 2 and 3 of the Opukha I site. The first cultural layer of Etchun I is significantly later.

The second cultural layer of Etchun I is the remains of a hunting camp (possibly a surface, tent-like dwelling). This is corroborated here by the predominantly primary working of skins (skreblos are in the majority) and by the assortment and appearance of the tools also; and this probably explains the distinctiveness of the complex.

Also in the second cultural layer a tubular bone (possibly serving as a handle) (Fig. 46:1) and a fragment of a bone button (Fig. 46:2) were found.

The faunal remains of this layer are represented by the bones of pinnipeds (walrus and two kinds of seals [*tiden* and *nerpa*]), dogs, and birds.

In the southeastern part of the excavation, in Quads 2b and 2c, a hearth was located. It was indicated by a depression about 1 m in diameter with charcoal 0.1 m thick and two vertically set slabs. Beside one of them in the charcoal layer, two walrus skulls were found (Fig. 51).

Finds were concentrated near the hearth, in Quads 1b, 1c, and 2b, 2c. Farther to the north the density of finds in the cultural layer diminished (Fig. 48).

This hunting camp was probably connected with procuring pinnipeds.

Etchun II site. This early site at the base of the spit consists of the remains of 40 dwellings. The dwellings are situated in two lines parallel to the shoreline of the sea (Etchun II). Judging by the remains, these were single-room and multi-room semisubterranean dwellings 6 m to 10 m in diameter with a lateral tunnel-like entryway. The depth of the depressions of the rooms was 0.4 m to 0.8 m. Their berms, elevated 0.3 m to 0.5 m, were overgrown with grass.

At the site, 500 m north of the hunting camp Etchun I, a round single-room dwelling (Dwelling 1) was partially investigated. Its diameter was 8 m. The dwelling was indicated by a depression 0.5 m deep with berms raised 0.3 m and covered with grass.

In the dwelling, in a 1 m x 8.5 m trench, two cultural layers were encountered. The first was at a depth of 0.2 m to 0.3 m and 0.05 m to 0.1 m thick, the second at a depth of 0.3 m to 0.65 m and 0.1 m to 0.15 m thick. The following stratigraphy was



Figure 51. Hearth in excavation. Etchun I.

noted in the eastern wall: 1 - sod 0.08 m to 0.1 m; 2 - brown sandy loam with gravel 0.01 m to 0.25 m; 3 - first cultural layer, dark-brown sandy loam with charcoal 0.05 m to 0.1 m; 4 - brown sandy loam with gravel 0.1 m to 0.3 m; 5 - second cultural layer, dark-gray sandy loam with charcoal 0.1 m to 0.15 m; 6 - layer of fine gravel 0.1 m to 0.2 m; 7 - gravels with gray sand.

Judging by the stratigraphy, we are dealing with cultural layers of two dwellings of different time periods.

In the lower, second cultural layer three objects were found. One was a side skreblo on an oval cobble spall. Its oval-convex working edge was formed by percussion flaking on the back. The other was a drill on a blade with triangular cross section. Its oval-convex working edge was modified by pressure retouch on one side (Fig. 17:9). A round, blue, glass bead and a slate flake were also found.

In Quad 1c a hearth was partially revealed. It was indicated by a ring constructed of river cobbles and a 0.15 m layer of charcoal. Its diameter was 0.6 m.

The faunal remains of the cultural layer are represented by ribs of a gray whale, as well as by a 0.1 m to 0.15 m layer in Quads 1c-1d-1e of calcined bones of birds and fish (primarily salmon) and the remains of mollusk shells.

On Whale Rib 1 two hard-to-determine figures (Fig. 44:3, 4) were noted, and on Rib 2 one figure (Fig. 44:5).

The cultural layer in the southern part of the trench rises sharply and pinches out, defining the shoulder of the dwelling. Its depth was 0.55 m.

In the first cultural layer five stone tools were found. They included three oval end skreblos on a flat cobble (N=1) and flakes (N=2), their rounded oval-convex working edges formed by percussion flaking and modified by pressure retouch on one side (N=2) (Fig. 17:10) and on two sides (Fig. 17:11). There were also two sinkers on flattened oval cobbles. One sinker with lateral grooves, the other with bifacial flutes, were made by pecking (Fig. 13:7).

In the cultural layer three bone artifacts were found: a rod of whale bone with longitudinal hole for seating on a shaft (Fig. 46:4), a hook of deer antler with a hole for suspension (Fig. 46:5), and a pick of walrus bone (Fig. 46:6).

The faunal remains were represented by bones of a gray whale, walrus, birds, fish (primarily salmon), and the remains of mollusk shells.

In Quad 1d a whale rib with an incised schematic figure of a land animal was found (Fig. 44:2).

In Quad 1c a hearth was partially revealed, indicated by an arrangement of river cobbles and a 0.1 m layer of charcoal.

In Quad 1b a cluster of whale and walrus bones covered the cultural layer. These are the remains of construction components of the roof of the dwelling. In Quad 1e a whale scapula was found.

The stone and bone inventory of the second (1a) and the first (1b) cultural layers of the dwelling at Etchun II was extremely poor but, together with the type of dwelling, suggests a unified cultural association with the complexes of Opukha I and Anna II.

Shrines. Some 300 m north of the Etchun II site are three ritual sites. Shrine 1 is situated on the shore of the sea. It is indicated by the lower jaw of a gray whale about 1.5 m long set in the ground sloping toward the sea and oriented vertically to the plain. The ritual area around it, in the form of a 3 m x 6 m oval, is covered with luxuriant, grassy vegetation. In the ritual area and around it was a cluster of walrus skulls and deer antlers with the top part of the skull. They were concentrated in disorder around the upright bone. The shrine functioned, according to data from informants, up to the 1930s and 1940s (Fig. 52).

Shrines 2 and 3 are situated here in the same place, on a 3 m to 4 m high terrace. They were denoted by the lower jaws of a gray whale 1.2 m high set in the ground and



Figure 52. Shrine 1. Etchun II.

a cluster of walrus skulls spread in disarray. The 1 m x 2 m oval ritual areas of these shrines were covered with grassy vegetation.

On the surface of the ritual area of Shrine 1 a wooden ritual arrow similar to those at Opukha was found. This attests to the cultural unity of this shrine and the shrines of Opukha I and II. Here in the same place an anthropomorphic figure of wood was found, probably of ritual significance (Fig. 46:6)

Orianda Lagoon

At the entrance of the Kentut River into Gavriila Bay, the large Orianda Lagoon was formed, separated from the sea by sand and gravel spits created by wave action, each about 6 km long (Fig. 53). The lagoon is bordered by a chain of sloping hills. It is located 160 km north of the coastal village of Meinyipil'gyno. Here two early sites and a shrine were investigated.

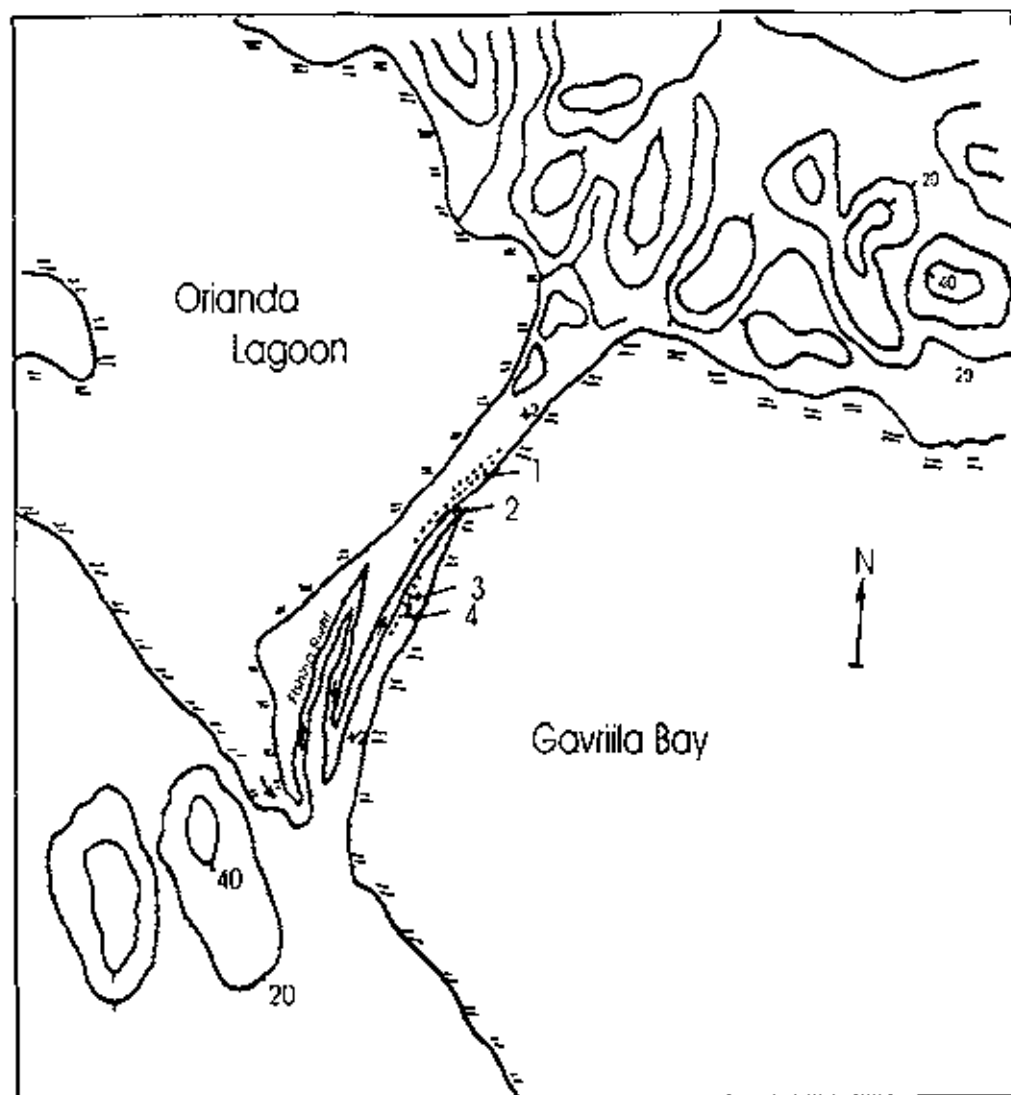


Figure 53. Map of archaeological sites on the shore of Orianda Lagoon: 1. Orianda I site; 2. Excavation; 3. Orianda II site; 4. Shrine.

Orianda I site. On the left bank of the channel, which joins Orianda Lagoon to the sea, is an old site (Orianda I). It contains the remains of 30 dwellings. The elevation of the spit here is 2 m to 3 m, and it is 600 m to 700 m wide. The remains of dwellings associated with the tops of beach ridges are distributed over an area of 800 m in two lines parallel to the shoreline of the channel. Judging by the remains, they are single-room and three-room dwellings, with a predominance of the latter. The dwellings are semisubterranean with a lateral tunnel-like entryway. On the surface the rooms are

denoted by depressions 0.5 m to 0.8 m deep, 6 m to 8 m in diameter, with berms raised 0.3 m to 0.4 m, and overgrown with grass. The entryway of the dwelling is oriented to the southeast at an angle of 10° to 20° to the shoreline of the channel. Around the dwellings are distributed pits 0.4 m to 0.7 m deep and overgrown with grass.

A beach exposure 50 m from the neck of the lagoon was investigated (Orianda I-1). It extends about 100 m. In a 10 m section of slump, 11 stone artifacts were found: a knife on a flat amorphous flake, its working edge formed by the removal of three spalls and modified by pressure retouch on the back (Fig. 54:14); a knife on a triangular spall of triangular cross section, its working edge made by pressure retouch and secondary fine retouch on one side (Fig. 55:1); a combination knife-scraper-drill on an amorphous flake, its surface formed by flattening retouch and the edges modified by fine retouch on the back (Fig. 54:15); semilunar side skreblos on cobble spalls with cobble cortex preserved ($N=3$), their working edges made by percussion flaking on the back (Fig. 56:16); an end skreblo on a suboval unifacially convex cobble spall with cobble cortex preserved, its upper edge formed by percussion flaking and the oval-convex working edge by pressure retouch on the back (Fig. 55:11); and a lamp on an egg-shaped cobble with a depression, made by pecking (Fig. 54:12). A distinctive prismatic core on a large cobble, which preserved the cobble cortex on the upper and lower surfaces, is interesting. Its lateral edges were formed by percussion flaking. It was used for obtaining flakes (Fig. 55:15). In the same place fragments of knives on flakes with unifacial retouch ($N=4$) and 15 slate flakes were found.

Some 100 m from the mouth of the channel along the edge of this exposure a 2 m x 10 m excavation was made, in which the remains of three cultural layers were found: 1 - at a depth of 0.2 m to 0.45 m; 2 - 0.55 m to 0.8 m; 3 - 1.2 m to 1.3 m (Orianda I-2).

The following stratigraphy was noted in the western wall of the excavation (Fig. 57): 1 - sod 0.1 m to 0.15 m; 2 - humic layer 0.05 m to 0.1 m; 3 - brown sandy loam with gravel 0.05 m to 0.2 m; 4 - first cultural layer, dark-brown sandy loam with charcoal 0.05 m to 0.1 m; 5 - brown sandy loam with gravel 0.35 m to 0.5 m; 6 - second cultural layer, dark-gray sandy loam with charcoal 0.15 m to 0.2 m; 7 - brown sand 0.03 m to 0.15 m; 8 - gray sand 0.05 m to 0.2 m; 9 - third cultural layer, dark-brown sandy loam with charcoal 0.15 m to 0.2 m; 10 - small gravel 0.3 m to 0.5 m; below this, large gravel.

In the lower, third cultural layer were found stone, bone, and wooden artifacts.

Among the stone artifacts the largest category is knives ($N=27$). They were made on flakes ($N=21$), spalls ($N=5$), and a blade. Among them were subtriangular knives with double working edges ($N=5$) (Fig. 58:1) and a leaf-shaped one on a unifacially convex rectangular blade (Fig. 58:10) and knives with a single working edge on amorphous flakes ($N=3$ and 6 fragments) and on spalls of triangular cross

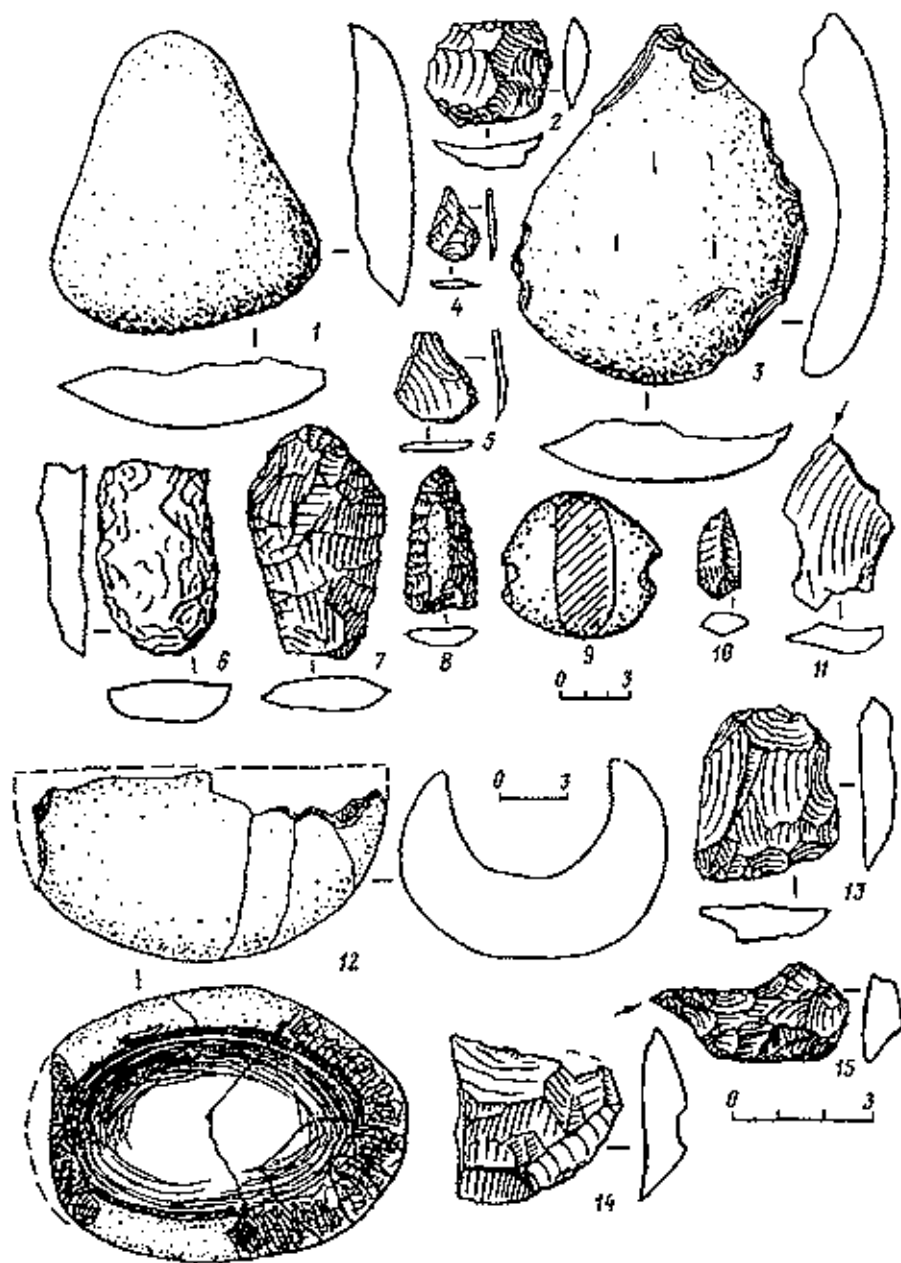


Figure 54. Stone tools and artifacts from Orianda I-1, Layer II. 12-15 assortment.

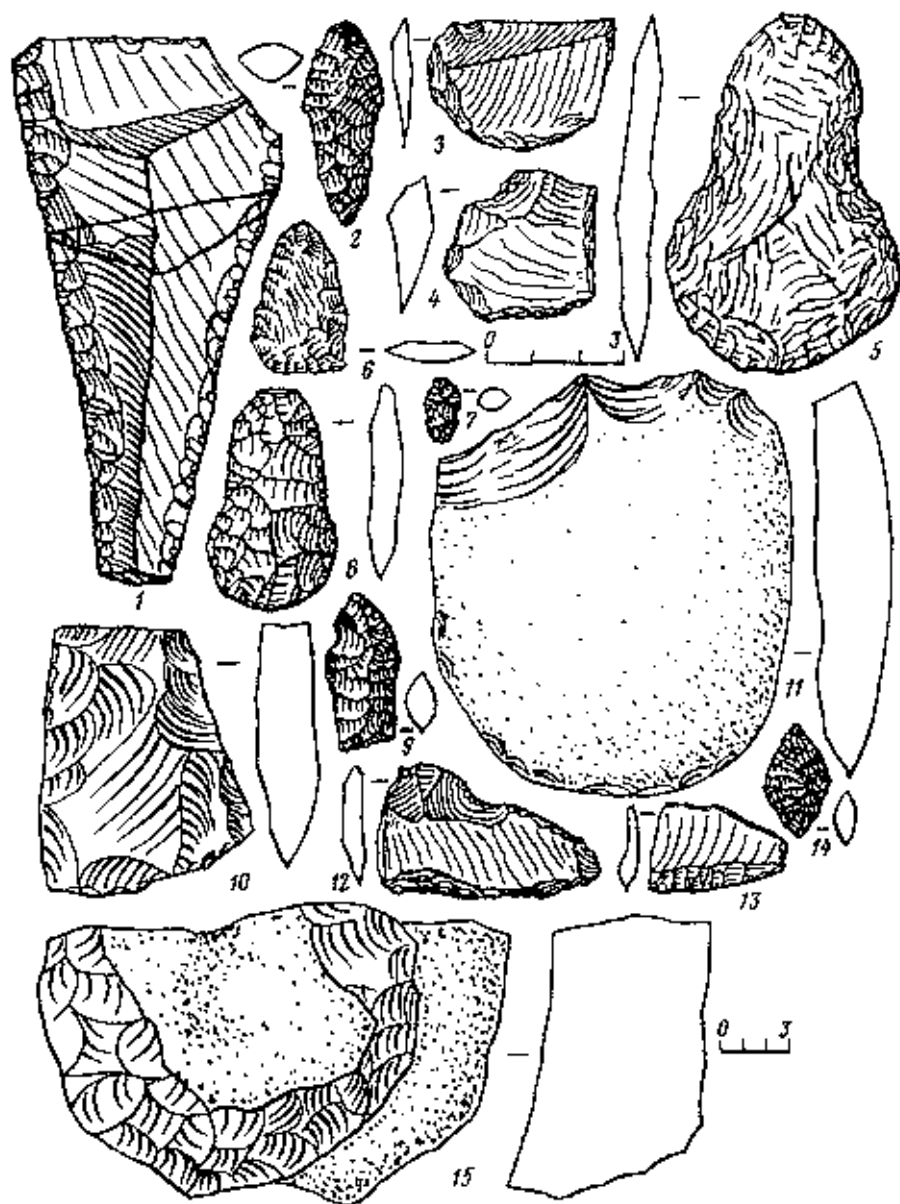


Figure 55. Stone tools. Orianda I, Layer I. 1, 3, 4, 12, 13 - knives; 2, 6, 9, 14 - arrow points; 5, 8 - scrapers; 7 - inset blade, 10 - adze; 11 - skreblo (assortment); 15 - core.

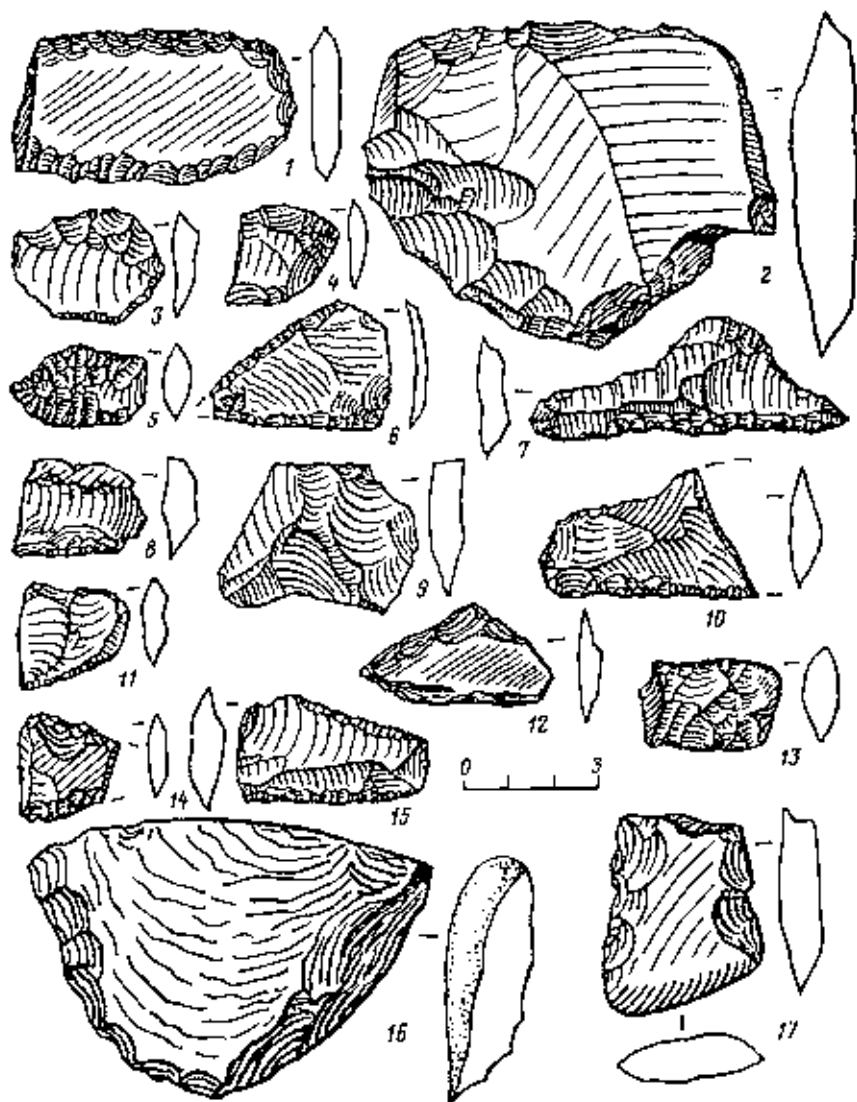
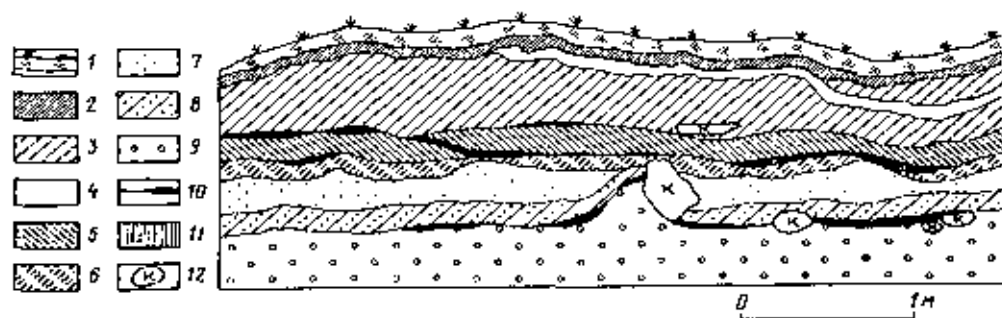


Figure 56. Stone tools Orianda I-1.



section (N=2 and 3 fragments) (Fig. 58:13). The working edges of these knives were formed by pressure retouch on the back.

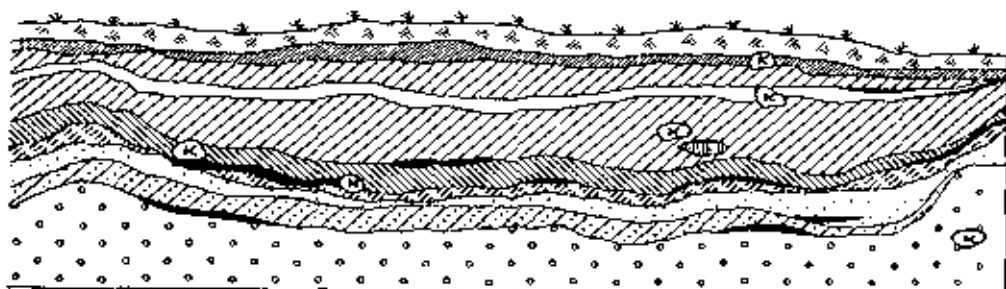
There are subtriangular knives with straight or slightly convex working edges, worked by pressure retouch on two sides (N=1 and 2 fragments) (Fig. 58:3). There are leaf-shaped knives. Their surface was formed by percussion flaking and percussion retouch, and the working edge modified by fine pressure retouch on two sides (N=1 and 2 fragments) (Fig. 58:4).

Combination tools are widely distributed: knife-scraper-spokeshaves on amorphous flakes. The working edge of the knife was made by pressure retouch on the back, and the oval-convex edge of the scraper and the edge of the concave spokeshave have traces of tiny facets (N=5 and 1 fragment) (Fig. 58:2). There are knife-scraper-gravers on flakes. The straight working edge of the knife was worked by retouch, and the oval-convex working edge of the scraper was unworked (N=2) (Fig. 58:7). There are knife-spokeshaves on amorphous flakes. The slightly convex working edge of the knife and the concave working edge of the spokeshave were made by fine pressure retouch on one side (Fig. 58:5, 6, 9). There is a knife-scraper on a blade (Fig. 58:11).

Tools for working skins were represented by scrapers (N=3) and skreblos (N=3). End scrapers were made on amorphous flakes. Their oval-convex working edge was formed by fine pressure retouch on the back (N=3) (Fig. 58:18). The surface of a discoid scraper on a flake was formed by percussion flaking, and the edges modified by retouch on two sides (Fig. 58:14). Side skreblos were made on cobble spalls and retain the cobble cortex. Their oval-convex working edge was formed in places by fine pressure retouch on the back (N=3).

The edges and touched-up needle-like tip of the drill on a flake of triangular cross section was worked by fine pressure retouch on two sides (Fig. 58:17).

Figure 57. (p. 94 - p. 95) Stratigraphy of western wall of excavation. Orianda I-1. 1 - sod; 2 - humus; 3 - brown sandy loam with gravel; 4 - 1st cultural layer, dark-brown sandy loam with charcoal; 5 - second cultural layer, dark-gray sandy loam with charcoal; 6 - brown sand; 7 - gray sand; 8 - third cultural layer, dark-brown sandy loam with charcoal; 9 - small gravel; 10 - charcoal; 11 - bones; 12 - stone.



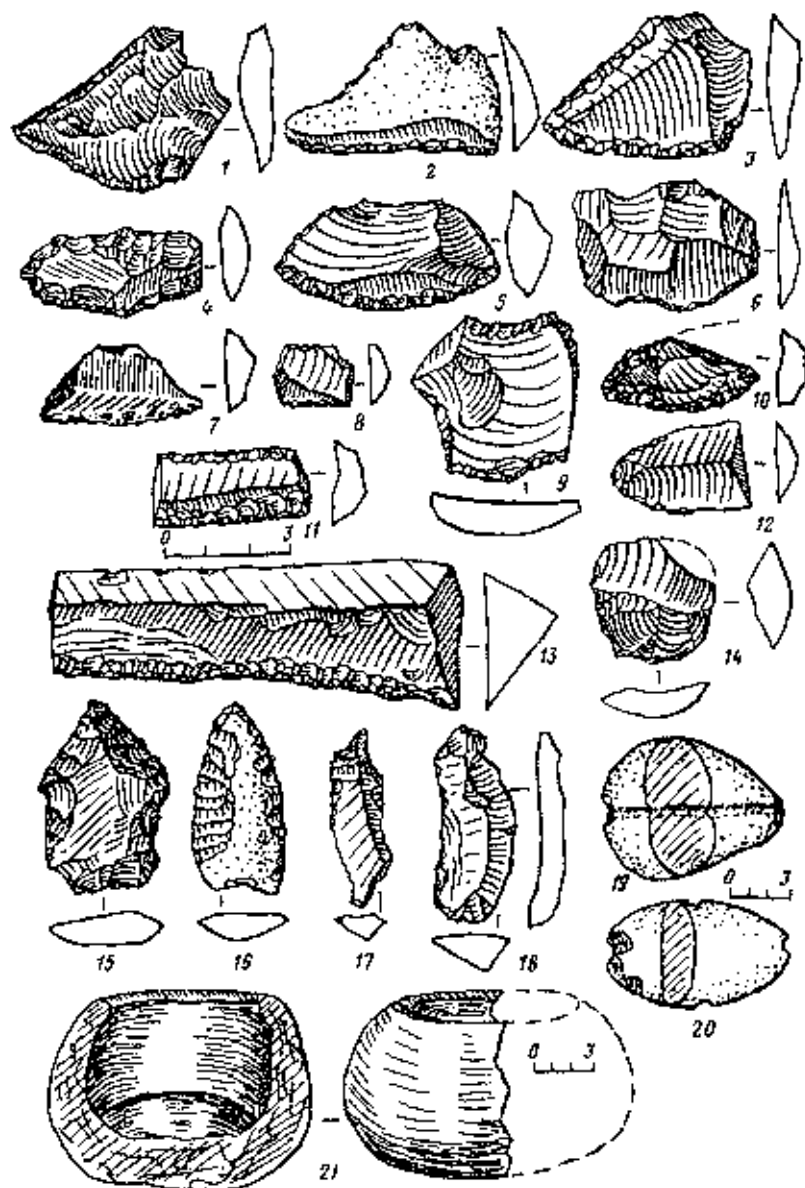


Figure 58. Stone tools and artifacts. Orianda I-1, Layer III. 1, 3-5, 8, 10, 12, 13 - knives; 2 - knife-scraper-spokeshave; 6, 9 - knives-spokeshaves; 7 - knife-scraper-graver; 11, 14, 18 - scrapers; 15, 16 - arrow points; 17 - drill; 19, 20 - sinkers; 21 - lamp.

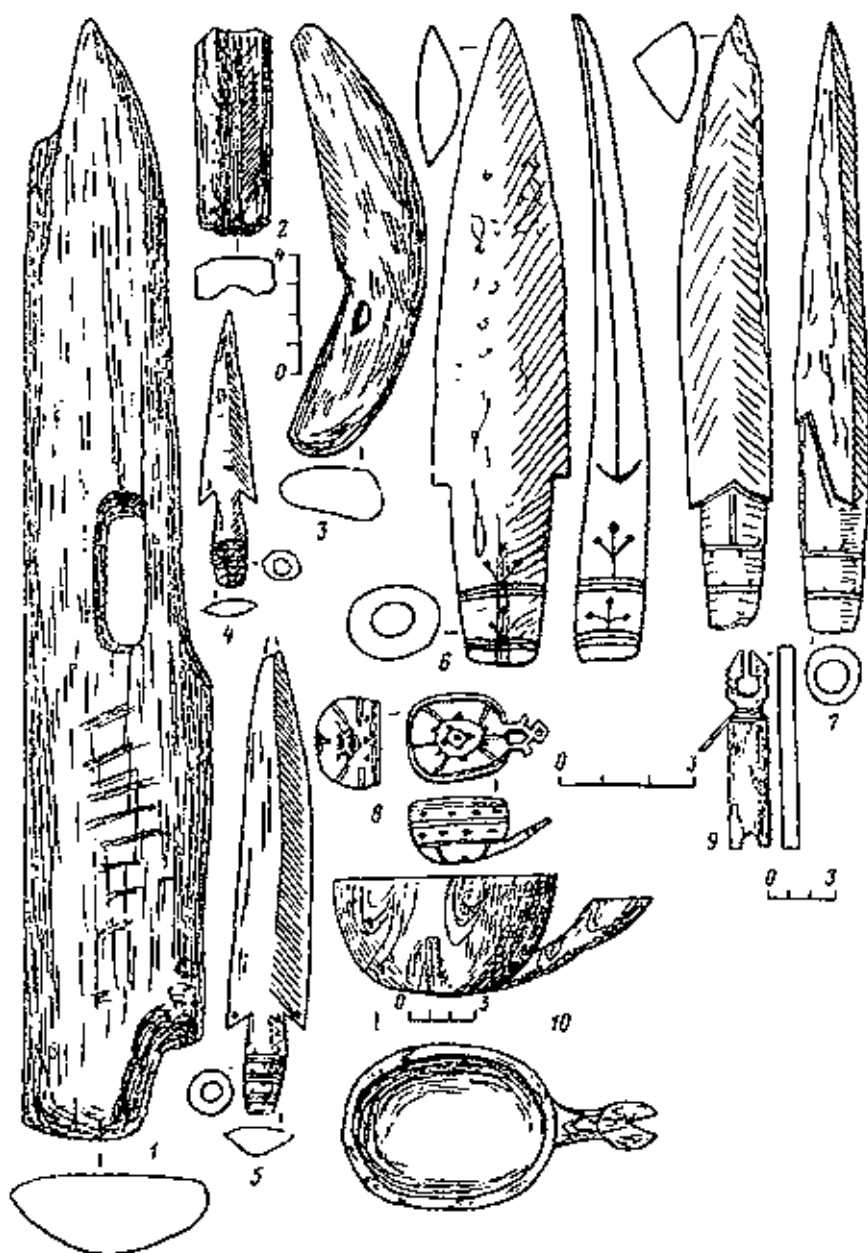


Figure 59. Artifacts of bone and wood (9, 10). 1-3, 5-8 - Orianda II, shrine; 4 - Orianda I-3; 9, 10 - Orianda I-1, Layer III.

The hunting-fishing inventory is represented by arrow points (N=2) and sinkers (N=2). An arrow point was made on a subtriangular cobble spall of lenticular cross section preserving cobble cortex. Its base is slightly concave. The edges of the point were worked by pressure retouch on two sides (Fig. 58:16). An arrow point on a flake of lenticular cross section has two small lateral projections and a broad straight stem. The edges of the point were worked by percussion retouch and in places had additional secondary fine pressure retouch (Fig. 58:15).

There are two sinkers on flat oval cobbles: one sinker has four grooves (Fig. 58:20), while the other has two lateral grooves and bifacial fluting made by pecking (Fig. 58:19).

In this same place single-faceted, lateral burins on flat amorphous flakes (N=2) and an inset blade on a flat flake were found. The working edge of the latter was made by fine pressure retouch on the back (Fig. 58:8). There is a piece of a lamp made, from an egg-shaped cobble with a depression, by pecking (Fig. 58:21).

The presence in the layer of flakes and spalls (61 slate, 3 flint, 2 quartz, 2 chalcedony, and 2 obsidian flakes and 5 slate and 3 quartz spalls) attests to the fact that tools were made here.

The stone inventory of the layer is characterized by 50 tools in 10 categories. The tools were made predominantly on flakes (N=38), as well as on spalls (N=9) and cobbles (N=3). Characteristic for secondary work is the predominance of unifacial edge retouch and percussion flaking (N=36). Edge (N=6) and complete (N=3) bifacial work are also represented.

Of the bone artifacts in the layer there were a fragment of a tool of walrus rib and a pick with a flat projection and a hole for fastening a handle (Fig. 59:3).

Two artifacts of wood were also found: a scoop with a handle in the form of a bifurcated hoof (Fig. 59:10) and a fragment of a shuttle for weaving a net (Fig. 59:9). Birch strips were found, which were probably used for tying things, as well as split baleen.

Of the faunal remains encountered in the layer there were four skulls and three lower jaws of walruses, bones of two kinds of seals [*tiulen'* and *nerpa*] and small land animals, bones of birds, and mollusk shells. The good preservation of the bones and bone and wooden artifacts is explained by the proximity of the layer to the permafrost.

In Quads 1b-1c and in quads 1c-1d were two hearths of 1 m to 1.3 m diameter each. They were denoted by a ring of large river cobbles and layers of charcoal 0.05 m to 0.1 m thick that extended beyond the rings (Fig. 60).

The finds were concentrated around the hearths: and to the north and south the richness of the cultural layer, in terms of artifacts, sharply diminished. The northern

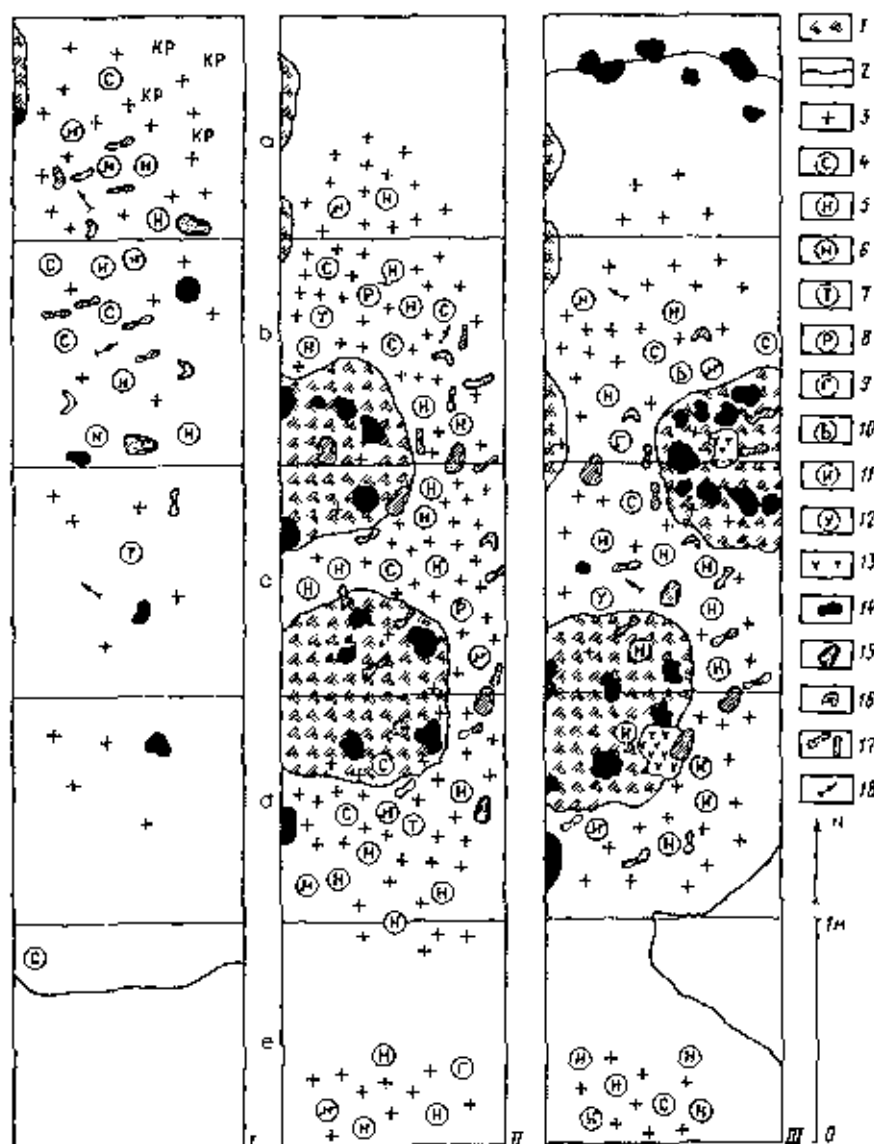


Figure 60. Orianda I-1. Plan of position of finds. 1 - charcoal; 2 - edge of cultural layer; 3 - flake; 4 - scraper; 5 - knife; 6 - fragment of a knife; 7 - adze; 8 - burin; 9 - sinker; 10 - birch bark; 11 - artifact of wood; 12 - baleen; 13 - mollusk shells; 14 - stone; 15 - walrus skull; 16 - lower jaw of walrus; 17 - bone; 18 - arrow point.

edge of the cultural layer distribution in the excavation was in Quad 1a. Here the cultural layer abruptly rises and pinches out. This is probably the edge of a dwelling that only slightly penetrated the ground. The eastern part of the dwelling was destroyed by the waters of the channel undercutting the bank.

The area lacking a cultural layer in Quads 1d and 1e, and the concentration of finds in the southern part of Quad 1e, suggest that the dwelling had two rooms.

The second cultural layer is separated from the third by a sterile layer of gray sand 0.05 m to 0.2 m and a layer of brown sand 0.03 m to 0.15 m lying above the latter. Among the stone tools in the layer, the most numerous category is knives (N=32): knives with double working edges on flat subtriangular (N=4) (Fig. 56:6, 12) and rectangular flakes (N=2) (Fig. 56:15); knives with a single working edge on amorphous flakes (N=3 and 12 fragments) (Fig. 56:8) and with a stem (Fig. 56:10), the straight working edge of these knives formed by pressure retouch on the back; and knives with two working edges on flakes and blades with a rounded end (N=3) (Fig. 56:1, 11), of subtriangular (2 fragments) (Fig. 56:14) and suboval form (N=3) (Fig. 56:13), and with sharpened end and surface worked by flattening retouch (N=1 and 1 fragment) (Fig. 56:5). The straight working edges of these knives were modified by pressure retouch on two sides. There is a large knife with a stem (Fig. 56:2).

Also encountered in this layer were combination tools. They are knife-scrapers on amorphous flakes. The straight working edge of the knife was formed by fine pressure retouch on the back, and the oval-convex working edge of the scraper was unmodified (N=4) (Fig. 56:3). The edges of a knife-scraper-drill on an amorphous flake were formed by fine pressure retouch on two sides (Fig. 56:7).

Tools for working skins were represented by scrapers (N=3) and skreblos (N=9). Among them are end scrapers on amorphous flakes and a truncated-oval end scraper (Fig. 54:6). Their oval-convex working edge was modified by fine pressure retouch on the back (Fig. 54:5) and the surface was formed by percussion flaking (Fig. 54:4). A discoid scraper was made on a unifacially convex flake. Its rounded working edge was modified by pressure retouch on the back (Fig. 54:2).

The skreblos were made on cobble spalls with the cobble cortex preserved. Among them can be distinguished subtriangular end skreblos. Their slightly convex working edge was modified by fine pressure retouch on the back (N=2) (Fig. 54:3) or without reworking (N=3) (Fig. 54:1). Side skreblos of suboval form were made without modifying the oval-convex working edge (N=4).

The hunting-fishing inventory is represented by an arrow point and sinkers. The edges of the arrow point on a triangular cobble spall with lenticular cross section and straight base were worked on two sides by pressure retouch (Fig. 54:8). A point with a rectangular base was found.

Two sinkers on flattened oval cobbles were made with two lateral grooves for fastening to a net (Fig. 54:9).

Also represented are tools for working wood and bone. There is an adze of subtrapezoidal form and lenticular cross section. Its lateral edges were formed by percussion flaking and the working edge slightly ground on two sides (Fig. 56:17). There are burin-spokeshaves on flat amorphous flakes with one burin spall removed. Their working edges were modified by fine pressure retouch on the back (N=2) (Fig. 54:11). There are gravers on flat amorphous flakes. Their point and working edge were made by pressure retouch on one side (N=2) (Fig. 54:10).

Forty-one slate, 4 obsidian, 2 flint, 1 chalcedony, and 1 quartz flakes were found in the layer, as well as 3 cobble spalls. Therefore, they made tools here.

In Quads 1b and 1c-1d of the excavation, there were two hearths of 1 m to 1.3 m diameter. They were indicated by a ring constructed of large river cobbles and a layer of charcoal 0.03 m to 0.15 m thick that passes beyond the border of the hearth ring (Fig. 60).

Finds were concentrated near the hearths, and to the north and south of them the abundance [of artifacts] of the cultural layer sharply diminishes. The exception is a group of finds in the southern part of Quad 1c.

Of the faunal remains, which were significantly less well preserved than in Cultural Layer III, there were five skulls and three lower jaws of walrus, walrus bones, bones of two kinds of seals [*tiulen'* and *nerpa*] and sea lion, as well as bones of land animals and birds.

The cultural layer in Quads 1a-2a and 1c-2[e?] rises and pinches out, outlining the edge of the living area. This is probably the central area of a large, slightly semisubterranean dwelling that possibly had two rooms. The eastern part of the dwelling had slumped as a result of destruction of the bank by the channel. Perhaps the depression of the earlier dwelling was used for construction of a new dwelling since the borders of Cultural Layers II and III coincide. And it is possible the sterile strata of sand between these layers attest to a chronological break in the functioning of this feature as a house. The presence of autonomous hearths of different position corroborates the first supposition.

In the layer only a stone inventory was encountered. It is characterized by 57 tools in 10 categories. Just as in Cultural Layer III, the tools were made predominantly on flakes (N=44), though also on cobble spalls (N=11) and cobbles (N=2). Unifacial edge work predominates (N=34). Bifacial edge work is represented (N=12), as well as complete unifacial (N=1) and complete bifacial work (N=1) and grinding (N=1). On seven artifacts the working edge was unmodified.

In the first, upper cultural layer of the excavation, separated from the second cultural layer by a sterile stratum of brown sandy loam with gravel, stone artifacts and ceramics were found.

Among the stone artifacts the most numerous category was knives ($N=9$). Of the knives with a single working edge ($N=6$), one was made on a uniaxially convex triangular spall (Fig. 55:1). All the remaining knives were made on flakes—uniaxially convex triangular knives with a straight working edge ($N=3$) (Fig. 55:13), a flat oval knife with oval-convex working edge (Fig. 55:3), and a knife with triangular cross section (Fig. 55:4). Knives with double working edges are subtriangular. They are lenticular in cross section, with straight working edges (Fig. 55:12) formed by pressure retouch on the back ($N=2$), and one uniaxially convex knife with slightly convex working edge made by pressure retouch on two sides.

Tools for working skins were represented by scrapers ($N=4$). Among them are two side scrapers on flat amorphous flakes. Their oval-convex working edge was formed by percussion flaking on one side. Two end scrapers on flakes have a pear-shaped form and sublenticular cross section. Their surface was made by the removal of several spalls, and the edges by pressure retouch on two sides (Fig. 55:5) and in places fine secondary pressure retouch (Fig. 55:8).

Tools for working wood and bone were represented by a trapezoidal adze of sublenticular cross section. Its surface was formed by percussion flaking and the edges by fine pressure retouch on two sides (Fig. 55:10). A combination knife-spokeshave on an amorphous flake was found. The oval-convex working edge of the knife was made by fine pressure retouch on one side, and the working edge of the spokeshave was unmodified.

The hunting-fishing inventory was represented by arrow points ($N=4$), an inset blade, and a projectile for a sling. Leaf-shaped arrow points were made on flakes of lenticular cross section. Their surface was formed by flattening retouch and the edges by fine pressure retouch on two sides. Among them are points with contracting oval-convex stem (Fig. 55:6) and with beveled base (Fig. 55:9), a narrow point with two small lateral projections at the tip and with pointed-convex base (Fig. 55:2), a micro-point with pointed base (Fig. 55:14), and a small inset blade on an oval flake of lenticular cross section. Its surface was formed by flattening retouch, and the edges were modified in places by fine pressure retouch on two sides (Fig. 55:7). A round, 5 cm diameter cobble was probably used as a projectile for a sling. Here in the same place 10 slate flakes, 9 silicified clay, 3 flint, 1 quartz, and 1 obsidian were found, as well as 3 cobble spalls. Consequently, tools were made here.

The complex of stone tools of this layer consists of 19 artifacts in six categories. Tools were predominantly made on flakes ($N=18$), as well as on a spall and a cobble. Uniaxial edge working predominates ($N=11$). Present are bifacial edge work ($N=1$) and continuous bifacial work ($N=8$).

The types of blanks, secondary work, and types of tools attest to unified traditions of the stone industry and to unified cultural association of all three cultural layers of the excavation with complexes of the sites of Nataliia II, Opukha I, and Anna II. The complexes of Cultural Layers II and III, where ceramics were absent, are chronologically close and are assigned to an aceramic period.

This complex of the first cultural layer, where a large number of tools were noted with complete bifacial work and the presence of ceramics, is assigned to a later period. The ceramics of the first layer are represented by fragments of a round-bottomed vessel with round body. The modeled vessel was made of clay with a temper of fine-grained sand. It is well fired. The rim of the vessel is 1 cm thick and flat with rounded edges and a small inner projection. It is sloped inward. The sherds are black in the break and on the surface. Their inner surface is well smoothed. On the outside they are decorated from the rim by straight cord impression (Fig. 19:1). The thickness of the walls is 0.6 cm. The vessel is 24 cm x 30 cm oval in horizontal cross section at its equator, 22 cm x 28 cm at the rim, and 21 cm high. The form and decoration of this vessel also attest to traditions unified with the complexes of the Opukha I and Anna II sites.

Finds in the cultural layer were concentrated primarily in Quads 1a-1b. To the south the abundance in number of finds in the cultural layer diminishes (Fig. 60). In Quad 1a the layer rises to 0.15 m, and its thickness diminishes to 0.03 m. In Quad 1d the cultural layer rises to 0.2 m, and in Quad 1e pinches out (Fig. 60). This cultural layer is possibly the remains of a tent-like surface dwelling. In the western part of Quad 1a a charcoal stain 1 m in diameter was found. It was 0.05 m thick and was probably a hearth.

Faunal remains found in the layer were the bones of pinnipeds (walrus, two kinds of seals [*fulen'* and *nerpa*], and sea lion), bones of land animals and birds, and mollusk shells.

Here in the center of the excavation, under the sod at a depth of 0.1 m, a pavement of flat river cobbles was found. The pavement's diameter was 1.5 m. It was possibly used for portioning out pinniped carcasses.

In an exposure 5 m north of the excavation, at a depth of 1.2 m in a pit filled with charcoal 0.15 m to 0.25 m, fragments of two human skulls (a woman and a child 5 to 6 years old) were found. The diameter of the pit was 1 m. No post-cranial remains or artifacts were found here. It is unlikely that this is a burial. These are more likely the remains of people who perished in a fire. The structure and depth of the layer's deposit correspond to Cultural Layer III of the excavation.

Some 20 m south of the excavation two stone ovens noted in an exposure were opened up (Orianda 1-3). Oven 1 consisted of two chambers. The large one is represented by a rectangular pit measuring 0.52 m x 0.56 m x 0.47 m. Its side walls were

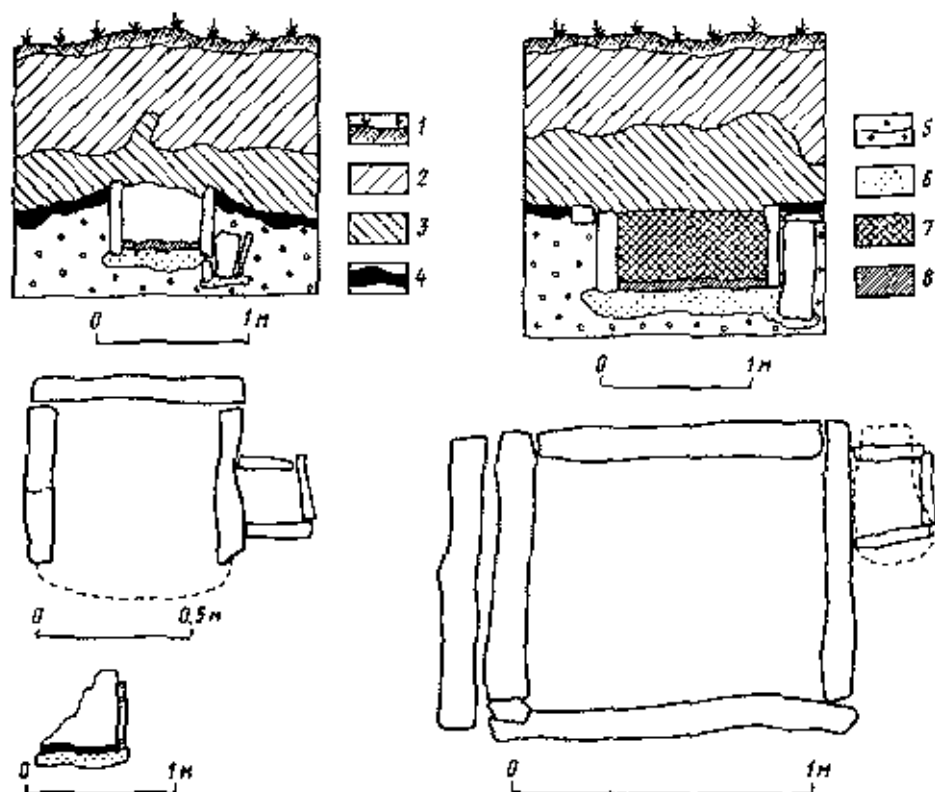


Figure 61. Plan and profile of Oven I (left) and Oven II. Orianda I-2, 3. 1 - sod; 2 - light-brown sandy loam with rubble; 3 - brown sandy loam; 4 - cultural layer, dark-brown sandy loam with charcoal; 5 - fine gravel with brown sand; 6 - interface of clay with gravel; 7 - fill of oven; 8 - charcoal.

faced with monolithic stone slabs mounted with a paste of clay and gravel. The thickness of the slabs is 0.08 m to 0.1 m. The eastern wall of the oven had crumbled, the remaining ones were preserved almost complete (Fig. 61). A second chamber of lesser dimensions (0.21 m x 0.27 m x 0.31 m) abutted this oven at the northern wall, but did not join with the first. The upper edge of the slabs that form the side walls of this chamber is, on three sides, 0.4 m below the upper edge of the large chamber. The thickness of the slabs is 0.05 m to 0.06 m. In the exposure at Oven I the following stratigraphy was noted (Fig. 61): 1 - sod 0.08 m to 0.1 m; 2 - light-brown sandy loam with rubble 0.4 m to 0.5 m; 3 - brown sandy loam 0.3 m to 0.4 m; 4 - cultural layer, dark-brown sandy loam with charcoal 0.15 m to 0.2 m; 5 - fine gravel with brown sand 0.4 m to 0.5 m, below is gravel; 6 - seal of clay with gravel 0.07 m to 0.15 m; 7 - oven fill: carbonaceous dark-brown sandy loam with bones of pinnipeds; 8 - concentration of charcoal on the bottom of the oven 0.05 m to 0.08 m; 9 - stone slabs of the oven.

Oven 2, located 10 m north, is similar in structure to Oven 1, but somewhat larger. Its large chamber measures 1 m x 1.2 m x 0.51 m, the slabs 0.07 m to 0.15 m thick. Its smaller chamber is 0.24 m x 0.31 m x 0.65 m, the slabs 0.03 m to 0.05 m thick. Above, it had been covered by a flat stone slab. The upper edge of the smaller chamber was 0.08 m below the upper edge of the larger. At the southern wall of the oven was a stone bar. It was probably used for keeping the oven closed during the preparation of food. The following stratigraphy was noted during the excavation of Oven 2 (Fig. 61): 1 - sod 0.08 m to 0.1 m; 2 - light-brown sandy loam with rubble 0.3 m to 0.5 m; 3 - brown sandy loam 0.3 m to 0.5 m; 4 - cultural layer, dark-brown sandy loam with charcoal 0.1 m to 0.15 m; 5 - fine gravel with brown sand 0.4 m to 0.5 m, below is gravel; 6 - seal of clay with gravel 0.15 m to 0.2 m; 7 - oven fill: carbonaceous dark-brown sandy loam with bones of pinnipeds; 8 - concentrated charcoal in the bottom of the oven 0.05 m to 0.08 m; 9 - stone slabs of the oven (Fig. 62).

Judging by the structure and depth of the deposit (0.9 m to 1.2 m) of the cultural layer to which these stone ovens are assigned, it corresponds to the lower, third cultural layer of the excavation (Orianda I-2) located to the north.



Figure 62. Orianda I, hearth.

Orianda II site. The site is located on the right bank of the channel, on the spit 200 m from its base. It consists of the remains of 50 dwellings (Orianda II). The dwellings are semisubterranean and are on the tops of beach ridges in four lines parallel to the shoreline of Gavriila Bay.

The site extends 800 m. The elevation of the spit here is 3 m to 4 m and is 650 m to 700 m wide. The tunnel-shaped entryways of the dwellings are oriented to the southeast at an angle of 10° to 30° to the shoreline of the bay. On the surface they are denoted by depressions 0.4 m to 0.8 m with the berms elevated 0.3 m to 0.5 m and covered with grass. The depressions are 6 m to 12 m in diameter. Judging by the remains, three-room dwellings predominate in the site. Around the dwellings are pits 0.4 m to 0.7 m deep and 1 m to 2 m in diameter covered with grass. At the base of the spit on the top of a terrace 4 m to 6 m high were several dwellings.

Shrine. In the center of this site is a shrine. It was defined by dense grassy vegetation covering a 4 m x 6 m oval ritual area. Approximately in the center of the ritual area the lower jaw of a gray whale was set in the ground. It is 0.5 m high at present and slopes toward the sea. Earlier it was higher, which is confirmed by the fact that fragments of it are spread all around. The installed bone is oriented vertically to the plane.

On the surface of the ritual area and near it, walrus skulls were spread in disarray. In the upper 0.1 m sod-vegetation layer of the shrine there was a cluster of bones of gray whale, skulls and bones (primarily extremities) of walrus, two kinds of seals [*tuken* and *nerpa*], bear, fox, Arctic fox, dog, Arctic ground squirrel, and birds.

In examining the ritual area, 308 bone arrow and dart points of various forms were found in a layer of brown sandy loam at a depth of 0.15 m to 0.5 m. These were made from walrus tusk and the frontal part of the walrus skull. These points had socketed (231), wedge-shaped (N=42), bifurcated (N=3), and awl-shaped bases (N=3), as well as a conical stem (N=30).

In the appearance of the points no change can be observed from the lower 0.5 m to the upper 0.1 m levels of the deposit. One compound point was also found with an opening in the lower part for seating on a shaft and in the upper part where a stone or possibly even an iron tip was inserted.

On the whole the points are represented by the same types that were in the shrines of the Opukha I and II sites, with similar decoration. A variety of individual specimens was also encountered. Four bone artifacts were found: a pick from a whale rib with a hole for fastening a handle (Fig. 59:1), a fragment of a walrus tusk with traces

of the removal of slabs (Fig. 59:2), a fragment of a sled-runner shoe of whale bone with round holes for fastening, and a tiny ritual vessel of walrus tusk. On its carved handle was a hole for suspension. On the outside it is decorated by linear-geometric design (Fig. 59:8).

At a depth of 0.4 m to 0.5 m, corresponding to the lower level of the deposit of the finds, were 19 artifacts of stone. Knives predominated (N=11). These are knives on amorphous flakes. Their slightly convex working edge was formed by fine pressure retouch on the back. Among them are those with a single working edge (N=1 and 5 fragments) (Fig. 63:10) and one with two working edges.

Subrectangular knives on flat spalls with a straight working edge were found, formed by pressure retouch on both sides (N=1 and two fragments) (Fig. 63:11), and two adzes: an adze retouched on the beveled working edge and a distinct rounded butt (Fig. 63:2) and an adze with double working edge, the butt being sharpened (Fig. 63:7).

Tools for working skins were represented by a scraper and skreblos (N=4). The end scraper was made on a pear-shaped flake with lenticular cross section and rounded stem. Its surface was formed by flattening retouch, and the edges and oval-convex working edge were modified by fine pressure retouch on two sides. The skreblos were made on cobble spalls that preserved the cobble cortex, with oval-convex working edge. On two end skreblos of suboval form the working edges were not modified (Fig. 63:1). On a side skreblos of suboval form the working edge was made by percussion retouch on the ventral side (Fig. 63:4).

Two leaf-shaped arrow points of lenticular cross section and one blank were also found. The surface of the points was formed by flattening retouch and the edges modified by fine pressure retouch on two sides. The points have an oval-convex (Fig. 63:5) and a straight base (Fig. 63:3).

Five spherical cobbles 3 cm to 6 cm in diameter were possibly projectiles for a sling. A lateral single-faceted burin on a spall has a triangular cross section (Fig. 63:6). Four slate flakes and one obsidian flake and a burin-spokeshave of triangular cross section were also found (Fig. 63:9).

The stone inventory of the shrine is characterized by 19 tools in six categories. They were made on flakes (N=10) and cobble spalls (N=9) with a predominance of unifacial edge work (N=9). Bifacial edge work (N=3) is represented, as well as complete bifacial work (N=4). Three tools are unmodified.

The types of blanks, secondary work, and types of tools of this complex correspond to the complexes of Orianda I-2 and the sites of Opukha I, Anna II, and Nataliia II, which attests to a unified cultural association.

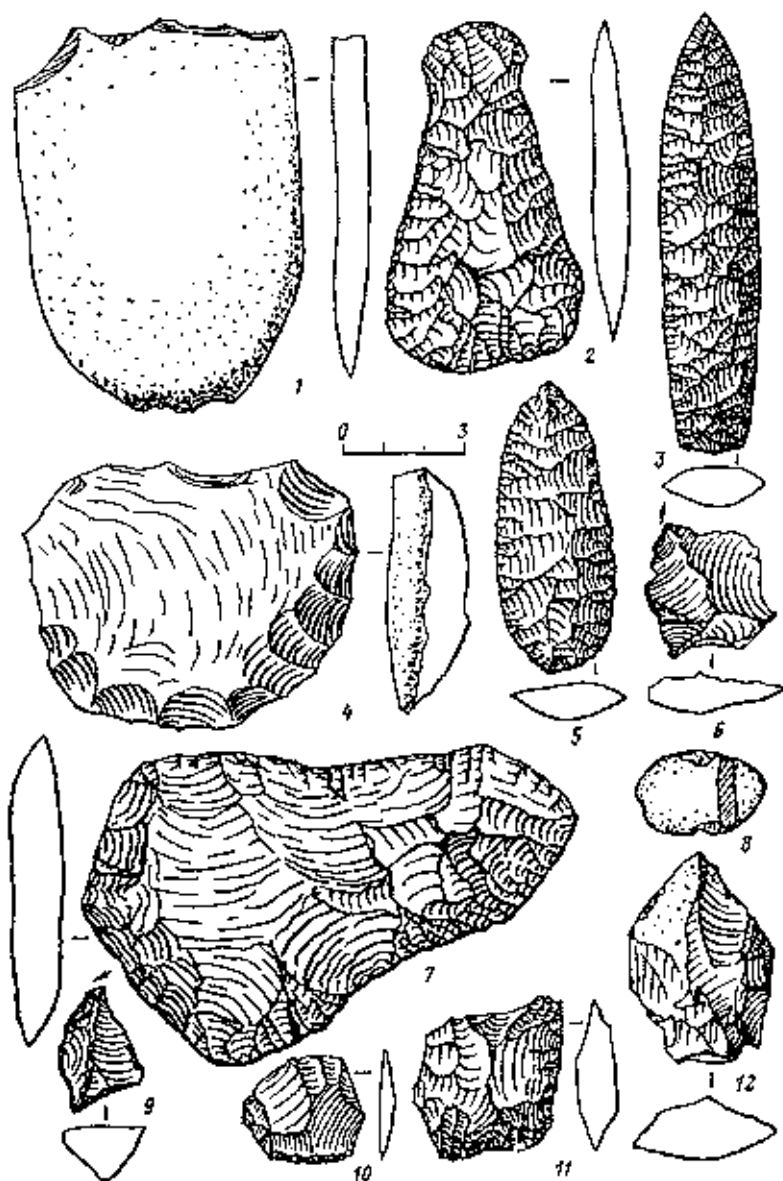


Figure 63. Stone tools. Orianda II, shrine.

On the surface and in the upper layer at a depth of 0.1 m to 0.15 m of the shrine, wooden ritual arrows and fragments of them were found, analogous to those found at Opukha.

At 0.3 m north of the whale jaw set in the ground, at a depth of 0.1 m, metal artifacts were found. An iron dart point, lenticular in cross section with a pointed stem, is badly preserved. It was made by the cold forging method. There were three flat, iron, inset blades of triangular form for bone points, and two flat, bronze, inset blades of pentangular form, as well as pentangular form with a groove on the base.

In the upper layer of the shrine were 10 glass and 5 porcelain beads, plus glass and porcelain seed beads.

Finds in the shrine were concentrated around the upright whale jaw, with more of them to the west (Fig. 64).

West of the upright whale jaw, under 0.1 m of sod, a carbonaceous stain about 1 m in diameter was found. In the profile through the center of this stain there were two more carbonaceous strata. Here the following stratigraphy was noted: 1 - sod 0.08 m to 0.1 m; 2 - first carbonaceous stratum 0.06 m; 3 - sterile stratum of brown sandy loam 0.1 m to 0.14 m; 4 - second carbonaceous stratum, 1 m in diameter, 0.1 m thick; 5 - sterile stratum of brown sandy loam 0.08 m to 0.1 m; 6 - third carbonaceous stratum, 1 m in diameter, 0.05 m thick; 7 - below, brown sandy loam with gravel. The mixing of the center of the second and third carbonaceous stains relative to the first is insignificant. This shows the stability of tradition. The depth of the deposit of the third carbonaceous stain corresponds to the lower level of the deposit of finds in the shrine.

This directs attention to the conformity of the three carbonaceous stains of the shrine, separated by sterile strata, and the three cultural layers in the excavation of Orianda 1-2. This attests to intervals in the functioning of the site and the shrine. The shrine and the site probably originated and functioned synchronically.

The Valley of the Malyi and Bol'shoi Amamkut Rivers

The Malyi [Little] and Bol'shoi [Big] Amamkut rivers come together in the valley and merge 300 m before flowing into the Bering Sea. The valley is situated on the coast 70 km north of Orianda Lagoon. Here in the valley of these rivers two seasonal sites—summer, according to the information of informants—were investigated. On the surface were preserved the remains of single-room, semisubterranean dwellings in the form of depressions 0.4 m to 0.7 m deep and 6 m to 8 m in diameter. The berms of the depressions are elevated 0.4 m and covered with grass.

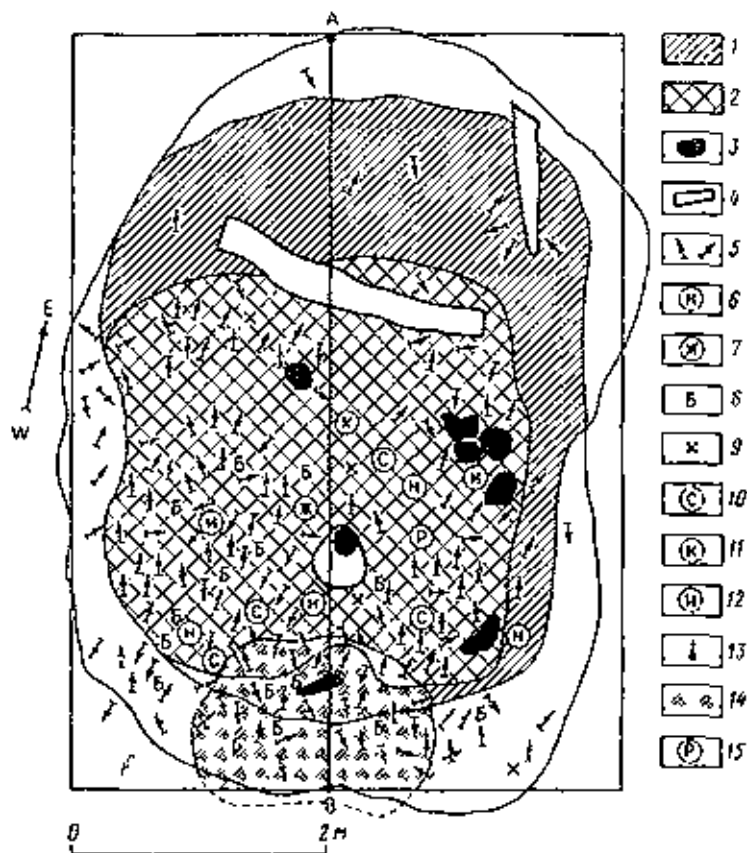


Figure 64. Plan of shrine, Orianda II. 1 - disposition of bone; 2 - disposition of wooden remains; 3 - stone; 4 - fragment of the lower jaw of a whale; 5 - points of arrows and darts; 6 - knife; 7 - artifacts of metal; 8 - bead; 9 - flake; 10 - scraper; 11 - pick; 12 - bone artifact; 13 - stone points of arrows and darts; 14 - charcoal; 15 - burin.

Amamkut I site. The first site, consisting of the remains of eight dwellings (Amamkut I), was located on the left bank of the Bol'shoi Amamkut River. The dwellings, with a tunnel-like lateral entryway, were arranged in one line parallel to the bank of the river. The site was located 1.5 km from the mouth. Dwelling I, the easternmost in the line, was examined with a 1 m x 1 m test pit. The following stratigraphy was noted in the northern wall of the test pit: 1 - sod 0.1 m to 0.15 m; 2 - brown sandy loam with rubble 0.2 m to 0.25 m; 3 - cultural layer, dark-brown sandy loam with charcoal 0.1 m to 0.15 m; 4 - brown sandy loam with gravel 0.3 m; 5 - brown sand with gravel. Nothing was found in the cultural layer.

Amamkut II site. The second site, consisting of the remains of six dwellings (Amamkut II), was located on the right bank of the Mal'yi Amamkut River 500 m from the mouth. The dwellings were in a single line parallel to the river bank. The northernmost, Dwelling 1, was examined with a 1 m x 1 m test pit. The following stratigraphy was noted in the northern wall of the test pit: 1 - sod 0.1 m to 0.15 m; 2 - brown sandy loam with rubble 0.2 m to 0.25 m; 3 - cultural layer, dark-brown sandy loam with gravel 0.35 m; 5 - gray-brown sand with gravel.

In the test pit, in the cultural layer at a depth of 0.35 m, two river cobbles of a circular hearth were found with a layer of charcoal 0.1 m thick. Near the hearth were a button of walrus tusk and a blank of a bone artifact also of walrus tusk.

The stratigraphy of Dwelling 1 of Amamkut I and Dwelling 1 of Amamkut II confirms their recent origin.

Lakhtina Lagoon

Lakhtina Lagoon is located on the coast 15 km north of the valley of the Mal'yi and Bol'shoi Amamkut rivers. Here on the left bank of the channel, which joins the lagoon with Ugol'naya Bay, on the spit, several archaeological features of different periods were investigated (Fig. 65). The archaeological sites are located 6 km south of Beringovskii village. Here the elevation of the spit is 2 m to 3 m and 600 m to 800 m wide. On rock outcrops in the center of the spit were two cultural layers.

The first cultural layer, brown sandy loam with carbonaceous strata 0.1 m to 0.14 m thick, lies at a depth of 1.1 m to 1.5 m under a light-gray sand. The second cultural layer is 0.2 m to 0.25 m thick, of dark-brown sandy loam with 12 carbonaceous strata, and deposited at a depth of 1.3 m to 2 m. It is separated from the first cultural layer by a sterile layer of light-gray sand 0.2 m to 0.5 m thick. Similar stratigraphy was preserved on the two rock outcrops. Below the second cultural layer is gray sand 0.5 m to 1 m, and then, gravel.

As a result of dune formation, with the disturbance of the surface layer of soil, at several places in the site, the lower cultural layer turned out to be buried under a three-meter layer of light-gray sand. In the remaining area it was exposed.

As a consequence of erosion of the soil, the objects of the first cultural layer were projected into the second layer. Since no significant differences in the stone inventory of the first layer could be observed from the inventory of the second, dividing the collected material by layers was practically impossible.

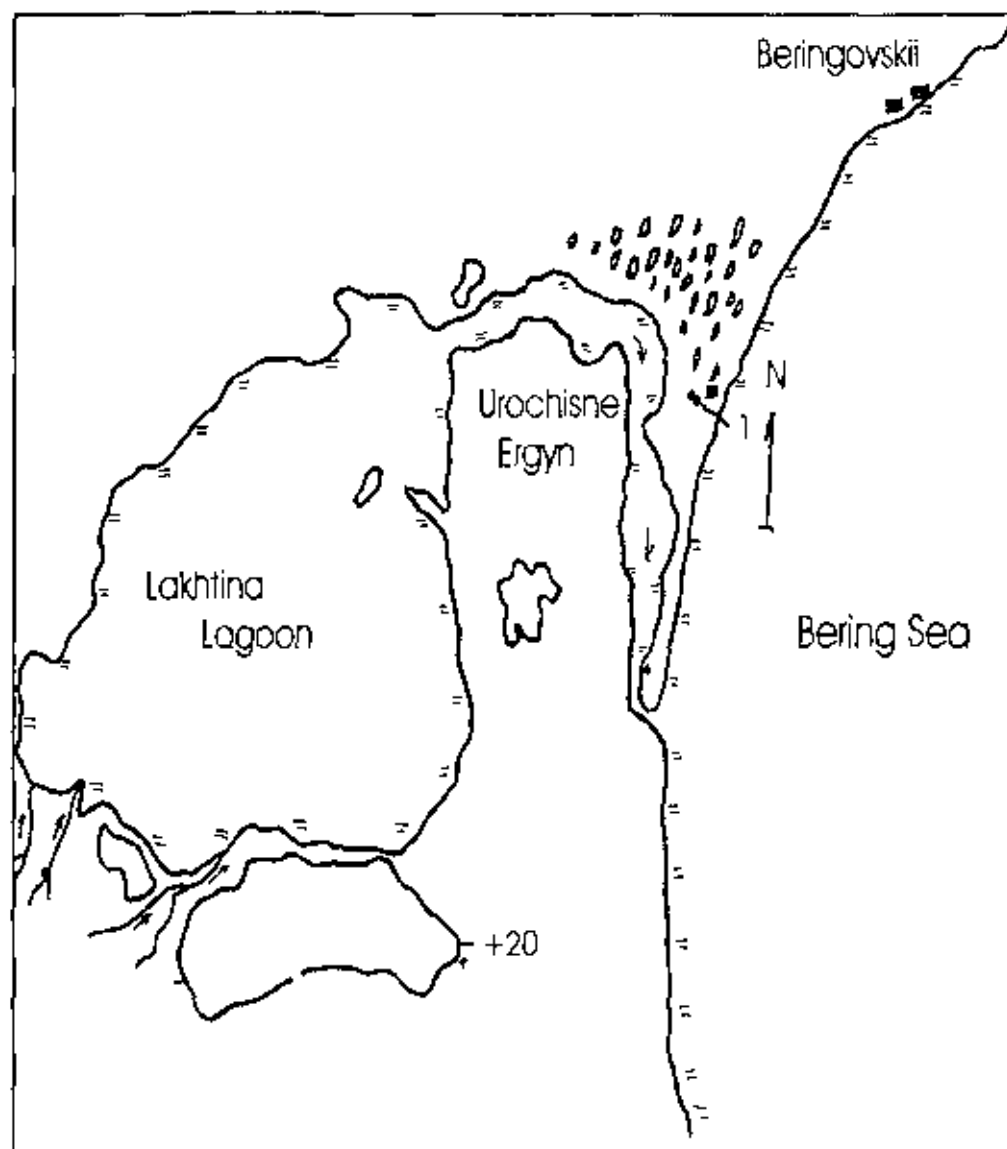


Figure 65. Map of archaeological sites on the shore of Lakhtina Lagoon: 1. Lakhtina I site.

Lakhtina I site. To the north and south of the rock outcrops, in a section 900 m², a variety of stone tools were collected from the surface. The most numerous category of tools was knives (N=64). They were made on amorphous flakes (N=61) and a cobble spall. The straight and slightly convex working edge of several knives was worked by pressure retouch on one side. Among them are single-bladed (N=17 and 12 fragments) (Fig. 66:3, 4, 7, 10, 16, 17, 20, 30, 33, 35) and double-edged knives (N=10) (Fig. 66:1,

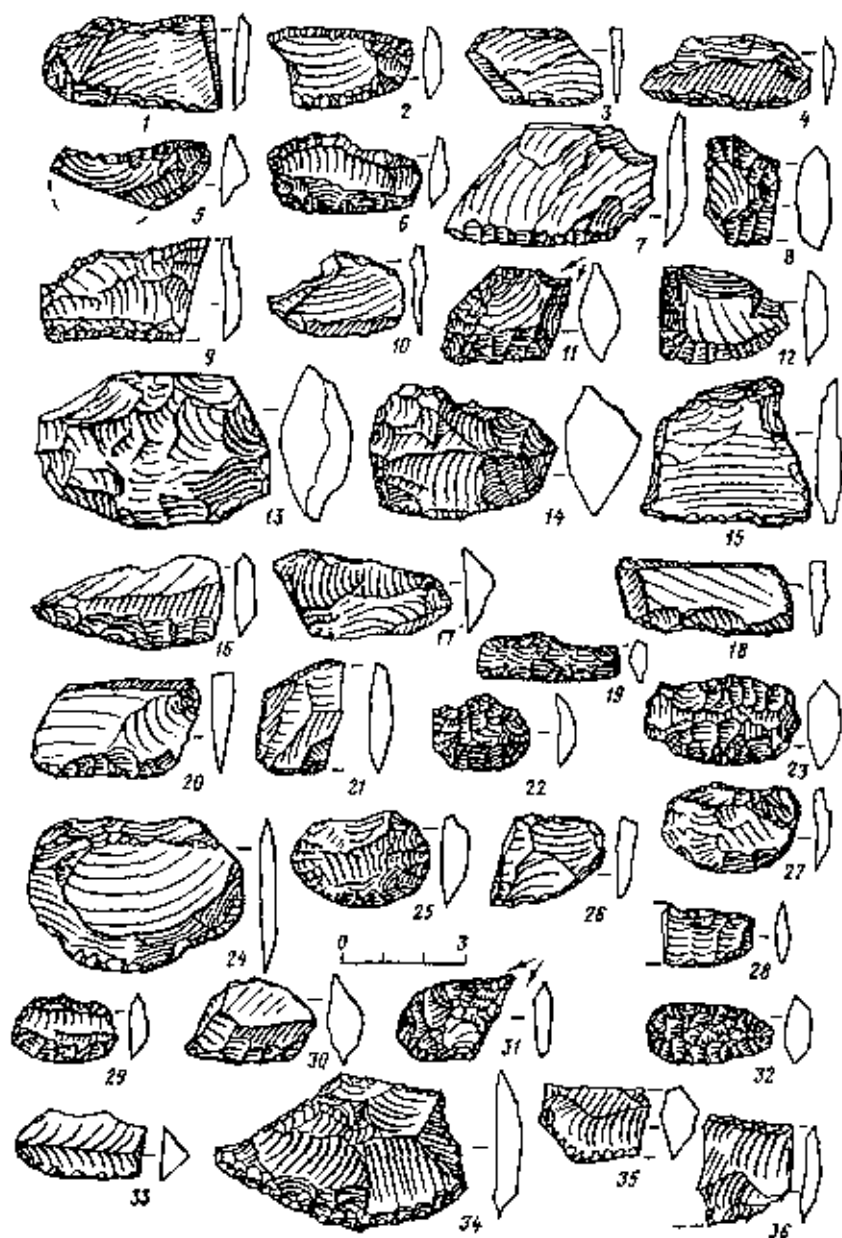


Figure 66. Stone tools Lakhtina I.

5, 9, 15, 18, 22, 26, 29). Another group is knives with straight and slightly convex working edge formed by pressure retouch on two sides. Among them are double-edged (N=4 and 12 fragments) (Fig. 66:2, 8, 12, 19, 21, 23, 28) and single-bladed knives (N=4 and 5 fragments) (Fig. 66:6, 36), and knives made on cobble spalls (Fig. 66:11, 13, 14).

Tools for working skins are represented by scrapers (N=25) and skreblos (N=3). Scrapers on cobble spalls retained the cobble cortex. Their straight or slightly convex working edge was formed by pressure retouch on the back (N=17), as well as being unmodified (N=3) (Fig. 67:1, 2, 13). Lateral scrapers are suboval (N=8). Tiny end scrapers are pear-shaped (N=2) (Fig. 67:5, 6) and suboval (N=3) (Fig. 67:4). Discoid scrapers (N=3) (Fig. 67:10) were found, as well as a blank of a discoid scraper (Fig. 67:14); scrapers on suboval flakes with the surface formed by the removal of several flakes (Fig. 67:7) and by flattening retouch (N=2) (Fig. 67:3), and the working edge modified by pressure retouch on two sides; unifacially retouched discoid scrapers (N=2) (Fig. 67:11); and a lateral skreblo on an oval cobble spall. Its oval-convex working edge was made by pressure retouch on one side. Of interest are two blanks of discoid skreblos, which permit following the process of their preparation on round cobbles. Initially, the cobble cortex was removed by lateral blows from the edges to the center and the surface was formed by flattening percussion retouch. Then fine pressure retouch modified, sharpened, and enhanced the rounded working edge (Fig. 67:8, 9).

Combination tools are widely represented. Among them there are knife-scrapers on suboval flakes. The slightly convex working edge of the knife was made by pressure retouch on one side, and the working edge of the scraper left unmodified (N=3) (Fig. 66:27). The surface of several of these tools was formed by flattening retouch (N=3) (Fig. 66:25) and the working edge modified on two sides (N=4) (Fig. 66:24). Knife-spokeshaves (N=4) (Fig. 66:34) and knife-scraper-burins (N=4) (Fig. 66:31) were also found.

Quite interesting is the unique find of a prismatic obsidian core. Here in the same place were knife-like blades of irregular geometric outline. Tiny flat flakes and knife-like blades, sometimes modified by pressure edge retouch, were probably used as inset blades (N=15).

Tools for working wood and bone are represented by burins (N=4), graters (N=3), and adzes (N=3). The burins were made on flakes and pieces of tools (N=4). Some fragments of tools, judging by the wear of the tip, were used as graters (N=3). Adzes have trapezoidal form and lenticular cross section. Their lateral edges and working edge were modified by percussion retouch (Fig. 68:1, 3), while the working edge of one adze was modified by fine pressure retouch on two sides (Fig. 68:2).

The hunting-fishing inventory is represented by arrow points (N=10) and a sinker. The arrow points were made on flakes of lenticular cross section and on flat flakes. Their surface was formed by flattening retouch, and the edges were modified by fine retouch on two sides. Among them there are leaf-shaped points with small projec-

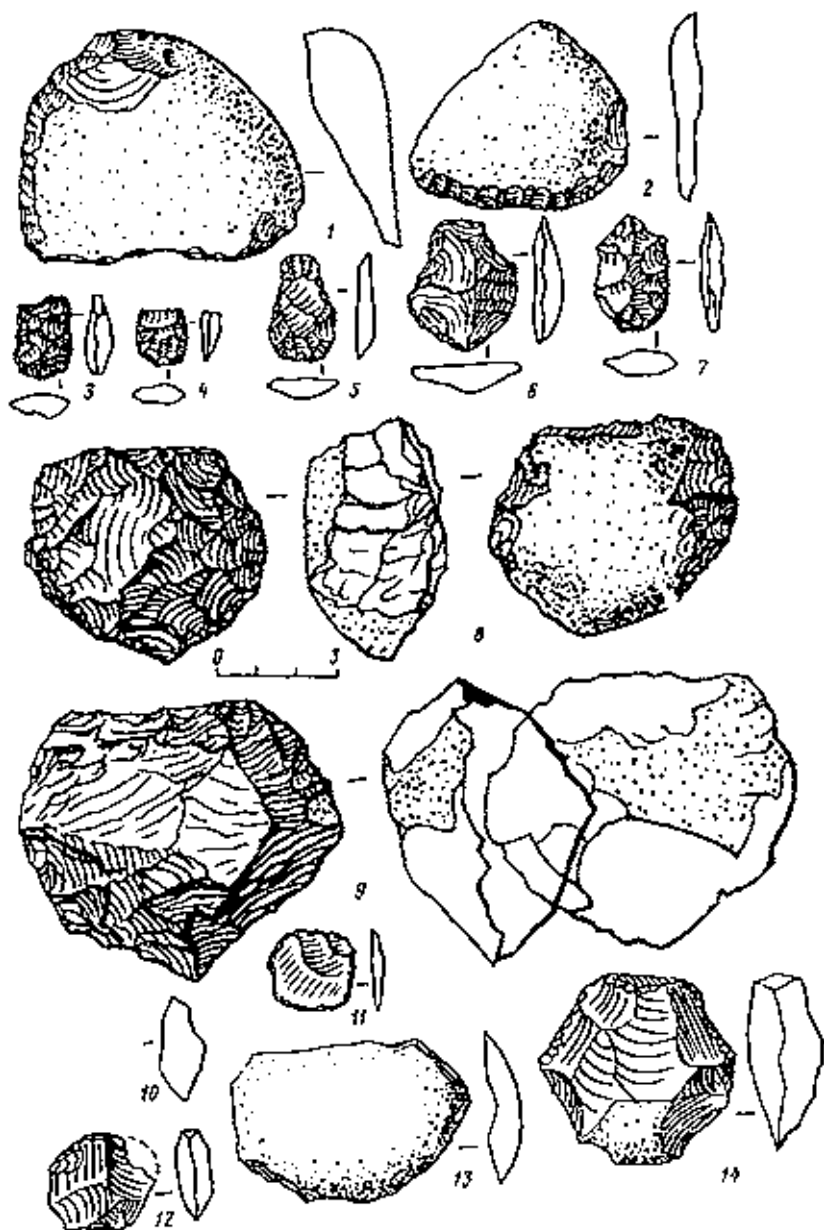


Figure 67. Stone scrapers and skreblos. Lakhtina I.

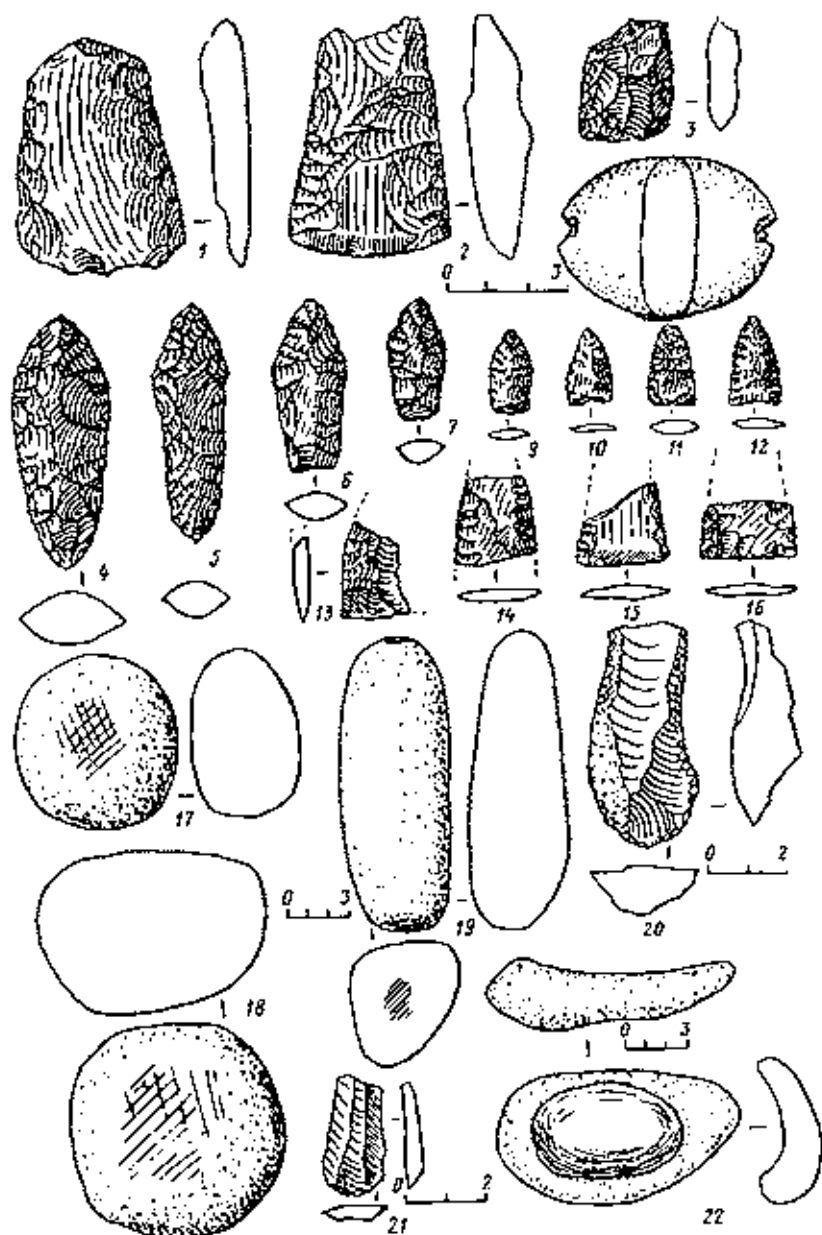


Figure 68. Stone tools and artifacts, Lakhina I.

tions on the tip and oval-convex base (N=3) (Fig. 68:5), with straight base (N=2) (Fig. 68:6), and with slightly convex base (Fig. 68:7); tiny arrow points of subtriangular form with straight base (Fig. 68:9, 11) and slightly concave base (Fig. 68:10, 12); and two fragments of flat arrow points of subtriangular form with straight base (Fig. 68:15, 16). The sinker was made on a flattened oval cobble with lateral grooves (Fig. 68:8).

Here in the same place was a lamp on a flattened oval cobble with a depression made by pecking (Fig. 68:22).

From the surface 155 slate flakes, 224 obsidian flakes, and 12 spalls were collected. This confirms that tools were made here.

The complex of stone artifacts of this site (the upper of the two non-contemporary sites) is represented by 148 tools in 14 categories. Tools were made primarily on flakes (N=104), as well as on cobble spalls (N=25) and cobbles (N=4). Unifacial (N=79) and bifacial (N=26) edge work predominate. Also represented is complete unifacial (N=3) and bifacial (N=23) work, grinding (N=2), and unmodified tools (N=13). By types of blanks, secondary work, and types of tools this complex corresponds to the complexes described above, which attests to a single cultural association.

It has already been pointed out that separating the complex stratigraphically and chronologically was practically impossible. However, definite conclusions can be drawn. To the earliest period must be assigned the prismatic core, knife-like blades (N=10), and inset blades (N=5), which characterize inset technology. This technique goes back to the Mesolithic and Early Neolithic of Northeast Asia. In this is the distinctiveness of the complex. The significant number of combination tools (N=18), edge work (71%), unifacial (53%) work, the presence of unworked tools, and the large number of tools on amorphous flakes and spalls (knives—N=65) must also be assigned to archaic features.

The lack of ceramics is notable. Of bone artifacts, a badly preserved retoucher of walrus tusk was found.

Lakhtina II site. With the profiling of an exposure of a cultural layer on a hill 70 km northwest of Lakhtina I, an oven similar to the ovens of the Nataliia I site (Fig. 69) was found (Lakhtina II). It is rectangular, 0.6 m x 0.7 m, with a 0.3 m-to 0.35 m-deep pit faced on the bottom and sides by single stone slabs 0.05 m to 0.08 m thick. The southern wall of the oven is not preserved and the other three walls have crumbled through time.

In the exposure the following stratigraphy was noted: 1 - sod 0.1 m to 0.15 m; 2 - gray sand 0.25 m to 0.3 m; 3 - brownish-gray sandy loam 0.25 m to 0.3 m; 4 - cultural layer 0.3 m to 0.35 m, brownish sandy loam with four charcoal strata 0.03 m to 0.05 m. Judging by the structure of the layer, this is the lower layer of the site. The

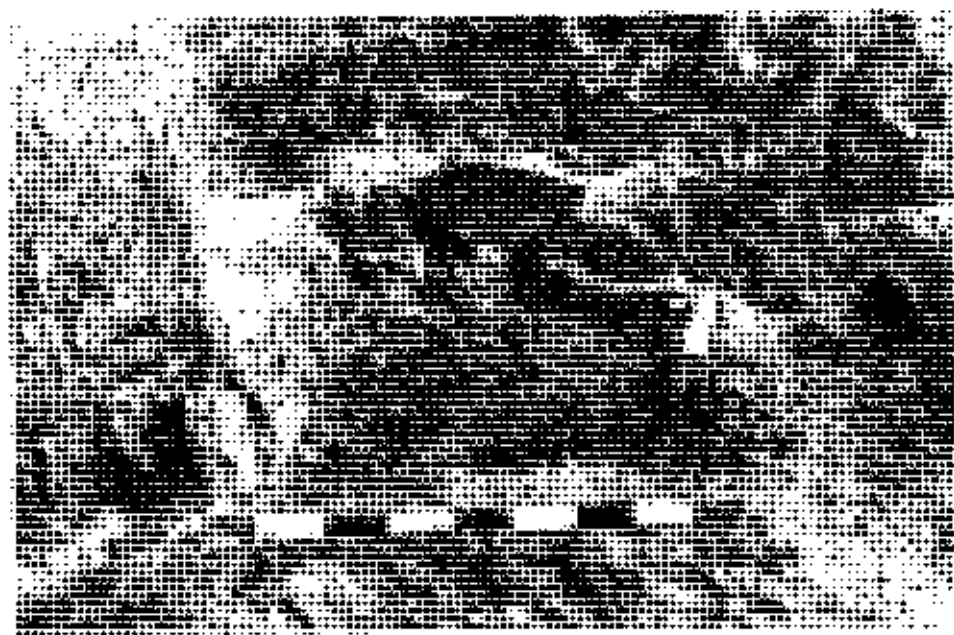


Figure 69. Oven, Lakhtina II.

depth of its deposit here is 0.75 m to 0.8 m. Below is gray sand 1 m to 1.3 m and then, gravel. In the fill of the oven the stratigraphy shows the following form: a concentrated carbonaceous stratum 0.05 m thick covers a layer 0.1 m to 0.15 m of brown sandy loam. Below lie the remains of a layer of dark-gray, sandy loam 0.2 m to 0.25 m with two 0.03 m carbonaceous strata. Then there is a 0.1 m layer of bone remains of pinnipeds and below, a 0.1 m layer of concentrated charcoal. The cultural layer corresponds in structure to the lower level of the site. At 0.2 m west of the oven in the cultural layer an adze of trapezoidal form and lenticular cross section was found. Its lateral edges were formed by percussion retouch and the working edge ground on two sides. The adze is similar to the adzes of the complexes of Orianda I, Levels II and III.

Lakhtina III site. Some 100 m east of Lakhtina II a hill (Lakhtina III) was examined. Here, at a depth of 0.65 m to 0.7 m, the remains of a 5.5 m x 6 m oval living area were uncovered. In its center was a hearth, 1.6 m in diameter, denoted by an arrangement of river cobbles and a 0.03 m to 0.05 m layer of charcoal. This was probably the living area of a tent-like surface dwelling. In a profile of the living area along line A—B the following stratigraphy was noted: 1 - sod 0.05 m to 0.08 m; 2 - gray sand 0.15 m to 0.35 m; 3 - yellow sand 0.2 m to 0.35 m; 4 - cultural layer, dark-brown sandy loam impregnated with charcoal 0.25 m to 0.3 with two carbonaceous strata 0.05 m to

0.08 m thick; 5 - gray sand 0.5 m to 0.7 m; and below, gravel. The cultural layer produced few artifacts. They were concentrated in the eastern part of the area. These were a blank of a discoid skreblo on a spall and a single-faceted lateral burin-spokeshave on a spall of subtriangular cross section. The working edge of the spokeshave was modified by fine pressure retouch. Also found in the layer were 10 flakes of siliceous slate. Near this hill, in an area about 20 m in diameter, were the remains of stone ovens in the form of whole and fragmentary stone slabs with traces of soot on one side (Fig. 70). The stone artifacts found here were: three round cobbles that were probably used as weights for nets (Fig. 68:17), a pestle-hammer on an oblong cobble with traces of wear on both ends (Fig. 68:19), and two flattened-oval cobbles—manos with traces of rubbing and colored with charcoal and ocher on the upper and lower surfaces (Fig. 68:18).

Lakhtina III corresponds to the upper cultural layer of the site.



Figure 70. Lakhtina III. Stone slabs.

Lakhtina IV site. Some 150 m southwest of Lakhtina III on a hill at a depth of 0.45 m to 0.5 m an area with a cultural deposit was discovered (Lakhtina IV).

In the profile of the excavation along the line A—B the following stratigraphy was noted: 1 - gray sand 0.45 m to 0.5 m; 2 - upper carbonaceous stratum 0.05 m to 0.08 m; 3 - cultural layer, dark-brown sandy loam with two carbonaceous strata 0.3 m to 0.35 m; 4 - gray sand with small gravel 0.7 m to 1 m; below, gravel. This living area, probably the same as that described earlier, is the remains of a tent-like surface dwelling.

The cultural layer had very few artifacts. Only a few flakes and a knife on a flake with a straight working edge, worked by unifacial pressure retouch, were found. The thickest, 0.05 m to 0.1 m, carbonaceous stratum of the cultural layer occupies the central part of the excavation. In Quad 2a an ocher stain was found. To the east runs a layer impregnated with charcoal which, in the southern part, entirely pinches out in Quad 3a.

Lakhtina IV corresponds to the lower layer of the site. Lakhtina I-IV are assigned to a single culture.

Geka Land

In Geka Land, represented by a sandy-gravel wave-washed spit at the entrance into the Anadyr' estuary (Fig. 71, 72), two early sites and a shrine were examined (Fig. 71, 73).

Geka I site. The first site, located 2 kilometers southeast of Cape Geka, consisted of the remains of 15 dwellings (Geka I). The elevation of the spit in the area of the site is 3 m to 4 m, its width 600 m to 650 m. The dwellings are situated in two lines parallel to the shoreline. Judging by the remains, three-room semisubterranean dwellings predominate in the site. The rooms are joined by tunnel-like passageways. On the surface the dwellings are indicated by depressions 0.5 m to 1 m deep and 4 m to 12 m in diameter. Their berms, elevated to 0.4 m, are covered by dense grassy vegetation. Around the dwellings are pits 0.7 m to 1.2 m deep and 1 m to 1.3 m in diameter overgrown with grass. Three dwellings and a shrine were examined in the site. Dwellings 1 and 2 are located in the first line of dwellings on the shore of the estuary.

Dwelling 1 has three rooms. The diameter of the large room, which is round, is 12 m; the smaller ones 8 m. In the center of the central, large room, the cultural layer was found in a 1 m x 1 m test pit at a depth of 0.5 m. The following stratigraphy was noted in the northern wall of the pit: 1 - sod 0.1 m to 0.15 m; 2 - brown sandy loam with

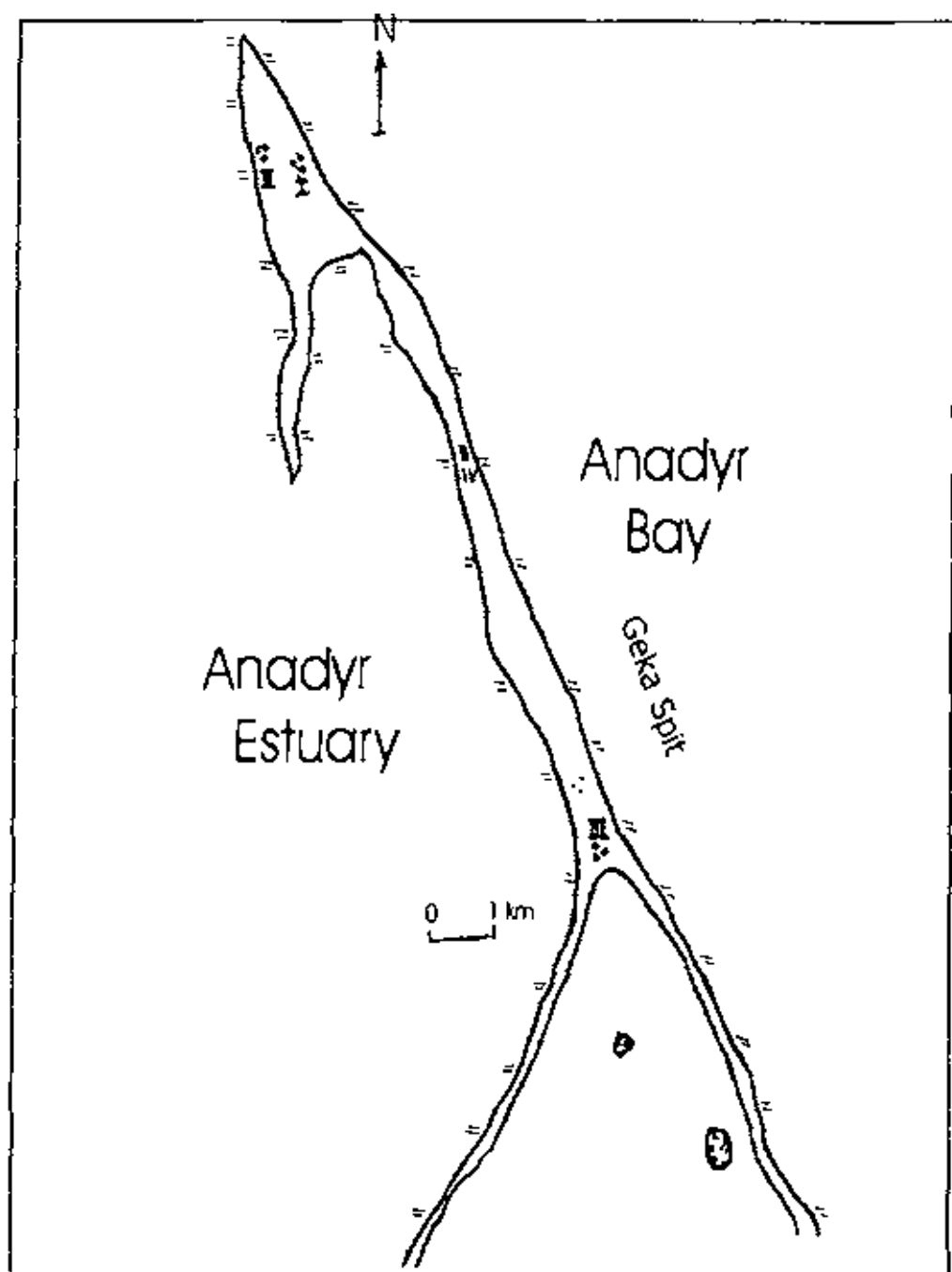


Figure 71. Map of archaeological sites on the Geka Spit: I. Geka I site; II. Geka II site; 3. Geka III site; 4. Hunting cabin.

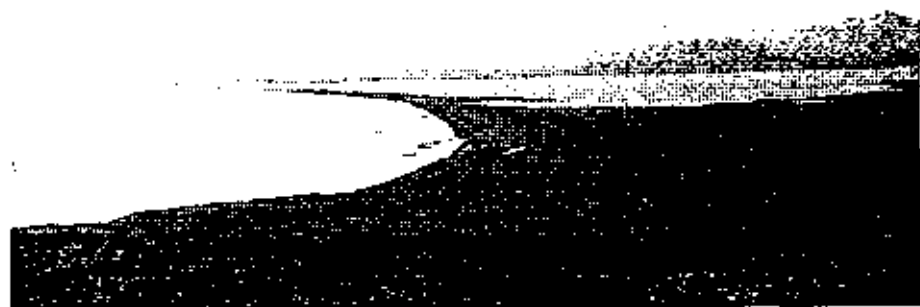


Figure 71b. Geka Spit.

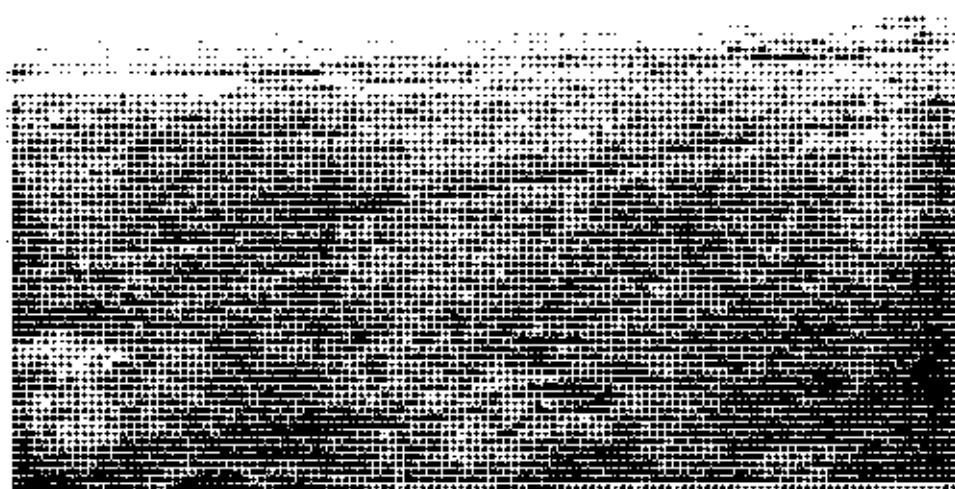


Figure 72. Geka I site.

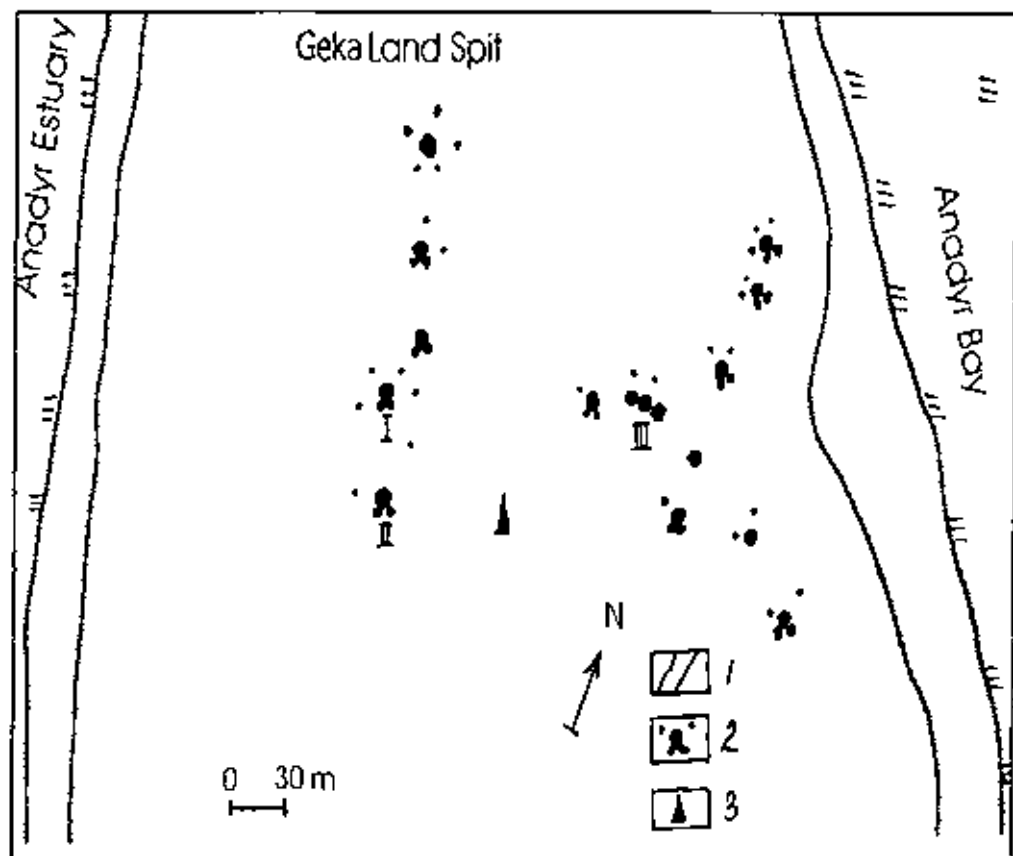


Figure 73. Map of Geka I site on the Geka Spit: I. Dwelling I; II. Dwelling II; III. Dwelling III.

rubble 0.35 m to 0.4 m; 3 - the cultural layer, dark-brown sandy loam with charcoal 0.05 m to 0.08 m; 4 - small gravels 0.15 m to 0.2 m; 5 - brown sandy loam with gravels 0.5 m; 6 - gray sand with gravels.

In the southern part of the test pit two cobbles of a hearth ring were found. The thickness of the hearth's charcoal layer was 0.15 m. Beside the hearth was found a side scraper on an oval uniaxially convex cobble spall. Its oval convex working edge was formed by pressure retouch on the back.

Dwelling 2 was located 50 m north of Dwelling 1. It also had three rooms. The diameter of the large, round room was 7.5 m, the side rooms 5 m. In the center of the central room, in a 1 m x 5.5 m trench at a depth of 0.65 m, the cultural layer was found. The stratigraphy of the northern wall of the trench is as follows: 1 - sod 0.1 m to 0.15 m; 2 - brown sandy loam with rubble 0.5 m to 0.55 m; 3 - cultural layer, black sandy loam

with charcoal 0.08 m to 0.15 m; 4 - small gravels 0.15 m to 0.2 m; 5 - brown sandy loam with gravels 0.55 m; 6 - gray sand with gravels.

In the southern part of the trench were two large, vertically placed stones of a hearth. The thickness of the charcoal layer in the hearth was 0.1 m to 0.15 m. Beside the hearth were a knife on a triangular slate (shale) slab, two scrapers on amorphous flakes, and two fragments of ceramics. The surface and oval-convex working edge of the knife were ground on two sides.

Dwellings 1 and 2 were selected as objects of examination because they appeared to be the earliest based on the micro-relief (depth of the depressions 0.4 m) of the site.

Dwelling 3 attracted our attention because, based on tradition, the founder of the site lived here. It is located 500 m east of Dwellings 1 and 2 in the second line of dwellings. On the surface the dwelling was denoted by three round depressions in a line. The diameter of the central room was 7 m, that of the lateral 6.5 m. The lateral rooms are joined to the central by tunnel-like passages. Each room had its own entry.

In the central room (Fig. 74, 75), in a 1 m x 7.5 m trench at a depth 0.5 m to 0.6 m, the cultural layer was encountered.

In the profile along line A—B the following stratigraphy was noted: 1 - sod 0.08 m to 0.15 m; 2 - humic layer 0.08 m to 0.15 m; 3 - stratum of dark-brown sandy loam 0.05 m to 0.08 m; 4 - brown sandy loam with gravels 0.05 m to 0.08 m; 5 - dark-brown sandy loam 0.05 m to 0.08 m; 6 - light-brown sandy loam 0.1 m to 0.2 m; 7 - cultural layer, dark-gray sandy loam with charcoal 0.1 m to 0.2 m, the top partially covered by a layer 0.05 m to 0.1 m of burned wood; 8 - cobbles with brown sandy loam.

The most numerous category of tools found in the cultural layer is knives on flakes and cobble spalls with single working edge (N=10). Their oval-convex working edge was formed by pressure retouch on one side. These are knives on a unifacially convex round flake (1 fragment), on a cobble spall (1 fragment), and on flat amorphous flakes (2 fragments). Six knives with single working edge were made on slabs of slate. Their surface and oval-convex working edge were ground. Also among them were subtriangular knives (N=2 and 3 fragments) (Fig. 76:8, 12) and with a straight working edge (1 fragment).

Tools for working skins are represented by scrapers (N=6). The scrapers were made on flat flakes (N=2), spalls (N=2), a blade, and a unifacially convex spall. Among them were a suboval side scraper, an oval scraper, and a discoid scraper with a rounded working edge. The oval-convex working edge of these scrapers was modified by pressure retouch on two sides, while the surface of the discoid scraper was formed by percussion flaking (Fig. 76:4). The lateral edges of a pear-shaped end scraper were made by pressure retouch. Its oval-convex working edge was ground on two sides. Also found were a subtriangular end scraper and an oval scraper with rounded working

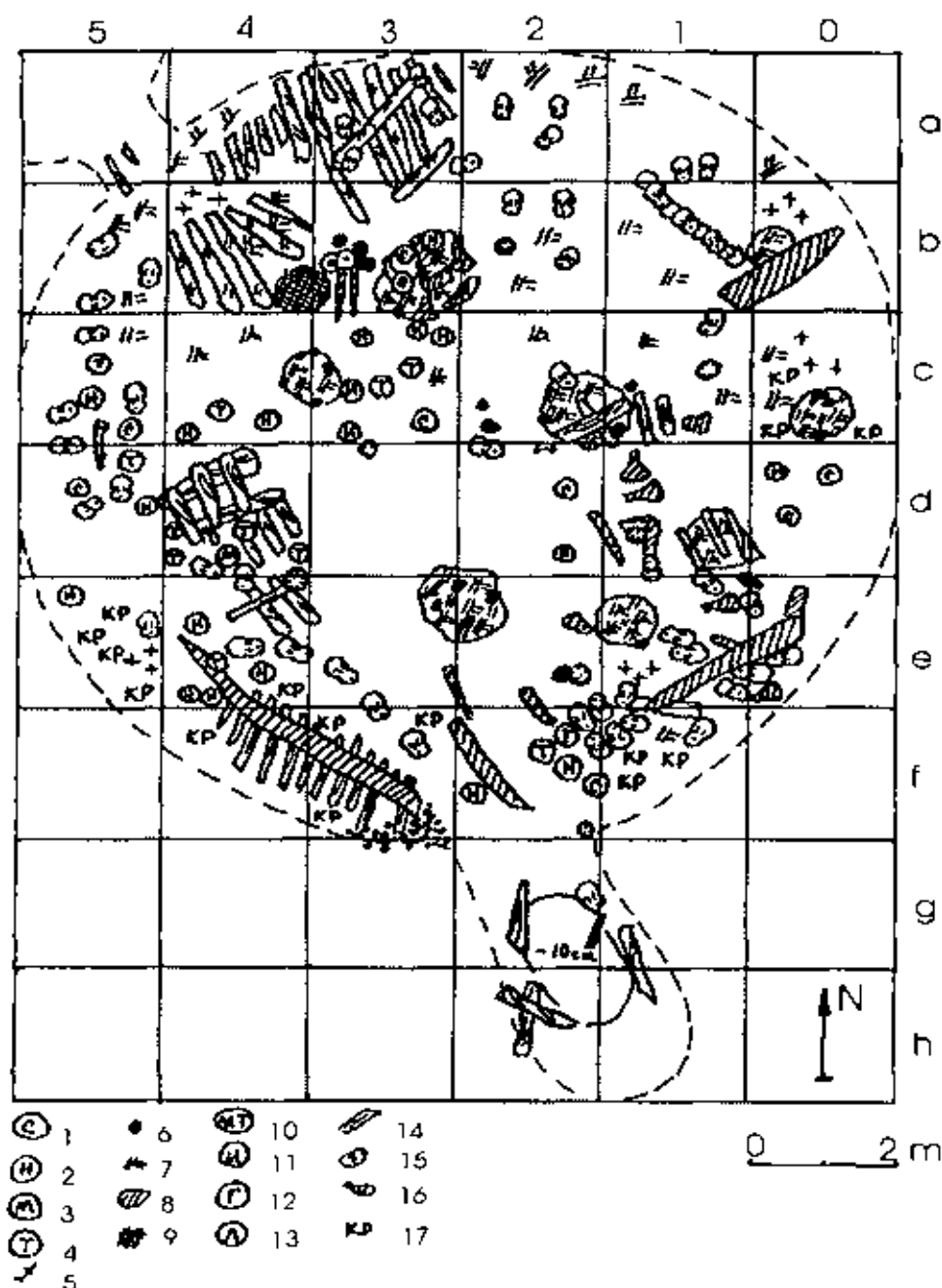


Figure 74. Plan of Room I of Dwelling 3 of the Geka I site: 1. Scraper; 2. Knife; 3. Mattock; 4. Adze; 5. Harpoon point; 6. Stone; 7. Charcoal; 8. Bones; 9. Ocher; 10. Hammer; 11. Artifact of bone; 12. Sinker; 13. Polisher; 14. Wood; 15. Walrus skull; 16. Spade of walrus bone; 17. Ceramics.

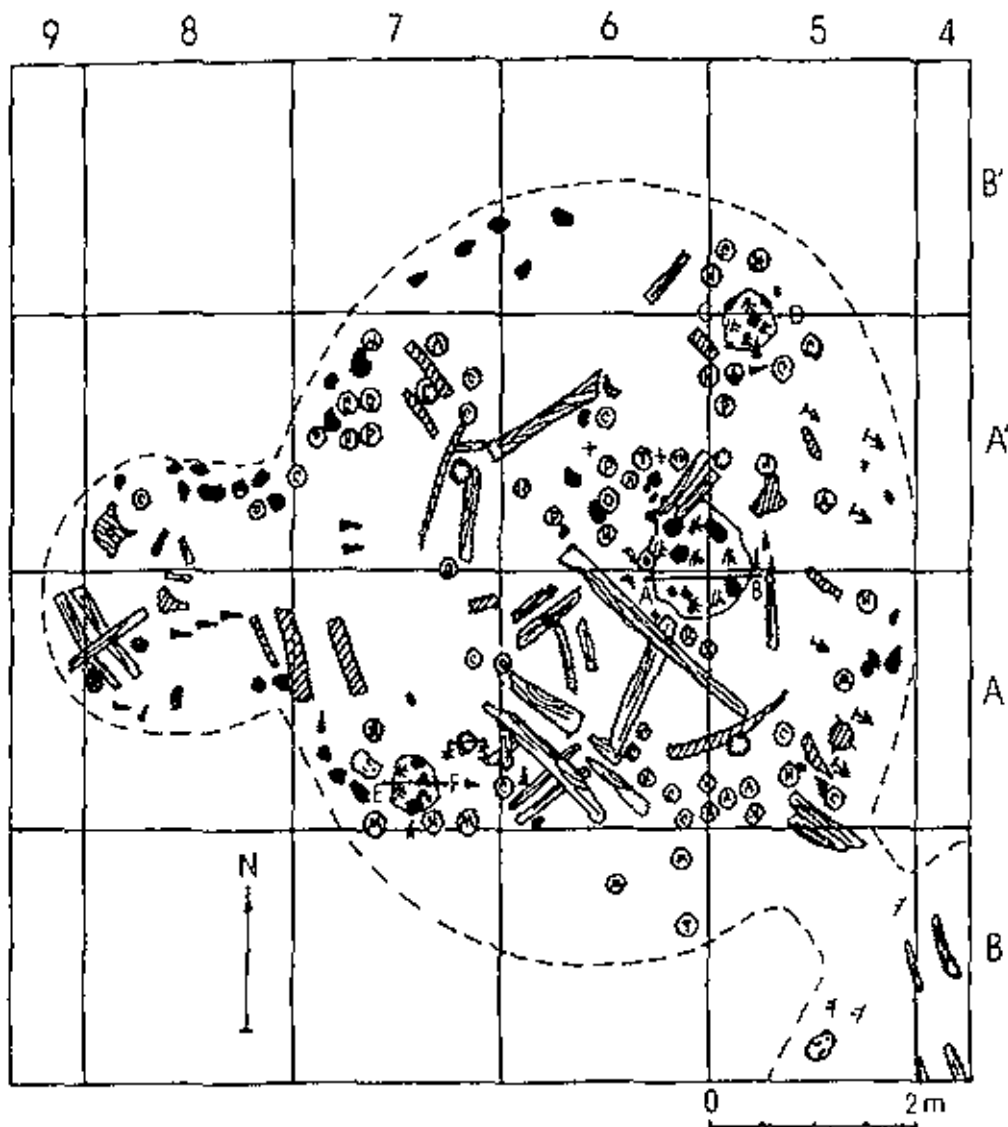


Figure 75. Plan of Room II of Dwelling 3 of the Geka 1 site

edge. The oval-convex working edge of these scrapers was made by pressure retouch on one side.

Tools for working wood and bone are represented by adze-like tools ($N=6$) and axes ($N=4$). The adze-like tools were made on flat, suboval slabs. Their edges were formed by pressure retouch, while the straight ($N=4$) or oval-convex (2 fragments) working edge was ground. The axes were made on cobble spalls and a flattened oval

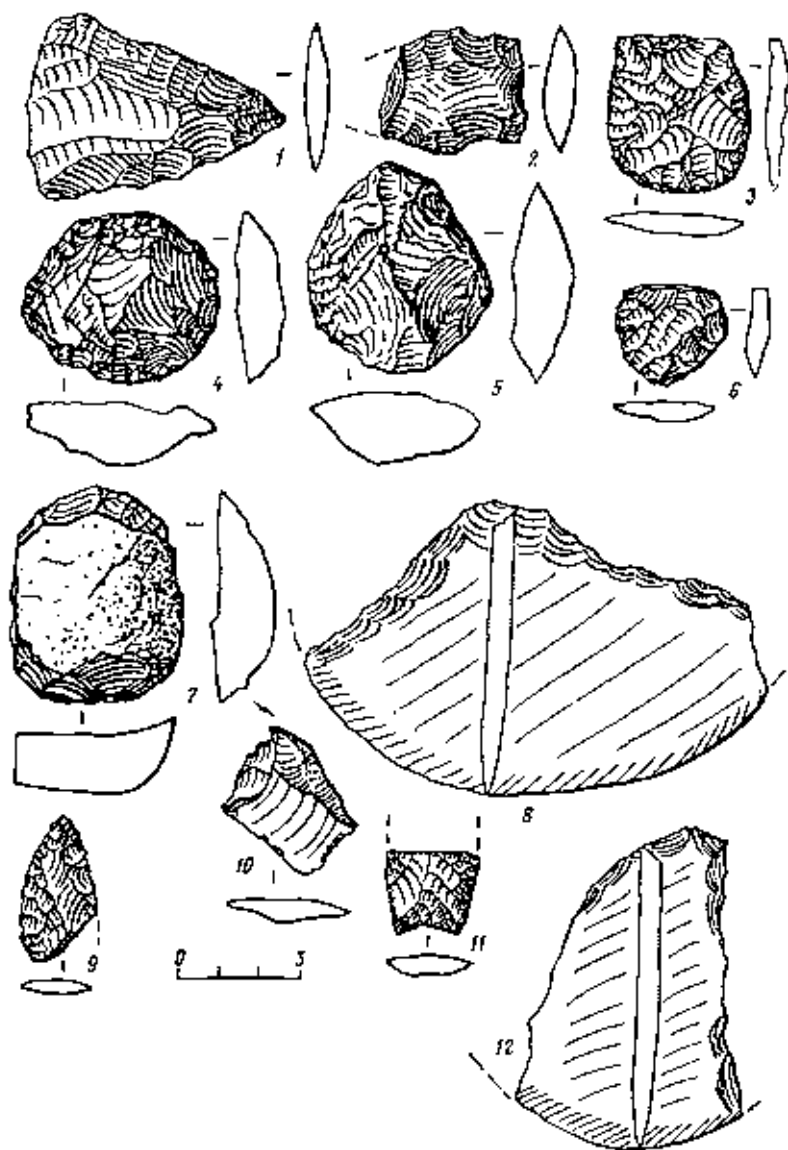


Figure 76. Stone tools. 1, 2, 6, 9 - test pit, Geka II; 5-7 - assortment, Geka I; 4, 8, 12 - Room I, Dwelling 3, Geka I; 3 - assortment, Geka III; 10 - shrine, Geka I

cobble of sublenticular and subrectangular cross section. Among them were axes of suboval (Fig. 77: 2-4) and triangular (Fig. 77:1) form. Their edges were formed by percussion retouch, while the oval-convex working edge was modified by pressure retouch (N=1) and grinding (N=3). In the layer there were also 19 slate flakes and 1 obsidian flake, which attests to tool preparation here.

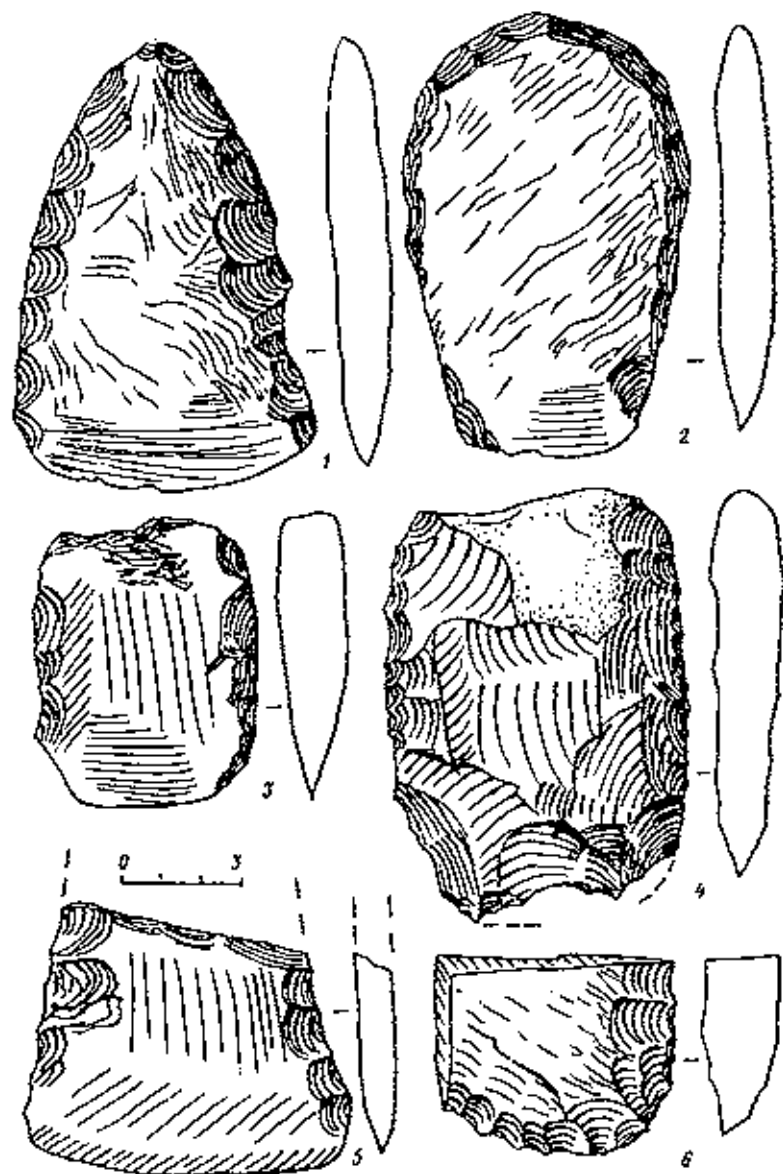


Figure 77. Stone axes and scraper. Geka 1. 1-4 - Dwelling 3; 5, 6 - assortment.

In the central part of cult Pithouse 1 were four hearths (a primary and three auxiliary), two hearths in the each dwellings. They are denoted by an arrangement of large rounded stones and by an 0.2 m layer of charcoal.

The complex of the cult pithouse is the most diverse and contained a massive bone and stone inventory. It fully characterizes the complex of the Geka I-III sites.

The faunal remains and a variety of tools in the pithouses confirm the basic economic occupation of the inhabitants: hunting pinnipeds with the use of the harpoon, land hunting, fishing, bird hunting, and collecting.

The stone inventory predominates (N=285): processing, hunting, and household production. Tools for working skins are represented by scrapers, skreblos, polishers, knife-scrapers, and knives (of the ulu type). Scrapers (N=73) and skreblos (N=11) are represented by types widespread in the northeast (oval, truncated-oval, subtriangular, and rectangular forms) (Fig. 78:1, 2, 3, 4). Unworked or minimally worked flat cobbles were used as polishers (Fig. 78:63). Knife-scrapers characteristically have opposite-lying, oval-convex working edges on the knife and scraper (N=15) (Fig. 78:5). The long knives, are distinguished by the grinding combined with retouch (N=21) (Fig. 78:6). A large knife of half-rounded form is interesting (Fig. 78:7). It was used for butchering whales, like contemporary forms of the same size but of iron. Ground slate knives of the "ulu" type vary (N=32 and 15 fragments) (Fig. 78:9-11). Similar ones were found by A. P. Okladnikov and N. A. Beregovaia (1971:Table XX) at the Cape Baranov site (Chukotka).

In the complex there are tools for working wood and bone: adze-axes, burins, and adze-like tools.

Adze-axes of trapezoidal (N=22), suboval (N=18) (Fig. 77:2, 78:13), subrectangular (N=7) (Fig. 77:4), and triangular (N=11) (Fig. 78:15, 77:1) forms have straight, oval-convex, or sloped edges. A combination of retouch and grinding is characteristic of them. Polish of the working edge of several of these tools (adze-axes and ulu knives) attests to their secondary use as scrapers. Retouched adze-like tools (N=5) are generally of suboval form (Fig. 78:16). Adze-axes and adze-like tools of lenticular cross section were made on flakes and fragments of tools (N=15) (Fig. 78:17).

Tools for working stone (hammerstones) were made on elongate-oval cobbles (N=10) (Fig. 78:18). Tools that belong to processing activities, with characteristic traces of work, are mallets (N=5) (Fig. 78:19) and mattocks (N=7) (Fig. 78:20). A lamp (Fig. 78:54) and a drill (Fig. 78:55) were also found.

The bone inventory is represented by hunting tools, tools of processing activities, amulets, and walrus tusks with traces of working. The hunting tools are represented by bone points of arrows, harpoons, and spears; by handles of hunting knives; and a bola. The points of harpoons indicate the development of maritime exploitation (primarily walrus, since its bones predominate and almost all artifacts were made from the tusks and bones of walrus). Harpoons points (N=3) (in other complexes of the Lakhtina culture they are missing) have one spur and a slot for a tip inset (Fig. 78:22). A whaling harpoon point (also of the Punuk type) is distinguished by its large dimen-

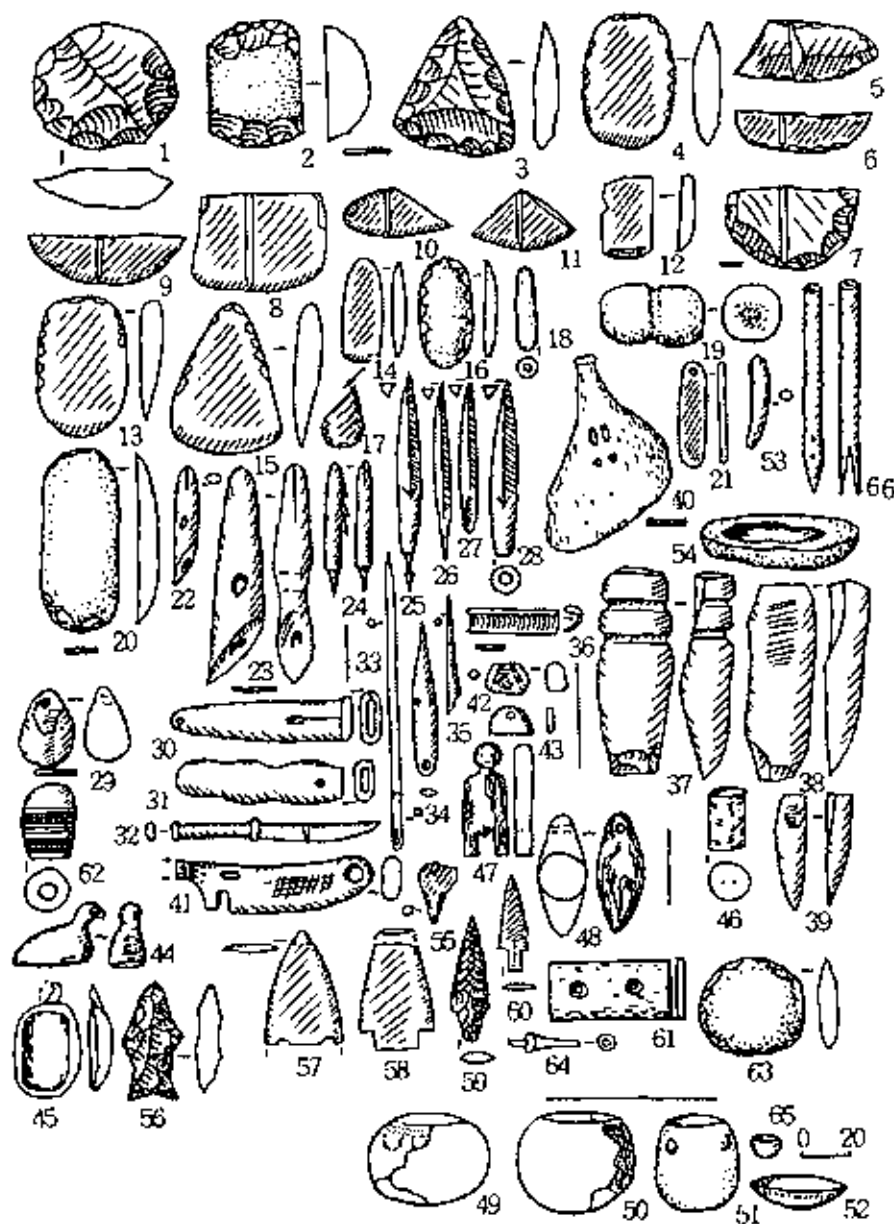


Figure 78. Early Geka I site assemblage: 1-4. Scrapers; 5-11. Knives; 12-15. Adze axes; 16. Adze-like tool; 17. Burin; 18. Handaxe; 19. Hammer; 20. Mattock; 21. Pendant; 22-24. Harpoon heads; 25-28, 62. Arrow and dart heads; 29. Bola; 30-31. Knife handles; 33-34. Needles; 35. Pin; 36. Scraper; 37-39. Mattocks; 40. Shovel; 41. Drum handle; 42-43. Amulets; 44. Bird-seal figurine (amulet); 45. Ladle; 49-52. Pottery; 53. Retouching tool; 54, 65. Oil lamps; 56. Fish-man figurine; 57-58. Inset points; 59-60. Arrowheads; 61. Sledge runner sole; 63. Skreblo, 64. Plug; 66. Harpoon foreshaft; 67. Scraper. 1-21, 54-60, 63. Stone; 56, 60. Obsidian; 6, 8, 11, 57-59. Slate; 22-45, 62, 64, 66-67. Bone; 47-48. Wood.

sions (Fig. 78:23) and attests to the development of whaling. A barbed harpoon point (shrine) is also represented (Fig. 78:24). Arrow points and animal bones (predominantly deer) confirm the development of hunting. Arrow points of flattened-triangular cross section with conical stem ($N=3$) (characteristic for Old Eskimo cultures) (65 specimens in the shrine) (Fig. 78:25) have wedge-shaped (23 specimens in the shrine) (2 specimens in Dwelling III) (Fig. 78:27) and awl-like bases (11 specimens in the shrine) (Fig. 78:26). Also found in the shrine were five points with a socketed base (characteristic for the Lakhtina culture) (Fig. 78:28). The bola weight and bunt found are evidence of the presence of bird hunting (Fig. 78:29, 62). Handles of knives were made of walrus tusk ($N=5$) (Fig. 78:30, 31).

Tools for working skins—knives, needles, punches, scrapers—were made of bone and walrus tusks. Elongate knives with rounded end were used probably for skinning and butchering animals ($N=2$) (Fig. 78:32). With the help of needles ($N=5$) (Fig. 78:34, 35) and punches ($N=3$) (Fig. 78:42), they sewed clothing and bedding. Scrapers were made from tubular bones (Fig. 78:36). Similar ones were found in the site in Sarychev Bay (Okladnikov and Deregovala 1971: Table VIII:12).

Mattocks ($N=14$) and shovels ($N=3$) were used in constructing dwellings and digging up roots (tundra collecting). The length of mattocks made from walrus tusks varied from 0.2 m to 0.42 m. Eight mattocks have the same method of fastening the handle: on the butt are two circumscribing grooves and a flattened area (Fig. 78:37). On two mattocks two parallel areas for fastening the handle were made on the butt. There are four mattocks without special preparation for fastening a handle (Fig. 78:38, 39). One mattock with a penetrating hole for the handle is of whale rib. The two shovels found, made on walrus scapulas, have four holes for fastening a handle (Fig. 78:40). The two handles of drums found are ornamented by parallel lines with a combination of fine linear decoration and dots (Fig. 78:41). Pendants of seal vertebrae (Fig. 78:42) and walrus tusks (Fig. 78:43) probably served as amulets. Such figurines as the swimming bird with a seal's head (a collective form representing the idea of reincarnation and relationships) (Fig. 78:44) and a sacrificial spoon (Fig. 78:45) have a cult character. Also discovered were walrus tusks with longitudinal slits for the removal of thin slabs (slabs were struck off by a blow, making a tool blank) and bone retouchers ($N=8$) (Fig. 78:53). Tools of wood were found: the remains of a birch vessel (Fig. 78:46), a female figure of a protective spirit (Fig. 78:47), and a float for a net (Fig. 78:48).

In the center of the cult pithouse, on three supports, was the mounted skull of a large walrus with tusks. To the left of it was a charcoal stain, and to the right, an ocher stain. The skulls and bones of walrus extremities placed around the perimeter of the pithouse attest to the ritual of sacrificial offering on the principle; a part in place of the whole. The accumulation of skulls and baculums of walruses confirms the presence of a cult of death and renewal of animals.

The wealth and variety of ceramics in the room (N=9) is striking. Among them is a low oval dish 33 cm x 36 cm by 7 cm high. Its edges are rounded (Fig. 78:52). The dish is modeled of clay paste with the addition of coarse-grained sand and hair, which in the break creates the impression of friability, but provides sufficient durability. It was well fired, with smoothed outer and inner surfaces. The thickness of the walls is 1 cm to 1.2 cm and the base as much as 1.5 cm. On the outside, at the edge, the dish was decorated by a girding row of slanted strokes drawn by a pointed implement before firing. The sherds are dark gray in the break and brown on the surface.

The remaining ceramics are large, round-bottomed vessels with round bodies. Their rims turn in. All the vessels are modeled. On the inner surface of the base, oval finger impressions were preserved.

The first is a vessel with a rounded (medially grooved) rim 1.2 cm thick (Fig. 79:6). The outer and inner surfaces are lightly smoothed. The sherds are gray in the break, brown on the surface, and lighter on the outside.

Fragments of the second vessel, similar to the one described above, are a darker color. The thickness of the rim is 1.2 cm to 1.4 cm. The thickness of the side walls is 1.2 cm to 1.3 cm and of the base 1.5 cm to 2 cm (Fig. 79:9).

The third is a vessel with flat rim (with small inner projection) 0.7 cm thick. The inner and outer surfaces are well smoothed. The thickness of the lateral walls is 0.5 cm to 0.6 cm, the bottom to 1.5 cm. The sherds are dark-gray in the break, the surface brown (Fig. 79:5).

These three vessels were made of clay with inclusions of coarse-grained sand and poorly fired.

The fourth is a vessel with a flat rim 0.8 cm thick made of a paste of kneaded clay with inclusions of fine-grained sand and well fired. The inner and outer surfaces of the sherds are smoothed. The thickness of the lateral walls is 0.7 cm to 0.8 cm, the bottom 0.8 cm to 1 cm. The sherds are dark-gray in the break, on the surfaces light brown. The vessel is not decorated (Fig. 79:10).

Fragments of a fifth vessel were found with exterior lugs for suspension. The lugs have the appearance of an oval-flattened projection with a horizontal hole 0.5 cm to 0.6 cm in diameter. The thickness of the walls is 0.7 cm to 0.9 cm. The height of the lugs is 1.3 cm and 2 cm. The break of the sherds is gray, and on the surface light brown (Fig. 79:1, 2).

Two fragments of similar vessels were found that differ in form and dimension of the lugs and a darker color (Fig. 79:3, 4). These seven vessels were not decorated.

The ninth vessel with a flat rim 0.8 cm thick was made of a clay paste that includes fine-grained sand and was well fired. Its inner and outer surfaces were care-

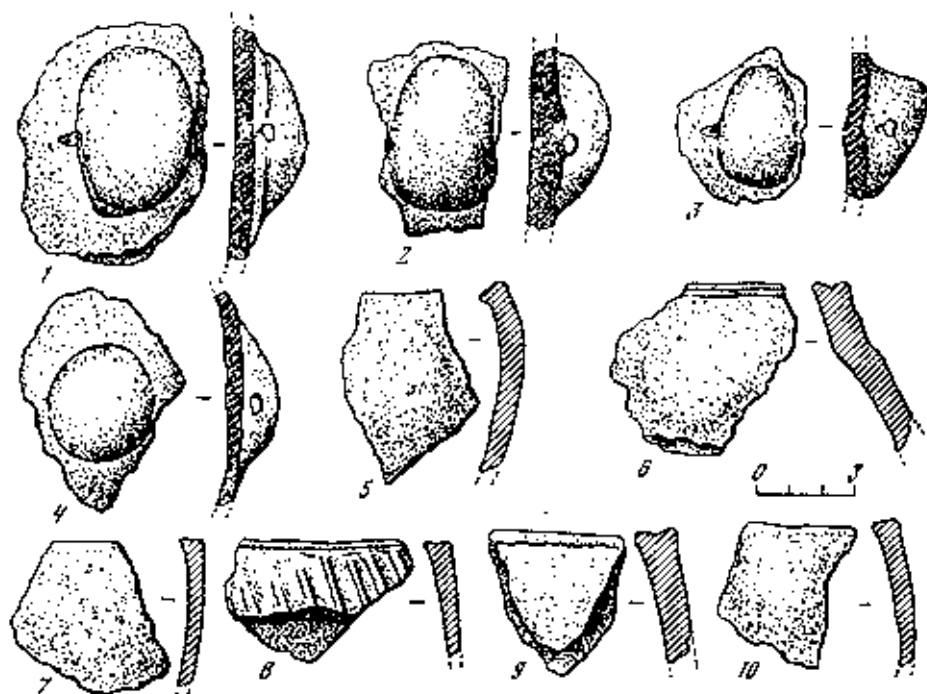


Figure 79. Fragments of ceramics from Dwelling 3, Geka I site.

fully smoothed. The outer surface is decorated from the rim by oblique (sloping out) large-banded decoration (Fig. 79:8).

The ceramics for the most part (in the vessel form and decoration) are similar to ceramics of the complexes of the Nataliia II, Opukha I, and Anna II sites. A distinctive feature is the presence of Punuk type ceramics (the dish and vessels with exterior lugs). In spite of some differences, the complexes of Dwellings 1, 2, and 3 of the Geka site correspond to the complexes of the Opukha I and Anna II sites in dwelling type, in the traditions of the stone and bone industries, and in the ceramics.

The faunal remains of the cultural layer are represented by walrus and seal bones (*nerpa* and *tiulen*).

The finds were concentrated in the central part of the trench.

The dwelling is oriented, based on the entryway, to the southwest at an angle of 10° to the shoreline of the estuary.

Judging by the fact that the cultural layer is covered by a layer of burned wood, probably the roof beams, the dwelling was destroyed by fire.

Near Dwelling 3, 10 m to the west, as a result of a blowout of the soil, the cultural horizon was revealed. Five stone tools were found here. Among them were scrapers on spalls (N=2) and cobble spalls with the cobble cortex preserved (N=2). Their oval-convex working edges were formed by percussion retouch and modified by fine pressure retouch on one side (N=2) and on two (N=2). Also found were a flat, segmented side scraper (Fig. 76:6), unifacially convex side scrapers of suboval form with two opposite working edges (N=2) (Fig. 76:7), a discoid scraper of sub-lenticular cross section with rounded working edge and surface (Fig. 76:5) formed by percussion flaking on two sides, and a fragment of a trapezoidal axe of lenticular cross section (Fig. 77:5). Its lateral edges were formed by percussion flaking, while the blade and surface were ground on two sides. These tools comprise the stone inventory of Dwelling 3.

Two fragments of a low vessel that were found earlier at this site were handed over to us. They are from a low vessel in the form of a dish with flat edges that have a small interior projection 1 cm wide. On the inside, at a distance of 4.5 cm from the edge, there is a projection in the form of a horizontal pinch. Below it can be seen finger impressions. The vessel was made of a clay paste with the addition of a large quantity of coarse-grained sand and is weakly fired. The inner and outer surfaces are lightly smoothed. The breaks of the sherds are gray, the surface yellowish-brown, and there is no decoration.

Shrine. A shrine is situated in the center of the Geka I site. It is indicated by a cluster of walrus skulls randomly arranged in a 4.5 m x 6 m oval ritual area. This is covered by luxurious grassy vegetation. In the upper level of the shrine, at a depth of 0.1 m to 0.2 m, bones and skulls of walruses, seals (*tiulen*'), dogs, and birds were encountered, as well as mollusk shells.

In the center of the ritual area at a depth of 0.8 m to 1.5 m was a cluster of wooden remains. Evidently these are from a wooden post that designated the shrine area, distinct from the above-described shrines where the lower jaw of a whale was set in the ground for this purpose. It is clear this is a substitution since the lack of whale bones in the dwellings and in the shrine, like sea lion bones, attest to the fact that these species were not hunted here, either because they were lacking or for other reasons.

From the 3 m x 3 m excavation, at a depth of 0.15 m to 0.35 m, 147 points of arrows and darts of walrus tusk and the frontal part of walrus skulls were taken out. They were found in a layer of brown sandy loam. Points with a conical stem (N=82) predominate. Points with wedge-shaped base were found (N=37), as well as bifurcate (N=15), awl-shaped (N=6), and socketed (N=6) bases. A compound point with an upper slot for a stone or iron tip and a lower broader slot for seating on a shaft was also encountered.

In the shrine at a depth of 0.15 m to 0.2 m, the following bone artifacts were found: a pick of walrus bone with two points, a buckle of seal bone, the handle of a

knife of walrus bone with lateral oval hole for extraction of a stone blade and with a round perforation in the upper part for suspension, and a needle case of tubular swan bone decorated on one end by two girding, parallel, grooved lines.

Stone artifacts were found at a depth of 0.3 m. These are a fragment of a leaf-shaped arrow point of lenticular cross section and concave base, formed by bifacial flattening retouch of the surface and with edges modified by fine pressure retouch (Fig. 76:11), and a burin on a flat amorphous flake (Fig. 76:10).

The finds were primarily concentrated in the central part of the excavation. The shrine is undoubtedly connected with the village.

Geka II site. At the base of the spit is a second early village that contains the remains of 10 single-room, semisubterranean dwellings (Geka II). Not far from the village are several small lakes with fresh water. On top of a 6 m to 8 m, basal terrace at the base of the spit, in a 1 m x 1 m test pit at a depth of 0.4 m, a cultural layer was found. The following stratigraphy was noted in the southern wall of the test pit: 1 - sod 0.05 m to 0.08 m; 2 - brown sandy loam 0.25 m to 0.3 m; 3 - cultural layer, dark-brown sandy loam with charcoal 0.08 m to 0.1 m; 4 - brown sand 0.05 m to 0.1 m; 5 - brownish-gray sand with gravel 0.5 m.

In the cultural layer in the test pit were: two double-edged knives, fragments of a double-edged knife of lenticular cross section with a waist at the stem (Fig. 76:2), and two flat, subtriangular knives (Fig. 76:1). The surfaces of these knives were formed by flattening retouch, while the straight blades were modified by pressure on two sides. Also, a fragment of a leaf-shaped flat arrow point (Fig. 76:9), with the surface formed by flattening retouch and the edges touched up by fine pressure retouch, and a single-faceted, lateral burin on a flat amorphous flake were found. In the layer were eight slate and six obsidian flakes, evidence that tools were made here. These tools correspond to the stone inventory of Dwelling 3 of the Geka I site.

DATES OF THE ARCHAEOLOGICAL COMPLEXES

The problem of the dates of the archaeological sites and complexes of North-east Asia up to the present time is one of the most complex and most argued. For clarification of the chronological complexes we examined in the Northwest Bering Sea, we used relative chronology, analogy, and absolute dating methods. Considerable attention was given to the selection of organic samples (predominantly charcoal) for radiocarbon dates. A series of 21 absolute dates was taken from different sites and

complexes of the Lakhtina culture. This permitted the precise periodization of the archaeological sites and complexes of the region.

Comparison and typological analysis permitted dividing the archaeological complexes that were studied into two chronological groups corresponding to two stages of development of the Lakhtina culture.

The criteria for division of the early (Late Neolithic) complexes of the Lakhtina culture are: lack of ceramics, lack of ground slate knives, a high percent of retouched stone tools with irregular outline, a high percent of stone tools worked unifacially along the edges by flaking and retouch, a low percent of ground stone tools, and a small quantity of bone items.

The most characteristic feature of the early complexes is the presence of prismatic and amorphous cores and irregular blades flaked from them. This attests to the dying out of the technique of preparing traditional knife-like blades and insets. In later complexes this tradition gradually disappears.

In comparison with the earliest complexes of this region on the Inas'kvaam River with wedge-shaped cores, as well as prismatic cores and knife-like blades (Dikov 1979), these Neolithic complexes of the Lakhtina culture belong to the second millennium B.C.

Into this group fall the complexes of the Lakhtina II (firepit) (3340±100 [MAG-407]) and Orianda II (shrine, lower horizon) (3300±140 [MAG-405]) sites.

Several complexes preserving the above-indicated features belong to the period when ceramics appeared in the Lakhtina culture (Opukha I, Dwelling I, Stratum II, 2600±100 [MAG-945]), as well as ground slate knives on blades (the previous complex and Khayrka I, Dwelling Ia, Stratum V, 2600±300 [MAG-873]). Related to these complexes are: Nataliia I, Firepit 1, 2700±200 (MAG-886); Orianda I-III (Firepit 1), 2660±200 (MAG-403); Orianda I-2 (excavation), Stratum III, 2515±100 (MAG-411); Orianda I-II, Stratum II, 2545±145 (MAG-402); Lakhtina III, Dwelling I, 2400±100 (MAG-416).

Metal (bronze and iron) appeared in the Northeast in the middle of the first millennium B.C. (Dikov 1979:148). Therefore, sites of the second chronological group of the Lakhtina culture, dating from the third century B.C. to the seventeenth-eighteenth centuries A.D., are related to the Paleo-Metal epoch. The characteristic features of the complexes of this period are: the presence of a variety of ceramics, a higher percent of stone tools well worked in outline and ground tools, wide distribution of ground slate knives on blades, and a large quantity and variety of bone items and tools.

Absolute dates confirm the preliminary periodization and chronology of the archaeological complexes: Etchun I excavation 1930±180 (MAG-889); Opukha I, Dwelling 2, 1900±100 (MAG-875); Nataliia II, Dwelling 3, 1800±100 (MAG-887);

Lakhtina IV, 1560 ± 90 (MAG-410); Opukha I, Dwelling 3, 1400 ± 300 (MAG-894); Natalia I, Firepit 2, 1400 ± 100 (MAG-885); Opukha I, Dwelling 1, Stratum I, 600 ± 100 (MAG-888); Khayrka II, denuded area, 470 ± 100 (MAG-895); Amamkut I, Dwelling 1, 150 ± 35 (MAG-418).

The lack of ceramics in the first complex (Etchun I, excavation) reflects not a chronology of the complex, but a type of site. This is a temporary hunting camp (for summer). These sites of the Lakhtina culture are characterized by the lack of ceramics and the small amount of stone and bone in the inventory.

The depth of the cultural stratum in the archaeological sites of the region and its structure conform to two stages of development of the Lakhtina culture. For the Neolithic complexes it is sandy loam tinted by charcoal to a dark brown, dark gray, or black at a depth of 0.9 m to 1.3 m. On the whole this is the floor of a dwelling or living area. The complexes of the Paleo-Metal epoch are characterized by a darker color, great thickness (0.1 m to 0.25 m), and a large amount of sand in the cultural layer at a depth of 0.35 m to 0.75 m. The cultural strata of both periods were covered by layers of brown sandy loam sometimes with gravel, rarely with sand (Lakhtina I-II). The soils are of alluvially eolian origin.

Several complexes have no absolute dates. The presence of glass beads in the cultural layer of complexes of the settlements of Etchun II, Dwelling 1, Stratum II and Geka I, Dwelling 3 dates them no earlier than the eighteenth century. Glass beads could have appeared among the Lakhtina as a result of trade, through the Chukchi and Koryak, with the first Russian settlers.

It is more complicated to date the complex of the settlement of Anna II, Fortified Dwelling 1. In appearance the stone and bone inventory and ceramics are similar to the complexes of the settlement of Opukha I, Dwellings 2 and 3. The deposit of the stratum is significantly deep. However, the presence of fortification (a soil berm) and a club in the form of a sword (such a weapon was unknown to the Native inhabitants of Northeast Asia until contact with immigrants from Russia) also date the complex no earlier than the sixteenth century.

Thus, the last four complexes chronologically adjoin the ethnographically known culture of the Kereks who lived on the Northwest Bering Sea until the twentieth century.

¹ Orekhov uses only the term *sloi* [layer] here and subsequently to identify what I believe is the cultural layer. Therefore, I have taken the liberty to translate *sloi* as "cultural layer" where it seems proper. - *Trans.*

² Descriptions for Strata 4 and 7 seem missing, or perhaps the strata were misnumbered. - *Trans.*

³ The author distinguishes between cord-marked design that slopes out (has the marks running from upper left to lower right—\\) and that slopes in (//). - *Trans.*

⁴ The term "cult" follows Russian usage, that is, a cult should be viewed as "a system of religious beliefs and ritual" (Webster's Ninth New Collegiate Dictionary, 1985) and not as something unorthodox. - *Trans.*

CHAPTER TWO

COMPARATIVE-TYPOLOGICAL ANALYSIS OF THE INVENTORY

THE COMMON TRADITIONS of the stone and bone industries, ceramics, common types of economy, dwellings, and shrines attest to a common cultural membership of the archaeological sites of the Northwest Bering Sea. This permits giving a comprehensive analysis of the inventory of the Lakhtina culture.

Stone Inventory

The stone inventory is represented by the sum total of stably repeated types of preform that characterize the technique of flaking, the types of secondary working of the products of the flaking, and the types of artifacts (Korobkova 1975:9).

The technique of flaking in most of the Early Neolithic complexes of the Lakhtina culture (Lakhtina I, Orianda I, II, and III cultural layers of the excavation) is characterized by prismatic and amorphous cores, knife-like blades of irregular form, and inset blades. This technique dies out, receiving no further development, which is characteristic of all maritime cultures of Northeast Asia (Dikov 1979).

The whole course of development of the Lakhtina culture is dominated by the technique of making tools on cobbles, cobble spalls with a preserved cobble cortex, and flakes (predominantly flat). Large primary cobble spalls were used for the preparation of large tools (axes, skreblos, adzes).

In the Neolithic complexes tools are predominantly made on flakes (60-77%), cobble spalls (20-25%), and cobbles (10-15%). Tools made on blades (arrow points, scrapers, knives) are isolated.

Lamps, mauls, and sinkers were made on cobbles by the techniques of percussion flaking and pecking.

In complexes of the Paleo-Metal epoch the number of tools made on blades (primarily of slate) increases (predominantly knives) (to 40%). This is a culturally

significant and chronological feature of the primary work. Characteristic for secondary work of the Neolithic complexes are: retouch (to 85%) in combination with percussion flaking, low percent of grinding (1.5-2%), and burin spall (5-7%).

These are culturally significant features, just as the prevalence of edge retouch (to 80%) in the modification of tools (primarily the working edge).

A culturally significant feature of secondary work is the combination of bifacial and unifacial modification of tools, with predominance of the latter (65%).

From the middle of the first millennium B.C., the number increases for completely retouched (35%) and ground (to 40%) tools, bifacially worked tools (60%), while the number of tools modified by edge retouch (50%) decreases.

In complexes of both stages, stone tools of 23 categories are represented: knives, scrapers, skreblos, knife-scrapers, spokeshaves, knife-spokeshaves, polishers, adzes, axes, chisels, burins, graters, drills, punches, arrow and dart points, sinkers, mauls, knife-punches, inset blades, manos, pestles, hammers, and grinding slabs.

The technique of preparation of tools on primary cobble spalls and flakes (secondary spalls), with the predominance of edge modification of the working blade, determines the low percent of stable varieties of tool forms, since tools were made in conformity with the shape of the flake or spall obtained. Thus, the large variety of configurations of tools was not the result of a highly developed stone industry and high specialization, but the reflection of a low level of development of productive forces and conservation of archaic features. An archaic feature is the presence of a large group of multi-functional tools.

In complexes of the second stage (Paleo-Metal) of development of the Lakhtina culture, the number of tools of well-manufactured form increases. The method of retouch was determined by the type of preform and intended function of the tool. This determined the care and quality of work on the surface and edges of the tools, just as it did the quality of the kind of stone. Archaicness of secondary work can be seen in the forming of the working edge by percussion flaking and percussion retouch without subsequent modification.

The technique of preparation of tools on flakes and cobble spalls is on the whole characteristic for the Paleolithic and, in part, for the Mesolithic, and is preserved in the Neolithic of several cultures of Northeast Asia: Old Koryak, Tar'insk, Paleo-Eskimo, Northern Chukotsk, and Ymyiakhtakh (Dikov 1979; Fedoseeva 1980). However, in the complex we are describing, this technique is represented more broadly and in a more archaic form.

Conservation of elements of a cobble industry can be explained not only by a low level of development of productive force, but by habitation in a littoral zone, where suitable and most accessible material for working was found in the form of cobbles of

various kinds of stone. Some artifacts were made in conformity with the shape of the cobble: egg-shaped cobbles were used in making lamps, the small dimensions of which corroborate the fact that the lamps were not used for the preparation of food, as among the Eskimos; elongate cobbles without additional modification were used as hammers and pestles; flattened-oval cobbles were used as manos and in the making of sinkers.

In several cases we observe not only primary, but secondary retouch of the working edge of tools.

The great number of flakes with traces of wear on the edges (cutting and shaving) attests to the fact that they were used as knives (in large degree) and scrapers, which is characteristic for both stages. This is also confirmed by the most recent use-wear research (Korobkova 1975; Kononenko 1984). This evidently explains why in several complexes clearly expressed knives are not found. Mollusk shell, as seen in the ethnographic data, could have been used as knives and scrapers. This also explains their being stockpiled in the complexes of dwellings (especially the later ones).

The small facets of the working edges of flakes and cobble spalls are not the result of intentional modification, rather marks from their use for work (Kononenko 1984).

For the preparation of tools, types of slate (especially siliceous slate) that are widely encountered in the Northwest Bering Sea area were generally used. Also used were flint, obsidian, tufa, siliceous stones (clay and sandstone), andesite-basalt, quartzite, and chalcedony.

Those tools with a functional trend that demands a definite form-arrow and dart points, adzes, axes-are more carefully worked.

In spite of the archaic features, the appearance of the early archaeological complexes is, on the whole, fully Neolithic.

Differences in the types of tools of the two stages that would permit giving a general typology are not observed.

The most numerous category of tools is knives. They can be divided into two basic groups: retouched knives and ground knives. Knives combining retouch and grinding occupy an intermediate position.

Retouched knives in the complexes were represented primarily by unifacially worked specimens (75%), on flakes (80%), more rarely cobble spalls (15%), and blades. Their oval-convex or straight working edge was modified primarily by edge retouch and flaking. More rarely knives are worked by complete retouch. The types of knives are separated by form and location of the working edge, the form of the basal part, general form, while subtypes are distinguished by the type of preform and character of the secondary modification. Amorphous knives predominate (70%).

It is possible to distinguish the following types of knives:

Type 1 - subtriangular knives with straight or slightly convex (1 or 2) working edges, worked by edge retouch; Subtype a - on flat flakes (Fig. 66:12, 16), Subtype b - on elongate cobble spalls of triangular section (Fig. 6:4).

Type 2 - subrectangular with a straight working edge (1 or 2) modified by edge retouch; Subtype a - on flat flakes; Subtype b - on blades.

Type 3 - oval or truncated oval with oval-convex, rounded, working edge modified by edge retouch; Subtype a - on flat flakes; Subtype b - on cobble spalls of subtriangular section.

Type 4 - elongate knives with a curved end and straight base. Their slightly convex or straight working edge (1 to 2) is modified by edge retouch; Subtype a - on flat flakes (Fig. 56:13); Subtype b - on blades (Fig. 56:1).

Type 5 - leaf-shaped knives with an oval-convex base and slightly convex working edge. They are modified by complete retouch. They are made on flakes of lenticular section (Fig. 66:32).

Type 6 - leaf-shaped knives with a stem; Subtype a - on flat flakes; Subtype b - on unilaterally convex cobble spalls.

Type 7 - stemmed knives with asymmetrical working edges ("curved" knives). They are modified by complete bifacial retouch and made on flakes of lenticular section.

For combined knife-scrapers, a straight working edge for the knife and oval-convex for the scraper were characteristic. Their working edges were predominantly modified by edge retouch. They were made on flakes.

A special group is formed by ground knives on slate blades. Earlier it was thought that this category of tools acquired its distribution in the Northeast during the first centuries of the first millennium A.D. in the materials of the old Eskimo cultures (Dikov 1979).

The complex of Dwelling I, Layer II of the Opukha I site (2600 ± 100 years ago) of the Lakhtina culture confirms the earlier appearance of ground slate knives. This is possibly a result of influence of the old Eskimo cultures, or this tradition could have been acquired from the south. The American archaeologist R. E. Ackerman (1982) points to a southern (Thailand) origin for a tradition of making ground tools on slate blades.

In complexes of the Lakhtina culture transitional types are present: on flat blades with retouched working edge, on flat blades with coarsely ground surface and retouched working edge, and now with a ground surface and working edge.

Ground slate knives are represented in complexes of the Lakhtina culture by eight types. However, knives with holes for fastening to handles, widely represented in the Old Bering Sea culture, are lacking here.

Type 1 - semi-lunar, one-bladed knives with an oval-convex working edge.

Type 2 - trapezoidal, one-bladed knives with convex working edge and a variety of this type (corresponds to Types 9 and 11 of Dikov's typological series, 1979).

Type 3 - triangular and subtriangular, one-bladed knives with a convex working edge (corresponding to Type 2).

Type 4 - elongate, one-bladed knives with a straight working edge (corresponding to Type 3).

Type 5 - suboval, one-bladed knives with an end or lateral convex working edge.

Type 6 - truncated oval, one-bladed and two-bladed knives with a convex working edge.

Type 7 - a knife in the form of an irregular rectangle with straight working edges.

Type 8 - pear-shaped, two-bladed knives with a rounded stem.

Types 5, 6, 7, and 8 do not have direct analogies in Old Bering Sea or later Old Eskimo cultures.

Knives of Types 1 and 2 were widely distributed among the Chukchi up to the twentieth century. Types 1, 2, 4, and 6 have analogies in the Aleutian Islands (Bandi 1969).

Handles of these knives, similar to Old Bering Sea and Punuk, were not encountered. The polish of the upper edge, opposite the working edge on the majority of specimens, just as on retouched knives, points to their use without handles; possibly a piece of the knife was wrapped with leather for convenience and clutched in the hand.

Scrapers, skreblos, polishers, and punches represent tools for working hides.

Among the scrapers, unifacial (78%) modification of the working edge (50%) also predominates. They were made on flakes, cobble spalls, more rarely blades or blade flakes. Types of scrapers can be divided by functionally significant features-form and position of the working edge, secondary work, and general form. Subtypes are divided as a result of special modification of the working edge and types of preforms.

Type 1 - subtriangular side scrapers on unifacially convex cobble spalls. A slightly convex working edge on one of the facets is formed by edge retouch on one

side or without modification; Subtype a - scrapers with an oval-convex, round working edge on cobble spalls; Subtype b - on blades.

Type 2 - truncated-oval end scrapers on unilaterally convex flakes. They were worked by complete unifacial or bifacial retouch and have a straight base. Specimens with beveled irregular butts are a result of a defect in the technology.

Type 3 - end scrapers with an expanding oval-convex, working edge (pear-shaped) on flakes of lenticular section. They were worked by complete retouch on two sides; Subtype a - scrapers with sharply marked shoulders.

Type 4 - suboval end scrapers with unilateral edge modification by retouch of the oval-convex working edge: Subtype a - on large unilaterally convex flakes; Subtype b - on unilaterally convex cobble spall.

Type 5 - discoid scrapers with a round working edge on cobble spalls of lenticular section. There are laterally truncated specimens, which is explained by the shape of the preform. In Neolithic complexes discoid scrapers partially preserve the cobble cortex. In complexes of the Paleo-Metal epoch, they were carefully worked by complete retouch, while the working edge was modified by secondary retouch.

Skekblos, intended for coarse preliminary working of skins, are distinguished from scrapers by dimensions, massiveness, and less careful modification of the oval-convex working edge. They were made on flattened cobbles and cobble spalls.

Types of skekblos are divided using the same principles as for types of scrapers.

Type 1 - skekblos of subtriangular form with the working edge on one of the facets, modified by unifacial edge retouch.

Type 2 - lateral skekblos of oval or truncated oval form with unifacial, edge modification of the working edge. Large specimens were used with two hands.

Type 3 - discoid skekblos, worked by complete unifacial or bifacial retouch.

On the whole, unifacially worked skekblos predominate (80%). Flattened cobbles and flakes were used, without additional modification, as polishers.

Punches were made on flakes with set-off, needle-like points worked by retouch.

The tools for working wood and bone are adzes, adzlets, spokeshaves, burins, gravers, chisels, and drills. Axes were noted only in complexes of the Paleo-Metal epoch.

Adzes of well-manufactured form and carefully worked were made on spalls with a lenticular section. Types were separated by form and location of the working

edge, the butt, and general form of the tool, and subtypes by the technique of modification of the working edge.

Type 1 - completely retouched adzes of trapezoidal form with a slightly convex working edge and straight butt; Subtype a - with a ground working edge.

Type 2 - trapezoidal form of adze and adzlets with a beveled working edge and butt; Subtype a - with a ground surface and working edge.

Type 3 - massive adzes of trapezoidal form with an oval-convex working edge with rounded edges and a straight butt. They were worked by complete, bifacial retouch, while the edges were modified by secondary retouch; Subtype a - with a waist near the butt.

Type 4 - Adzes with two opposite, asymmetrical, working edges; Subtype a - retouched adze with a narrowing and pointed butt; Subtype b - adzes with a waist and with a ground surface and working edge.

For adzes and adzlets, an asymmetrical cross section of the working edge is characteristic.

Chisels are similar to adzes but of smaller dimensions.

Drills are made on flakes of elongate form. Morphologically they are similar to punches, but larger with a rounded point of round cross section. The working edge of drills was formed by bifacial retouch.

Amorphous flakes without modification or with unifacial retouch of the working edge were used as spokeshaves. Spokeshaves have a characteristic oval-concave working edge with typical, unifacial crushing. Tool fragments were also used as spokeshaves. Flakes and fragments of tools were used as gravers. The points of gravers have a characteristic grinding.

Burins, in general, are of the lateral type, made on amorphous flakes and fragments of tools by one, more rarely two, burinating blows.

Axes were encountered only in complexes of the Paleo-Metal epoch. They were made on large cobble spalls and flat cobbles and are distinguished by a well-manufactured form and combination of flaking, retouch, and grinding in the bifacial modification of the surface and working edge. Axes are distinguished from adzes by the symmetrical cross section of the working edge.

The types of axes are separated by form of the working edge, general form, form of the butt, and cross section.

Type 1 - axes with an expanding oval-convex working edge and contracting, pointed butt of lenticular cross section. The edges were worked by flaking and retouch, and the surface and working edge were ground (the predominant type).

Type 2 - axes with contracting slightly convex working edge and oval-convex butt. The edges and surface were worked by flaking and retouch, while the working edge was ground. The cross section of the axes is lenticular.

Type 3 - axes of oval form and lenticular cross section with an oval-convex working edge and butt. They were made on flat cobbles with partial preservation of the cobble cortex. The edges of the axes were retouched while the surface and working edge were ground; Subtype a - axes made on a cobble by means of flaking.

Type 4 - axes of subrectangular form and rectangular cross section with slightly convex working edge and straight butt. The edges were worked by flaking and retouch, while the surface and working edge were ground.

The hunting-fishing inventory is represented by points of arrows and darts, inset blades, sinkers. The characteristics of the elongate, dagger-like and stemmed knives, which can be interpreted as for hunting, have already been given above in the general characteristics of this category of tools.

Arrow and dart points are distinguished by the most well-manufactured form and careful work. They were all made on flakes, more rarely on cobble spalls of lenticular cross section. Arrow and dart points were worked by flattening retouch, while the edges were modified by delicate retouch. The types of points are divided according to general form, form of the base, type preform, and subtypes according to breadth-height proportions.

Type 1 - leaf-shaped arrow points with a straight base; Subtype a - large (possibly dart points) elongate; Subtype b - points contracting to the tip.

Type 2 - leaf-shaped points with an oval-convex base; Subtype a - points with a contracting base; Subtype b - broad points (possibly darts); Subtype c - miniature points with edge modification.

Type 3 - small points with a triangular tip and subrectangular stem with a straight base; Subtype a - points with an oval-convex base; Subtype b - points with a pointed base (approaching rhomboid form).

Type 4 - small, rhomboid points.

Type 5 - broad points with a triangular tip and broad subrectangular stem with a straight base; Subtype a - points with a rounded tip and contracting stem.

Type 6 - small, triangular points (examples are found with edge modification) with an oval-concave base; Subtype a - points contracting at the base (approaching leaf-shaped); Subtype b - points with a straight base, sometimes asymmetrical; Subtype c - points with straight, ground base and ground surface.

Stone arrow points were represented predominantly in the Neolithic complexes of the Lakhtina culture and in the lower horizons of shrines, which also correspond, to

the Neolithic. In complexes of the Paleo-Metal epoch, stone arrow and dart points were replaced by bone. The predominance of stone points of small dimension is evidence that the objects of the hunt were predominantly small animals.

Sinkers were made on cobbles and characterize the method of fastening to the net.

Type 1 - sinkers with two and four grooves, made by percussion flaking.

Type 2 - sinkers with a girdling groove, made by pecking.

Type 3 - sinkers with a girdling groove and a hole in the center, made by pecking. Similar sinkers are used by the Kereks even now.

Flattened cobbles were used as manos. They have traces of grinding and some coloration from ocher. Grinding slabs also have traces of grinding, and some have ocher. Slabs with depressions caused by blows were found (at Lakhtina and Opukha). On these slabs (according to ethnographic data) frozen meat and fish were chopped up.

Stone mauls of this stage, which were used for breaking up bone, frozen meat, and pounding stakes and wedges were made on egg-shaped cobbles with a groove made by pecking. The maul was fastened to a wooden handle by leather thongs around the groove. A similar maul is in Gondatti's Kerek collection (MAE, col. 441).

Pestles and hammers were made on elongate cobbles of round section. They have characteristic traces of impacts on the ends.

Lamps were made on cobbles of round section with a depression by pecking. One lamp (from Anna II) has a round projection with a depression for attachment. It is similar to Old Koryak (Vasil'evskii 1971) and Tar'insk (Dikova 1983) lamps.

On the whole the analysis of the stone inventory, and above all the development of the techniques of the stone industry and the appearance of new categories of stone tools, suggest two stages of development of the Lakhtina culture: 1 - Neolithic complexes of the second millennium B.C. to the fifth century B.C.; and 2 - Late Neolithic complexes and complexes of the Paleo-Metal epoch, fourth century B.C. to seventeenth-eighteenth centuries A.D.

Traditions of the stone industry and types of stone tools (arrow points, adzes, axes, "hunting" and slate knives, sinkers, and lamps) of the Lakhtina culture correspond to the stone inventory of the ethnographically known culture of the Kereks. The latter lived in the territory of the Northwest Bering Sea until the twentieth century. This suggests the assumption of genetic connection between them. For example, the method of preparation of food in ovens (stewing meat and fish) (at Lakhtina and Orianda I) is known among the Kereks ethnographically and was preserved until the beginning of the twentieth century. It is interesting that similar ovens and method of preparation are unknown in any of the surrounding cultures, with the exception of the Icel'men. There,

as Krasheninnikov describes it, the Itel'men "sometimes even to excess cook both fat and meat in the following manner: first they dig a pit, depending on the quantity of meat and fat, the floor of which they cover with stones. Then they completely fill the pit with wood and, having set it afire from below, let it burn until it becomes as hot as an oven. When the pit is ready, they rake the ashes back in one place, cover the floor with fresh alder, and on the alder lay fat, then meat, and each layer they cover with alder; finally, when the pit is filled, they cover it with grass and then with earth, so that the steam cannot get out. After several hours they take out the mentioned meat and fat and preserve it for winter. With this preparation the meat and fat are much more agreeable than boiled, and with this it does not spoil throughout the year" (Krasheninnikov 1949:272).

Comparative typological analysis of the stone inventory of the Northwest Bering Sea with synchronic complexes of surrounding archaeological cultures (Table 1 this chapter) indicates the presence of several common types of tools. This can hardly be explained by convergence. More likely this speaks in favor of Dikov's assumption of the existence of a common, earliest cultural stratum that was fundamental in the process of localization in the formation of several cultures of Northeast Asia.

The exception consists of ground slate knives (of the "ulu" type), which only have analogies (some types, as noted above) in the inventory of the Old Eskimo cultures.

The greatest similarity of the stone inventory of the Lakhtina culture can be traced to complexes of the Tar'insk, in large degree, and Paleo-Eskimo and Old Eskimo cultures. This permits assuming a common early genetic source for these archaeological cultures.

Bone Inventory

The development of the exploitation of pinnipeds and whales led to the appearance of new materials (walrus tusks and bones of pinnipeds and whales) for the preparation of tools. This determined the appearance and development of a new technology for making tools, as well as new kinds and forms of them. New methods appear for fastening a point to a shaft—the socket, bifurcate base, and conical stem. The wide use of bone for making tools leads to the decline, and in several cases even the disappearance, of some categories of stone tools (stone arrow points almost disappear). Bone, as a more plastic material, caused the increased specialization of tools. This led to the appearance of a larger number and variety of stable variations of tool forms and their greater effectiveness.

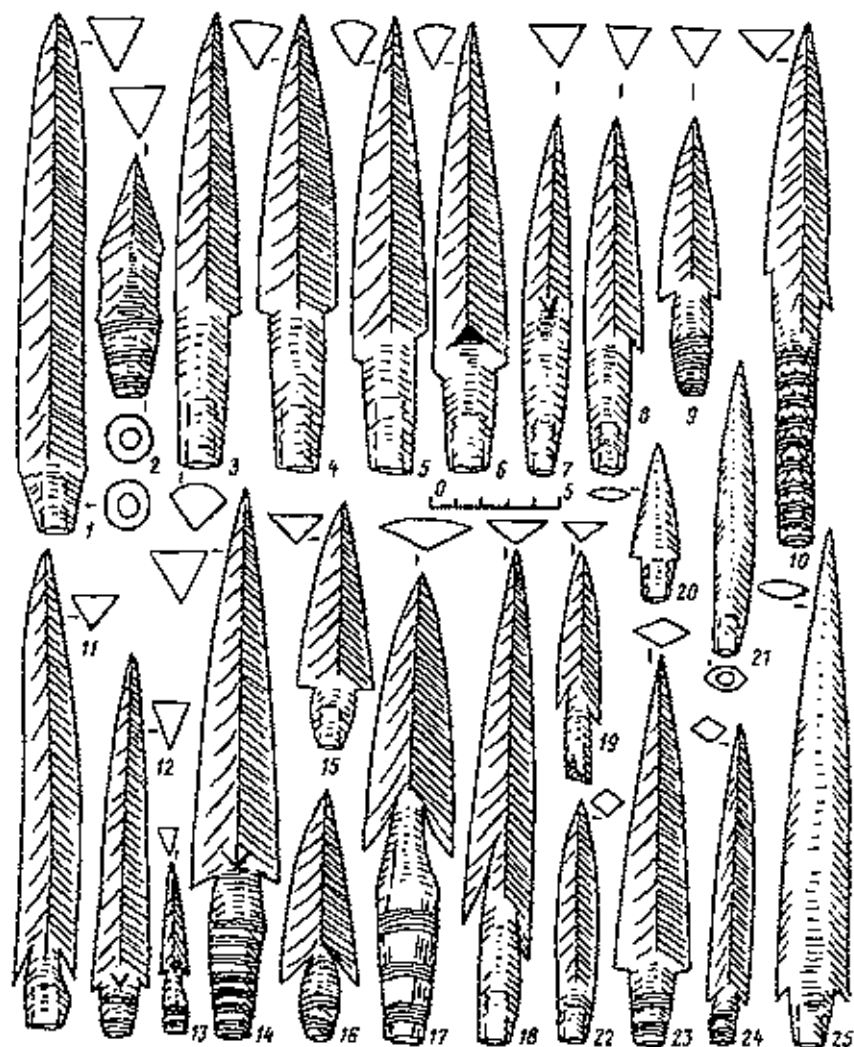


Figure 80. Bone points of the Lakhtina culture with socketed base.

The multi-functionality of several stone tools gives way to the mono-functionality of bone ones, though the multi-functionality of other stone tools is preserved.

The hunting-fishing inventory is represented in general by bone points of arrows, darts, bird spears, and leisters. They were found during the investigation of dwellings (N=4) and sacrificial areas (N=1,230). Of them, 776 specimens are well defined.

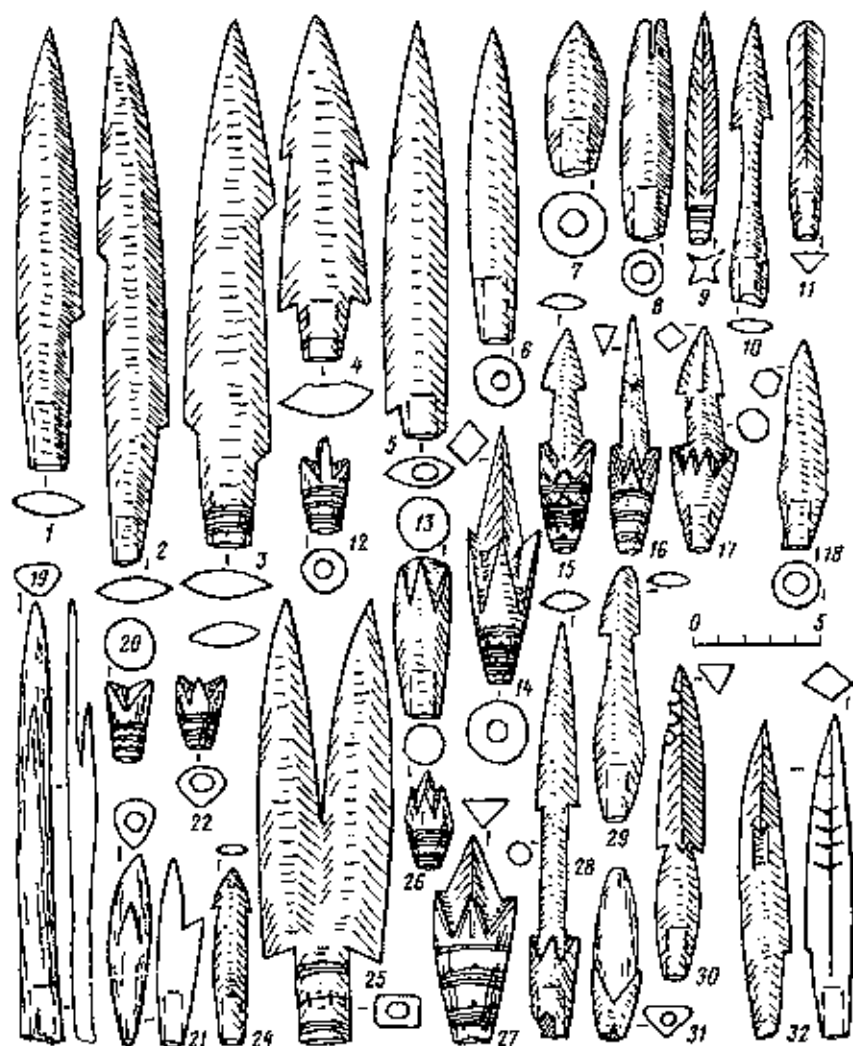


Figure 81. Bone points of the Lakhtina culture with socketed base.

Points of arrows and darts are identical and differ only in dimensions and weight. The points of bird spears, leisters, and arrows for spearing fish are needle-shaped points with or without barbs.

The wealth and variety of points and their association with one culture permit classifying them. In our view, the method of fastening a point to the shaft is a leading feature, reflecting stable, culturally significant traditions. The form of a point is a quite variable feature, being determined by functional orientation and the object of the hunt or exploitation. Therefore we suggest the following typology.

The form of the base is the main feature for dividing bone points into five groups:

I - cylindrical or truncated conical sockets (N=449) (58%);

II - flattened wedge-shaped base (N=143) (18.4%);

III - conical stem (N=115) (14.8%);

IV - awl-like base (N=45) (5.8%);

V - bifurcate base (N=24) (3%).

Considering the shape of the point, subgroups can be isolated:

A - pyramidal points, narrow and broad;

B - flattened conical points, narrow and broad;

C - multi-barbed points (including blunt points or bunts).

The combination of the point tip and its cross section can be used for distinguishing the type of point. The presence of spurs and barbs and their number are a feature of subtype. The position of the spur or barb relative to the longitudinal central axis of the point (symmetrical or asymmetrical), as well as relative to the tip and base, permits isolating variants.

With regard to the named features, the typology of the bone points of the North-west Bering Sea takes the following form:

Group 1 is composed of points with a socketed base.

Subgroup A - pyramidal points.

Type I - narrow points of triangular cross section without spurs or barbs.

Subtype a - points with one spur (Fig. 80:3).

Subtype b - points with two spurs.

Variant 1 - symmetrical (Fig. 80:4).

Variant 2 - asymmetrical (Fig. 80:5).

Subtype c - points with three spurs.

Variant 1 - symmetrical.

Variant 2 - asymmetrical (Fig. 80:6).

Subtype d - points with one barb.

Variant 1 - with barb on the upper edge (Fig. 80:7).

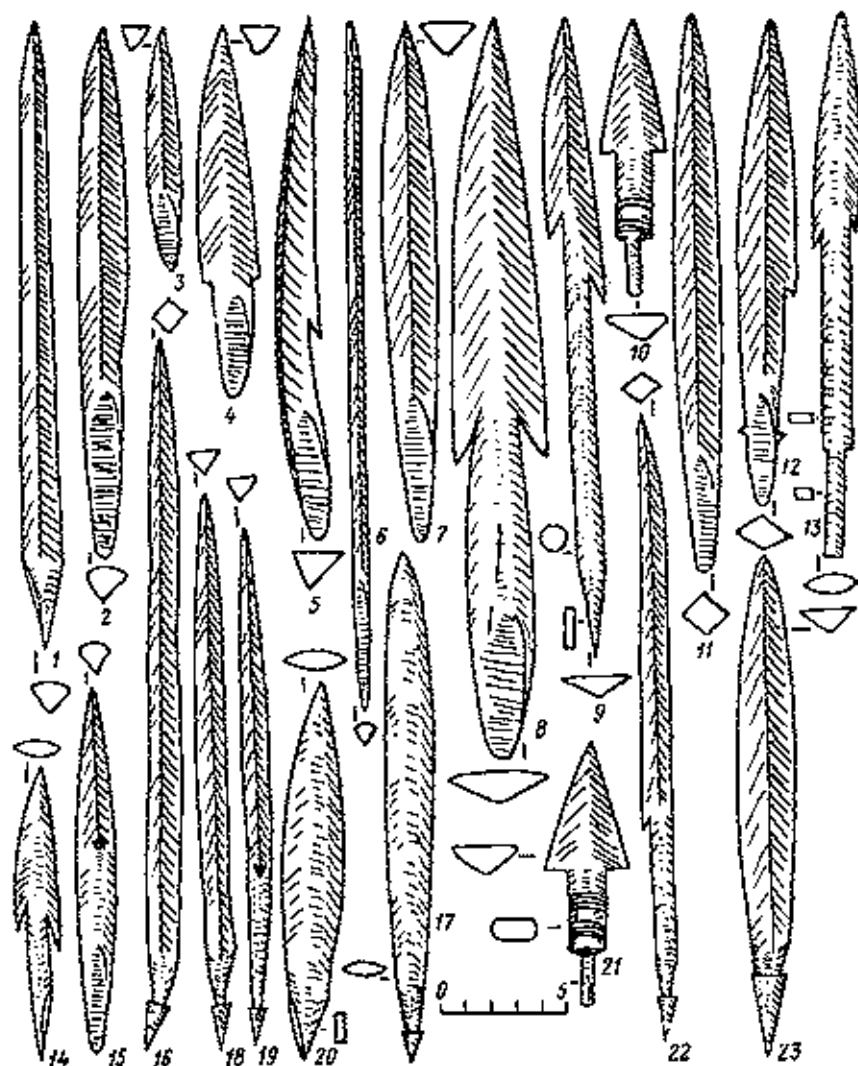


Figure 32. Bone points of the Lakhtina culture with wedge-shaped base and conical stem.

Variant 2 - with barb on the lateral edge (Fig. 80:8).

Subtype e - points with two barbs.

Variant 1 - symmetrical (Fig. 80:9).

Variant 2 - asymmetrical (Fig. 80:10).

Subtype f - points with three barbs.

Variant 1 - symmetrical (Fig. 80:12, 13).

Variant 2 - asymmetrical (Fig. 80:14).

Type 2 - points with flattened triangular cross section.

Subtype a - points with two spurs.

Variant 1 - symmetrical (Fig. 80:15).

Variant 2 - asymmetrical.

Subtype b - points with two barbs.

Variant 1 - symmetrical (Fig. 80:16, 17).

Variant 2 - asymmetrical (Fig. 80:18, 19).

Type 3 - pyramidal points of rhomboid cross section without spurs or barbs (Fig. 80:22).

Subtype a - points with two spurs.

Variant 1 - symmetrical (Fig. 80:23).

Variant 2 - asymmetrical.

Subtype b - points with two barbs.

Variant 1 - symmetrical (Fig. 80:24).

Variant 2 - asymmetrical (Fig. 81:32).

Subgroup B - flattened conical points of lenticular cross section.

Type 4 - narrow points without spurs or barbs (Fig. 80:21).

Subtype a - with one spur (Fig. 81:1).

Subtype b - with two spurs.

Variant 1 - symmetrical (Fig. 80:20).

Variant 2 - asymmetrical (Fig. 81:2).

Subtype c - points with three asymmetrical spurs (Fig. 81:3).

Subtype d - points with one barb (Fig. 81:5).

Subtype e - points with two barbs.

Variant 1 - symmetrical (Fig. 80:25).

Variant 2 - asymmetrical.

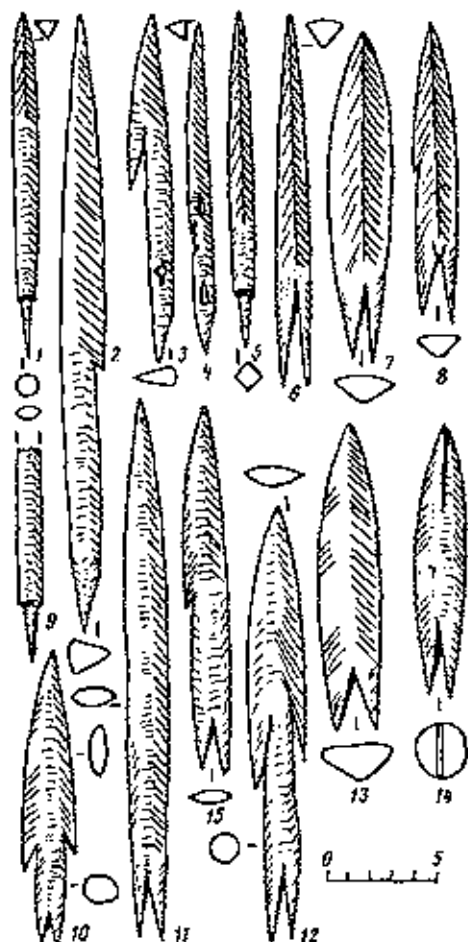


Figure 83. Bone points of the Lakblina culture with awl-like and bifurcated base.

Subtype f - points with four symmetrical barbs. (Fig. 81:4).

Subtype g - points with two barbs at the point (Fig. 81:10, 24).

Type 5 - elongated points of oval cross section (Fig. 81:6).

Type 6 - bullet-shaped point (Fig. 81:7).

Type 7 - point with slot in the upper part for insertion of a tip (Fig. 81:8).

Type 8 - four-vaned point (Fig. 81:9).

Subgroup C - multi-tipped points.

Type 9 - narrow point of triangular cross section with two asymmetrical tips (Fig. 81:19).

Type 10 - massive, broad point with two symmetrical tips and two symmetrical barbs (Fig. 81:25).

Type 11 - blunt points with projections—bunts.

Subtype a - points with two projections.

Variant 1 - symmetrical (Fig. 81:20).

Variant 2 - asymmetrical (Fig. 81:21).

Subtype b - points with three projections (Fig. 81:22).

Variant 1 - with two projections, of which one is rounded in the center (Fig. 81:12).

Subtype c - points with four projections (Fig. 81:13).

Subtype d - points with five projections, with one in the center and four on the sides (Fig. 81:14, 26, 27).

Type 12 - points with a central raised tip and lateral projections.

Subtype a - of lenticular cross section with two symmetrical spurs.

Variant 1 - with two lateral projections (Fig. 81:15).

Variant 2 - with four lateral projections (Fig. 81:28).

Subtype b - of triangular cross section with two spurs and four projections (Fig. 81:16).

Subtype c - of rhomboid cross section with four barbs and eight lateral projections (Fig. 81:17).

Group II includes points with flattened wedge-shaped base.

Subgroup A - pyramidal points.

Type 1 - points of triangular cross section without spurs or barbs (Fig. 82:1, 2, 3).

Subtype a - points with one spur (Fig. 82:15).

Subtype b - points with two spurs.

Variant 1 - symmetrical (Fig. 82:4).

Variant 2 - asymmetrical.

Subtype c - points with one barb (Fig. 82:5).

Type 2 - needle-shaped points (Fig. 82:6).

Subtype a - points with one barb.

Type 3 - points of flattened triangular cross section without spurs or barbs (Fig. 82:7).

Subtype a - points with two barbs.

Variant 1 - symmetrical (Fig. 82:8).

Variant 2 - asymmetrical (Fig. 82:9).

Subtype b - point with two spurs and a base in the form of a pintle (Fig. 82:10).

Type 4 - pyramidal points of rhomboid cross section without spurs or barbs (Fig. 82:11).

Subtype a - points with one barb.

Variant 1 - with two symmetrical teeth on the base (Fig. 82:12).

Subgroup B - flattened conical points of lenticular cross section.

Type 5 - points without spurs and barbs (Fig. 82:20).

Subtype a - points with one spur.

Subtype b - points with one barb.

Subtype c - points with two barbs.

Variant 1 - symmetrical.

Variant 2 - asymmetrical (Fig. 82:14).

Variant 3 - base in the form of a pintle (Fig. 82:13).

Group III includes points with a conical stem.

Subgroup A - pyramidal points.

Type 1 - narrow points of triangular cross section without spurs or barbs (Fig. 82:18).

Subtype a - points with one barb (Fig. 82:19).

Variant 1 - with one barb on the upper edge.

Variant 2 - with one barb on the lateral edge.

Type 2 - broad points of triangular cross section without spurs or barbs (Fig. 82:23).

Type 3 - narrow points of rhomboid cross section without spurs or barbs (Fig. 82:16).

Subtype a - points with one barb (Fig. 82:22).

Subgroup B - narrow, flattened conical points of lenticular cross section.

Type 4 - points without spurs or barbs (Fig. 82:17).

Subtype a - with one barb.

Type 5 - broad, flattened conical points with lenticular cross section without spurs or barbs.

Group IV includes points with awl-shaped base.

Subgroup A - pyramidal points.

Type 1 - narrow points of triangular cross section without spurs or barbs (Fig. 83:1).

Subtype a - with one barb (Fig. 83:2).

Variant 1 - with one hole at the base (Fig. 83:3).

Variant 2 - with two holes at the base (Fig. 83:4).

Type 2 - narrow points of rhomboid cross section without spurs or barbs (Fig. 83:5).

Subtype a - points with one spur.

Subgroup B - flattened conical points with lenticular cross section

Type 3 - without spurs or barbs (Fig. 83:9).

Subtype a - with one barb.

Group V includes points with bifurcated base.

Subgroup A - pyramidal points

Type 1 - narrow points of triangular cross section without spurs and barbs (Fig. 83:6).

Type 2 - broad points of flattened triangular cross section without spurs or barbs (Fig. 83:7, 13).

Subtype a - with one lateral barb (Fig. 83:8).

Type 3 - narrow points of flattened triangular cross section without spurs or barbs.

Subgroup B - narrow, flattened conical points of lenticular cross section.

Type 4 - points without spurs or barbs (Fig. 83:11).

Subtype a - with one barb (Fig. 83:15).

Subtype b - with two barbs.

Variant 1 - symmetrical (Fig. 83:10).

Variant 2 - asymmetrical (Fig. 83:12).

Subgroup C - multi-tipped points.

Type 5 - elongated points of oval cross section with slot above for insertion of a tip (Fig. 83:14).

On some points the slots were possibly made for poison (Fig. 81:30, 32).

In distinction from the exclusively lenticular cross section of stone points, among the bone points that predominate are those with a tip of triangular and flattened triangular cross section. This can be explained by the technology of making bone arrows. Lateral slits in bone and walrus tusks were made at an angle so that they usually intersected at the opposite side of the material. As a result, flaking off a blank most often had a triangular or trapezoidal cross section.

As we have already noted, the large number, variety, and ornamentation of the socketed points is peculiar to the Lakhtina culture.

Points with a wedge-shaped base are characteristic of the complexes of the Okhotsk coast (Tokarev and Old Koryak cultures: Vasil'evskii 1971; Lebedintsev 1990). Their presence in the complexes of the Lakhtina culture can possibly be explained by cultural transmission.

Points with a conical stem and awl-like base, as well as combined ones with an upper and lower slot, are characteristic of the Old and Neo-Eskimo cultures of Asia and America (Old Bering Sea, Ipiutak, Birnirk, Thule) (Rudenko 1947; Dikov 1977, 1979; Bandi 1969; Giddings and Anderson 1986). The presence of these points in complexes of the Lakhtina culture possibly results from an influence of these cultures.

From north to south, from Geka Land to the Opukha Lagoon, in the complexes of the shrines of the Lakhtina culture, the number of bone points with a conical stem decreases and that with flattened wedge-shaped base increases.

This attests to the weakening of the influence of Old Eskimo cultures and strengthening of the influence of Old Koryak cultures.

On the whole, the proposed classification of bone points has not only regional significance, but perhaps can be used as well for other regions. It possesses sufficient flexibility for introducing, in case of necessity, new types, subtypes, and variants. The widening of the circle of sources permits improving this classification.

Table one below lists the types and frequencies of wooden points.

Bone points are represented in the earliest complex of the Lakhtina culture (Orianda II, Sacrificial Area I, lower horizon 3300 \pm 140 years ago). The change of preparation technique and types of these points in the course of development of the Lakhtina culture cannot be traced.

Ethnographically known, socketed bone points, which the Kereks still made in the 1940s and 1950s, correspond completely with the points of the Lakhtina culture. Lakhtina points, presented to Kereks for determination, were identified as "Kerek" and were divided into groups corresponding with intended use (on whales, large seals, small seals, points of leisters, bird spears, and hunts). In the Kerek language there are special definitions for each category of points. This confirms the genetic connection of the Lakhtina people and Kereks.

The basic bone inventory is represented in complexes of the Paleo-Metal epoch with a broad chronological range (second half of the first millennium B.C. to the seventeenth-eighteenth centuries A.D.).

Retouching tools, made of tusks and bones of walruses, are characteristically curved and have traces of wear on both ends. Their length is 10 cm to 20 cm, and diameter 2 cm to 4 cm. The form of the retouching tools is typical for a wide area of the Northeast.

Bone handles of hunting knives have analogies in the Old Koryak (Vasil'evskii 1971, Table 2-6), Northern Chukotsk (Dikov 1977, Table 70:4), and early Birnirk Eskimo (Ford 1959, Fig. 83) cultures and in the Ust'-Bel'skii cemetery (Dikov 1977, Table 99:15).

Bone spades were used for digging up earth in the construction of dwellings and shoveling away snow. The forms and method of fastening these spades to a wooden handle have analogies in the Old Koryak (Vasil'evskii 1971, Table 30:1) and Okhotsk (Type I) (Kozyreva 1960, Fig. 1) cultures, in Kamchatka (Rudenko 1948, Table I) and the Aleutian Islands (Jochelson 1925, Picture 26, 36).

Bone picks and mattocks were used for breaking up earth in the construction of dwellings and digging roots. They were made primarily from walrus tusks, more rarely from walrus and whale bones. Picks have one, more rarely, two pointed working ends, which, where attached to the wooden handle, are located on it in a single plane. More often they are hafted to the pole perpendicularly through a hole, more rarely fastened to a handle. The working edge of the mattock, in distinction from the pick, is fastened

Table 1. Types and frequencies of wooden points.

Presence of spurs and barb	Cross section of the point			
	Triang.	Rhomb.	Lent.	Oval
Socketed points (I)				
without spurs or barbs	(IA) 21 (IA1,2)	3(IA3)	32(IB4)	6(IB5,6,7)
number of spurs 1	10(1a)		3(4a)	
2	28(1b)(2a)	5(3a)	5(4b)	
3	1(1c)		1(4c)	
number of barbs 1	150(1d)		(4d)	
2	3(1e)(2b)	3(3b)	31(4c,g)	
3	61(1f)			
4			1(4f)	
With flattened wedge-shaped base (II)				
without spurs or barbs	52(IIA1)	4(4)	70(IIIB,5)	
number of spurs 1	5(1a)		2(5a)	
2	1(1b)			
number of barbs 1	4(1c)(2a)	1(4a)	1(5b)	
2	1(3a)		2(5c)	
With conical stem (III)				
without spurs or barbs	37(IIIA1,2)	2(IIIA3)	30(IIIB4,5)	
with 1 barb	39(1a)	1(3a)	6(4a)	
With awl-like base (IV)				
without spurs or barbs	29(IVA2)	1(IVA2)	3(IVB3)	
with 1 spur		1(2a)		
with 1 barb	10(1a)		1(3a)	
With bifurcate base (V)				
without spurs or barbs	4(VA1,2,3)		13(VB4)	
number of barbs 1	2(2a)		2(4a)	
2			3(4b)	
TOTAL	528	21	212	6

perpendicularly relative to the wooden handle. Picks and mattocks of the Lakhtina culture have analogies in Old Eskimo cultures (Old Bering Sea, Birnirk, Ipiutak) (Arutiunov and Sergeev 1969:77-5, 83-8; Ford 1959:88; Larsen and Rainey 1948, Picture 83).

Bone needle cases from the hollow bones of birds have analogies in the Old Koryak (Vasil'evskii 1971, Table 15:6), Old Eskimo (Arutiunov and Sergeev 1975, Picture 74), Okhotsk, and Tar'insk (Kozyreva 1960, Fig. 4; Dikova 1983) cultures.

A bone spoon (Fig. 35:2) has analogies in Old Eskimo cultures and in Kamcharka (Kovran) (Rudenko 1948, t. 36-31, 12-136).

A bone knife with a handle (Fig. 15:13) and the detail of the compound fish-hook (Fig. 15:2) have analogies in the Aleutian Islands (Jochelson 1925, Picture 25, 26, 78).

Elements from dog harnesses (Fig. 29:1, 3) have no analogies in the bone inventory of surrounding, synchronic cultures. Shoes for a sled are typical for the whole region of northeast Asia. Also typical are needles, clasps, and buttons.

A woman's "box" of walrus bone (Fig. 4:4) has analogies in Gondani's Kerek collection (MAE, col. 441, 442). Similar artifacts, but of metal, were used until recently by women among the Kereks, Chukchi, and Koryak.

The ritual vessel (Fig. 59:8) is similar in form to artifacts of the Old Bering Sea and Ipiutak cultures (Arutiunov and Sergeev 1969; Dikov 1977; Larsen and Rainey 1948). The decorative motifs have some analogies in the Old Bering Sea culture.

No bone handles for scrapers and adzes were found in the complexes of the Lakhtina culture.

The indicated analogies of the bone inventory can be partially explained by the existence of cultural contacts of the Lakhtina culture with the Old Eskimo and Neo-Eskimo, Old Koryak, Tar'insk, Old Aleut, and Okhotsk cultures. The basic reasons are a shared form of economy and environment and specialization of tools for the same kinds for economic activities.

Thus, the Lakhtina culture historically is a composite part of the cultural sphere of the North Pacific Ocean.

Culturally significant features of the bone inventory are: socketed points (as leading types) and a type of bone element for a dog harness.

A culturally significant feature also is the distinctive decoration of bone points, predominantly socketed ones. It is possible to distinguish the following types of decoration: Type 1 - grouped, parallel, carved lines that gird the socket (from 2 to 7) (Fig. 80:2, 12-17, 23, 24; Fig. 81:3, 9, 12, 22, 26); Type 2 - lines in combination with "eyelash" design (Fig. 80:10; Fig. 81:20, 25); Type 3 - lines in combination with carved

teeth (Fig. 80:9; Fig. 81:27); Type 4 - lines in combination with paired parallel lines at different angles (Fig. 81:15, 16), Type 5 - lines in combination with carved decoration reminiscent of dendritic design. However, the conditions of habitation on a treeless tundra hardly contributed to the rise of such designs. This is probably a schematic representation of the impression of birds' feet (coming from the folklore data of the Kereks, probably the raven).

This decoration of the bone points is a clear characteristic feature of the Lakhtina culture. Only two bunts, decorated along the socket by rows of parallel lines, were encountered in the ritual place at Vervei village (Oliutorskii Koryak) (Vdovin 1971:Table 1:8, 9). Type 5 decorations have analogies in two bunts in the ethnographic collection from the territory of former Russian North American possessions (Volkov and Rudenko 1910:Fig. 12, 14). Unfortunately, the exact place of their collection was not indicated.

Different variants of decoration of bone points of the Lakhtina culture are possibly the marks of ownership (by a person or community).

Other bone artifacts are decorated with similar ornamentation. A bone spoon is decorated with concentric circles. On a ritual vessel and the figure of a bird the whole surface is covered by decoration. For the Lakhtina culture the division of the surface of the object being decorated into sectors is characteristic. These types and methods of decoration are characteristic for the Kereks. They are widely represented in Gondatti's Kerek collection in carved sculptural representations (MAE, col. 441, 442). The collection is only partially published (Bogoraz 1901; Leont'ev 1976a).

The elements of these decorations have analogies in the Old Koryak (Vasil'evskii 1971) and Tar'insk (Dikova 1983) cultures and wider analogies in Old Eskimo cultures (Arutiunov and Sergeev 1969, 1975; Rudenko 1948; Dikov 1977, 1979; Bandi 1964; Giddings 1964; Larsen and Rainey 1948; Ford 1959). Ethnographic parallels can be observed among the Chukchi, Eskimos, Koryak (Bogoraz 1934; Ivanov 1963), and several tribes of North American Indians (Athapaskan and Tlingit) (exposition and repository of MAE, Jochelson 1908).

This was also noted earlier by Jochelson: "Even the Kerek carving is worse than Koryak in the final touches. The carving of the Chukchi and Kereks nevertheless is more reminiscent, than Koryak sculpture, of the carving of the Eskimos by the fact that it is more decorated with ornamentation that consists chiefly of dots and lines." "We find similar decorations in the carving of the Kereks and Chukchi" (Jochelson 1908:660). "In the collection of carvings in the Museum of the Imperial Academy of Sciences in Petersburg there are two bone pipes with engraved miniature figures of humans and animals. These pipes were used among the Kereks, but they have their origin among the island Eskimos of the Bering Sea" (Jochelson 1908:672). It is scarcely possible to agree with Jochelson's last assertion, but on the whole he correctly notes that the ornamental motifs of Kerek-carved bone are similar to those of Eskimo-carved bone.

Thus, the ornamentation of the Lakhtina culture also points to its association with the circle of cultures of the North Pacific Ocean and a genetic connection with the Kerek ethnos.

Artifacts of Wood

Wooden artifacts were seldom found. In the Neolithic complexes these are a ladle with a handle in the form of a bifurcated hoof (Fig. 59:10) and a fragment of shuttle for weaving nets (Fig. 59:9). The artifacts were made of larch. This and the effects of permafrost in the layer account for the preservation of artifacts of such substantial age-2600 \pm 100 B.P.

Wooden artifacts were also found in the late complex of the Paleo-Metal epoch at Anna II, Fortified Dwelling 1. This is a wooden float for a net (Fig. 35:3) of distinctive form, possibly a mark of ownership. A wooden ritual figurine of a water fowl (Fig. 35:1) is decorated with characteristic engraved lines on the back and reflects (as the bone figurine of a bird) the idea of reincarnation. Also represented is a wooden baton for a fire drill (Fig. 37:6). The bulk of the wooden artifacts was found on the surface and in the upper layer of the shrines. The characteristic and distinctive feature of the wood inventory of the Lakhtina culture are the ritual arrows and darts. They imitate socketed points seated on a shaft (Fig. 8). A detailed description of wooden ritual arrows and darts was given with the general characteristics of the shrines. Among surrounding cultures there are no analogies.

Of the fragments found (in the cavity of the whale jaw at Shrine 1 of the Opukha I site), five arrow shafts were partially reconstructed. The length of the restored part is 0.5 m to 0.55 m. They all are round in cross section, 1 cm to 1.3 cm in diameter, and flattened toward the base. In the base was an arched cut for the bow string.

The base itself of these arrow shafts is somewhat thickened and separated from the remaining part of the shaft by shoulders. This tells of the ancient method of pulling the bow string and releasing the arrow, that is, gripping the base of the shaft of the arrow between the thumb and index finger (Anuchin 1887).

Among the Chukchi and Eskimos there is no similar projection on the base. They used the Mediterranean method (Anuchin 1887) of drawing the bow string and releasing the arrow, gripping the base of the arrow between the index and middle fingers.

The remains of the wooden arrows also permit establishing the method of fastening the fletching. Half of a feather cut lengthwise was inserted by the upper and

lower ends in a split in the arrow shaft on the flattened surface at the base. Symmetrically on the lower flattened surface the second half was similarly attached. Additionally, at the upper and lower splits the fletching was fastened by sinew threads. On one arrow shaft the fletching was more complex. On each flattened surface of the base of the shaft the halves of the feather were tied in twos. Above, their ends were fastened in two splits arranged in a row, and below, both ends were fastened in one split.

According to the data from informant K. A. Turyl'kut, for fletching arrows the Kereks used the feathers of geese, swans, and ravens.

The Reindeer Chukchi (Bogoraz 1904) and the Eskimos (Rudenko 1947) used whole feathers for fletching, which were attached by the upper and lower end, one feather for two sides of the shaft. Analogous Lakhtina fletching of arrows is found only among the Kereks and Coastal Chukchi (repositories of MAE, coll. 752-44).

Socketed points of arrows and darts were hafted on a pintle on the upper end of the shaft. According to data from the informant I. Uvaurgin, for increased durability of joining the shaft to the point, glue was used, with which the pintle was impregnated.

Ceramic and Metal Artifacts

Ceramic traditions penetrated into the Northwest Bering Sea 2600 ± 100 years ago (MAG-945) (Opukha 1, Dwelling 2, Layer II).

Well-stratified and dated complexes of the Lakhtina culture containing ceramics not only characterize the ceramic tradition of the Northwest Bering Sea, but add ideas about the ceramic traditions of Northeast Asia in general.

Ceramics of the Lakhtina culture are represented by fragments of 43 vessels in complexes from eight dwellings of semisubterranean type in six early sites of the Paleo-Metal epoch.

By the form of the vessels the ceramics can be divided into three groups. Round-bottomed vessels with rounded body predominate (37). Their necks slope in (Fig. 84 [see also Fig. 87]). The chief distinctive feature of these vessels that does not have analogies in ceramics of adjacent synchronic cultures, or in the Far East and Siberia in general, is an oval horizontal section. The height of the vessels is 19 cm to 24 cm, and a horizontal section in the equator of 25 cm x 30 cm to 30 cm x 34 cm.

At the Geka I site in Dwelling 3 round-bottomed ceramic vessels with straight rim and external applied lugs for suspension ($N=3$) were found. The height of the vessels is 35 cm to 40 cm, diameter 32 cm. Three flat platters of oval form 33 cm x 36 cm

and 7 cm high were found here. In the other complexes no vessels with external lugs or platters were found. Their presence in the Geka I site, at the border of contact with the maritime cultures of the Chukchi Peninsula, can be explained by influence from the Punuk culture.

All the ceramics of the Lakhtina culture were modeled. They were made by the technique of being pressed out of a single piece of clay. This is confirmed by finger



Figure 84. Types of rims of ceramic vessels of the Lakhtina culture. I - undecorated; II - with cord-wrap; III - with impression of rectangular-dentate stamp; IV - with large band decoration; V - with square impression.

depressions in the bottom part of the interior surface of the vessels, and these indicate the women manufactured the vessels. The walls of the vessels were evened by paddling; then they were smoothed. All ceramics (with the exception of the Punuk type) were well fired. Thin places in the wall were built up by an additional layer of clay, which is shown in the layered effect of several sherds.

As filler in the preparation of the vessels, sand (small, fine-grained, large-grained), small debris, moss, and animal hair (probably deer) were added to the clay paste.

Fragments of ceramics with holes, bored after firing, attest to the use by the Lakhtina people of the wide spread (in Northeast Asia) method of ceramic restoration (the fastening of separated pieces of vessel with sinew threads through the holes).

One fragment (Yankinen, blowouts) has a round hole 2 cm in diameter, made before firing the vessel. It was probably intended for suspending the vessel. A similar tradition is found in the ceramics of the Old Koryak and Tar'insk cultures.

Sixteen vessels were decorated. The principal type of decoration (Type I) is cord marked. It has three variants: straight cord marked (N=1) (Orianda I-1, Layer I) (Fig. 19:1) and cord mark sloping out (N=2) (Orukha I, Dwelling 2; Anna II, Dwelling 1), and cord mark sloping in (N=3) (Orukha I, Dwelling 2, 3; Nataliia II, Dwelling 3) (Fig. 19:3, 4; 79:8).

The second type of decoration is heavy-striped sloping decoration (out—N=2) (Yankinen; Geka I, Dwelling 3) (Fig. 19:11). These types of solid decoration covered the whole surface of the vessel from the rim, except for the bottom part.

The third type of decoration is a horizontal, rectangular, dentate stamp (retreating comb with two teeth) (N=4). This zonal decoration (6 to 8 horizontal rows) is situated at the rim (Fig. 20:1-5, 7) (Opukha I, Dwelling 2, 3).

The second and third type of decoration, judging by the width of impressions and space between them, was made by one stamp. It was a comb with rectangular teeth.

The fourth type of decoration—disorderly stripes (N=1) (Opukha I, Dwelling 3) (Fig. 19:10)—was made by a comb.

The fifth type is two horizontal parallel rows of transverse stripes (N=1) (Opukha I, Dwelling 2) (Fig. 19:5).

The sixth type is one row of sloping (out—N=1) stripes (Geka I, Dwelling 3, a platter) placed parallel at the rim.

The seventh type is a horizontal row of rectangular impressions (N=1) (Opukha I, Dwelling 2) (Fig. 20:6).

The earliest in the complex are decoration Types 1, 3, and 5 (1900 ± 100 years ago) (MAG-875).

Ceramic traditions penetrate from the north, from the basin of the Anadyr' River (Chirovaia 2800 years ago). Here they have analogies to Types 1, 3, and 5 decoration (the Lower Ust'-Bel'skii site and the Chikaev and Vakarev sites). Type 1 decoration is defined by Dikov as ceramics of the Old Bering Sea type, while Type 3 is the Vakarev type. However, the age of these sites is significantly later: Vakarev 500 ± 50 years ago (Lc-674). Type 2, quite rare, is found in the ceramics of the Ust'-Bel'skii cemetery.

On the whole, round-bottomed vessels are encountered in complexes of the Vakarev and Old Koryak culture. Analogous vessels are represented in the Old Bering Sea culture. Here vessels with a striped surface and cord marks have broad analogies.

Ceramics of the Lakhtina culture differ significantly from those of northern Kamchatka (the Northern Okhotsk culture) by form of vessel, form of rim, and decoration (no relief or appliqué decoration).

The form of the vessels and decoration of the ceramics of the Lakhtina culture is distinct from the Ymyiakhtakh culture (the synchronic culture in the territory of Yakutia). Considering this, as well as the difference of the stone and bone inventory, the lack of evidence for and erroneousness of the inclusion of the Lakhtina culture into the realm of the Ymyiakhtakh culture should be noted (Fedoseeva 1980).

Ceramic traditions on the Anadyr' River penetrate not from the west (Aldan), but from the southwest (Lake Baikal). They spread along the river basins. One can speak of influences of ceramic traditions from the Aldan only on the complexes of western Chukotka, but by no means on the Bering Sea.

A search should be conducted for sites with ceramics of an earlier age in North-east Asia, since the early ceramics of Alaska (of clearly Asiatic origin) dates to 3500 years ago (Ackerman 1982).

Artifacts of metal ($N=6$) are represented in only one complex (Orianda II, shrine) of the Lakhtina culture. They were found immediately under the sod in the center of the ritual area of the shrine. The preservation and depth of the deposition are evidence that date the metal artifact to 200 to 300 years ago. Here were found: the point of a spear of lenticular cross section with a pointed stem and made by cold hammer of iron plate, three triangular flat iron inset tips for bone points, and flat inset bronze tips of pentangular form and pentangular form with a groove in the base.

These inset tips and spear point have analogies in the complex of the shrine at Velveti village (Vdovin 1971: Table 5:1, 7, 9) (region of settlement of the Oliutorskii Koryak). They were probably acquired as a result of exchange with the Oliutorskii Koryak.

The presence of metal artifacts, which were very highly valued, corroborates the significance of the shrine at the Orianda II site as the cult center of the whole region.

Analysis of the inventory of the Lakhtina culture permits clearly determining two stages of development. The first, early stage of development of the Lakhtina culture (second millennium B.C. to the middle of the first millennium B.C.), is characterized by Neolithic complexes. The characteristic features of the stage are: lack of ceramics and ground slate knives, a predominance of tools unifacially worked by edge retouch, a low percent of ground tools, the presence of prismatic and amorphous cores, and knife-like blades.

In the second, late stage of development of the Lakhtina culture, prismatic and amorphous cores and knife-like blades disappear and ceramics and ground slate knives appear, with the number of bifacially worked and ground tools, bone tools, and other artifacts growing.

Comparative typological analysis of the Neolithic complexes of the Lakhtina culture and surrounding synchronic cultures indicate the presence of cultural connections with the Northern Chukotsk (Chirovaia—2800 B.P.) and Northern Okhotsk (Zav'ialovskaia stage—3000 B.P.) cultures, and closer connections with the Paleo-Eskimo (Wrangel Island—3300 B.P.), Old Eskimo in Alaska (Norton—3000 B.P.) and Tar'insk (Avacha, Level II—2900 B.P.) cultures (Table 1).

The complexes of the Lakhtina culture of the Paleo-Metal epoch point to connections with the Northern Chukotsk, Ust'-Bel'skii, Old Aleut, Okhotsk, and, more widely, with Old Eskimo cultures of the Asiatic (Old Bering Sea and Punuk) and American (Ipiutak and Birnirk) continents. The cultural connections with the Tar'insk culture weaken, but become stronger with the Old Koryak culture. There possibly existed cultural connections with the synchronic cultures of Yakutia. However, just a few similarities are found with the Ymyiakhtakh and late cultures.

CHAPTER THREE

MATERIAL AND SPIRITUAL CULTURE OF THE EARLY POPULATION OF THE NORTHWEST BERING SEA

THE INTERACTION OF THE NATURAL ENVIRONMENT

and human society is the most important problem being resolved by historical science. The conditions of the natural environment, for the most part, determine the appearance of the material culture. "History," the classics of Marxism noted, "can be examined from two sides: it can be separated into the history of nature and the history of people. However, both these sides are indissolubly connected; so long as people exist, the history of nature and the history of people mutually condition each other (Marx and Engels, p. 16).

This explains the necessity for characterizing the natural environment of the Northwest Bering Sea in which the formation and development of the Lakhtina culture emerged.

The Northwest Bering Sea, whose archeology we are investigating, is that region of the coast from Geka Land in the north to Cape Oliutorskii in the south, an extent of more than 900 km. The coast line is strongly cut up and forms a large number of bays and capes. From the interior regions the coastal part is separated by the Koryak Range, which defines the difficulty of access of this territory. The Koryak Range has elevations of 1000 m to 1500 m along the shore. On its slopes, descending to the Bering Sea and collecting much moisture, are small glaciers 3 km to 4 km long. The snow line is at an elevation of 1000 m, but the tongues of the glaciers descend to 700 m. The shore is high and precipitous.

The low plains of the region are found at the mouths of rivers falling into the Bering Sea. Chains of rather steep mountains border the 4 km-to-8 km-wide river valleys. The peaks of the mountains are bare, but the slopes are covered on the south by a cedar carpet and shrubby willow and on the north by moss. The rivers of the Northwest Bering Sea begin in the spurs of the Koryak Range and run into the Bering Sea. The largest rivers from north to south are the Tal'kapergyrgyn, Lakhtina, Keniut, Vaamochka, Kharyrka, Opukha, Ukelaia, Il'pi, and Vatyra. In extent and depth they yield significantly to such large rivers of Northeast Asia as the Kolyma and Anadyr'. The banks are covered by shrubs, and here and there rather high trees of Korean willow and poplar are encountered. In the lower course of the rivers the valleys are covered with tundra vegetation. Through the flow of most of the rivers into the Bering Sea lagoons are formed, separated from the sea by surf-borne sandy-gravel spits (Shliamin 1958:25).

The climate of this territory is marine and severe, the average winter temperature is -16° to -23° C, in summer $+10^{\circ}$ to $+20^{\circ}$ C. In winter strong winds prevail here that blow from the northwest to the southeast, as well as frequent snowstorms. The thickness of the snow cover averages 60 cm. In summer the winds are weak and variable, blowing from the southeast to the northwest. During the summer thick and stable fogs are common. A stable minus temperature in the Northwest Bering Sea extends from the second half of October to the middle or end of May. The frost-free season lasts from the end of June to the beginning of September. Along the shores of the Northwest Bering Sea a surface current of southern origin passes from northeast to southwest. Here, mixed high tides with a predominance of semi-diurnal composition can be observed. Ice formation begins at the end of October-beginning of November, and the shore becomes completely free of ice in June.

The distribution of vegetation types in the region of the Northwest Bering Sea appears in the following form: from Geka Land to Kainupil'gyn Lagoon is subarctic, hummocky, sedge-cotton grass tundra. From Kainupil'gyn Lagoon to Cape Barykova and to the south near Cape Oliutorskii are areas of alpine, stony deserts. From Lake Pekul'neiskii to Cape Temnyi stretches a region of cedar and alder carpet, mountain grasses, and dwarf birch with areas of hummocky, sedge-cotton grass tundra.

The aquaflore of the coastal area is represented primarily by brown seaweed, predominately *Laminaria*.

The alpine fauna and the fauna of the Beringian forest-tundra is rather varied. Here there are brown bears, mountain sheep, wolverines, Arctic foxes, red foxes, hares, and Arctic ground squirrels.

The aquafauna is also rich. Pods of whales are found here, as well as pinnipeds (walruses, ribbon seals, large seals, ringed seals, bearded seals, and sea lions).

The avifauna on the islands are represented by nesting ducks, geese, and swans, and in the bird colonies by guillemots, cormorants, sea gulls, puffins, and a variety of kinds of Alcidac. The raven is present also.

Lakes and rivers are spawning grounds for salmon, the runs of which begin in June and end in October in the south, though in September in the north. Widely represented among the river fish are char and grayling. On the shore, especially in stormy weather, large quantities of mollusks are thrown up, primarily mussels and cockles, as well as seaweed, predominantly *Laminaria* (Shliamin 1958).

Archaeological data and faunal remains in cultural layers attest to the lack of change (from the 2nd millennium B.C.) in the species composition of the fauna. Wild deer are the exception. These disappeared as a result of the development of reindeer herding. All this is evidence of a lack of substantial climatic change over the course of the indicated period.

These natural conditions determined the form of life, type of dwelling, structure of the economy, and appearance of tools of economic activity of the bearers of the Lakhtina culture.

Settlements

The sites of the Lakhtina culture are situated on the shores of the Bering Sea on spits, coastal terraces, and on the shores of lakes and rivers.

The seasonality of the economy determined the presence among the Lakhtina people of seasonal sites: summer, situated at fishing places, and winter, near pinniped haulouts. The designation of settlements as "summer" and "winter" is relative. The primary site was "winter," where the inhabitants, according to information from informants, spent most of the year. In summer, the settlement moved only during the period of the salmon runs. For the winter settlement, in distinction from the summer, a shrine was characteristically present.

Summer sites were of two types. Permanent summer sites with semisubterranean dwellings (Opukha III, Khatyrka I, Yankinen) and hunting camp, tent-like surface dwellings (Nataliia I-1 & 2, Etchun I, Lakhtina). The hunting camp of Etchun I was connected, in distinction from the others, with the taking of pinnipeds.

It is possible that winter hunting camps existed with dwellings of snow of the Eskimo "igloo" type. Similar dwellings were noted among the Kereks by Bogoraz and Jochelson.

In several places (Nataliia II, Orianda I & II, Etchun II) pinniped haulouts and fishing spots were found in the immediate vicinity, and as a result, the site filled the function of summer and winter settlement. Up to the sixteenth century the relationship of the Kereks with the Koryak and Chukchi had a peaceful character. During the period of intertribal warfare, when the Koryak and Chukchi "were involved in prolonged warfare with each other, and then with the Kerek villages" (Vdovin 1976:44), fortified villages appeared among the Kereks. The construction of these village-forts was similar to fortified sites of the Oliutorskii and Apuka Koryak.

Dwellings were constructed on the tops of coastal, surf-washed banks, terraces, and hills. Similar construction of dwellings, in conformity with the relief of the locality, determined the linear layout of the sites. The remains of dwellings are located, as a rule, in several lines parallel to the shoreline of the sea, lake, or river. In this the Lakhtina sites are distinctive. The maximal number (four to five) of contemporaneously functional dwellings at a site was determined by the production capacity of the exploitation territory of the site. The largest site of the Kereks in 1901 (according to

Bogoraz) had four dwellings. A distance of 10 km to 30 km between sites determines the boundary of the exploitation territories.

The continuous existence, succession, and cultural sequence of several sites (Nataliia I & II, Orianda I & II, Etchun II, and Lakhtina) can be traced from the first millennium B.C. to the 1940s and 1950s. Masson's conclusion (Masson 1976:112), that a similar function of sites attests to the stability of the early economic system that guaranteed such functioning, can be assigned with full assurance to the Lakhtina culture.

Dwellings

The dwellings of the Lakhtina culture that were investigated are similar to dwellings of the Kereks. The first ethnographic information on dwellings of the Kereks is reported by Jochelson. Using Bogoraz' data, who visited the villages of the Kereks in the winter of 1901, he says, "The foundation of the structure, located in a pit, consists of inclined supports covered with earth. Inside it is covered all around by pieces of hide. In winter for maintenance of a good deal of heat the dwellings are covered by thick layers of snow. The entrance into the dwelling in summer, which is the same in winter, leads through a long narrow corridor." "The interior arrangement of the dwelling (of the Kereks—A.O.) is similar to the interior arrangement of the Koryak pithouses." "Owing to the lack of construction wood the Kereks build their semisubterranean dwellings without a storm roof" (Jochelson 1908:468). The snow-protecting function of the "storm roof" is doubtful. It is possible this construction appeared during the period of intertribal warfare for guaranteeing security.

"Inasmuch as the smoke opening does not serve as a means of entry, they (the Kereks—A.O.) do not have ladders in the openings" (Jochelson 1908b:468). Jochelson also reports the presence among the Kereks of dwellings reminiscent of Eskimo snow "igloos": "we find similar yurts, covered above by snow instead of earth, among the Eskimos and among a segment of the Koryak tribe known by the name Kerck" (Jochelson 1908a:10). It is probable that they were hunters' temporary dwellings. Other investigators of this region do not mention them since they all did their research in summer and fall.

Antropova, describing the pithouse of the Oliutorskii people, Apuka people, and Kereks, reports that "in comparison with the dwellings of the western shore, it was of smaller dimension, more deeply buried in the earth, and its walls were constructed of one row of blocks" (Antropova 1971:55). Leont'ev adds to this information: "The floor in the pithouse was covered with cobbles. Along the walls stretched an earthen projection on which they usually placed various household items. When the cold increased and the snow fell, a long corridor of snow was added to the pithouse" (Leont'ev 1976a;

1983:164). He also provides a reconstruction of the roof of a single-room Kerek dwelling (Fig. 85:1, 2).

In the nineteenth and the beginning of the twentieth century, according to Leont'ev's report, the Kereks of southern sites used the upper entrance through the smoke hole, which can probably be explained as Koryak influence.

For maintenance of a drier micro-climate and in order to avoid rain water running into their dwelling, the Lakhtina people built on high places. In constructing the pithouse, they dug out a round pit 6 m to 12 m in diameter and 0.8 m to 1.0 m deep. An earthen berm 0.3 m to 0.7 m high around the perimeter of the depression attests to the fact that its walls were raised a half or a third above the pit, and the outer part of the walls was covered on the outside with earth from the pit.

Holes for posts—support for the roof—found in several dwellings (Nataliia II, Dwelling 3; Opukha I, Dwellings 2 & 3) confirm the fact that in the center of the dwelling there were four support posts at the corners of a rectangle of approximately 2.5 m x 4 m. The long axis of the support posts was oriented toward the entry.

Investigation of late dwellings of the second half of the nineteenth-beginning of the twentieth century supports the assumption that the side walls of the pithouse were strengthened with horizontal rows of wooden blocks that were supported by stakes hammered in vertically 0.5 m to 0.8 m apart (Fig. 86:3). Particularly in the second stage

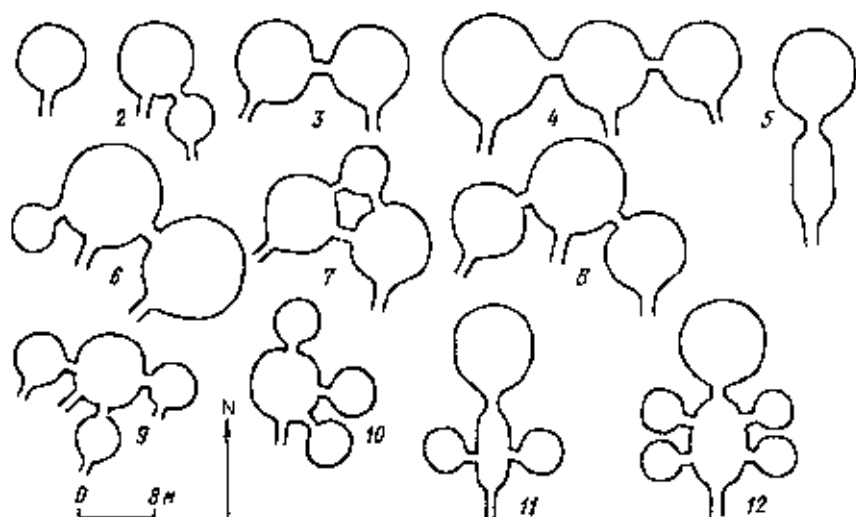


Figure 85. Dwelling plans of the Lakhtina culture.

of development of the Lakhtina culture, whale and walrus bones were also widely used in construction of the pithouse.

The floor of the dwelling was covered with 0.15 m to 0.3 m of fine gravel or sand, and at Khatyrka we found a floor covering of flat stone slabs well fitted to each other.

A lateral entry to dwelling rooms was not found on all dwellings. At sites at Cape Rifovyi, at Opukha Lagoon, and at Anna Lagoon a part of the dwellings had a very narrow, tunnel-like side corridor never used as a passage. It probably served only

as an air vent. The occupants of these dwellings, like the Koryak, probably used the smoke hole in the roof of the pithouse as an entry.

Investigations showed that the entries of the pithouses were oriented to the south and southwest. In addition, the orientation of the entry was determined by the position of the dwelling relative to the shoreline of the sea, lake, or river. The entry, as a rule, was oriented at an angle of 10° to 45° to the shoreline. This orientation was chosen because of the northwestern winds prevalent in winter.

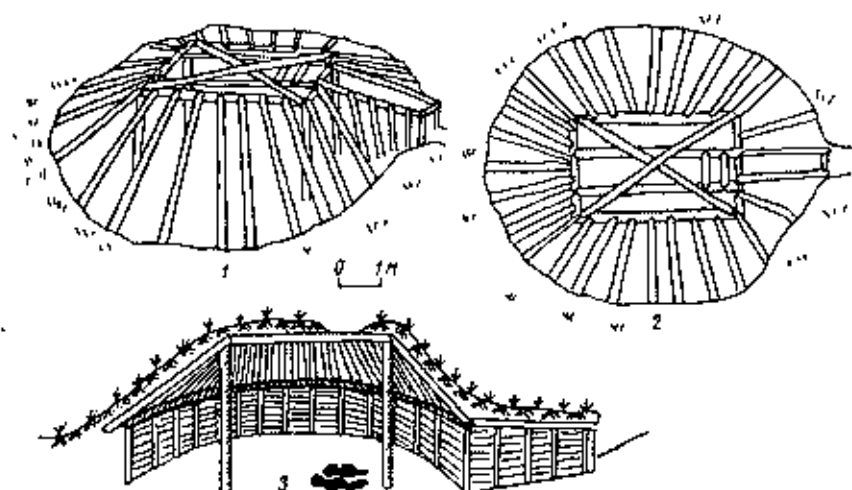


Figure 86. Reconstruction of a roof (by Leont'ev, 1983) and walls of a dwelling of the Lakhtina culture. 1 - side view; 2 - top view; 3 - internal view of the dwelling.

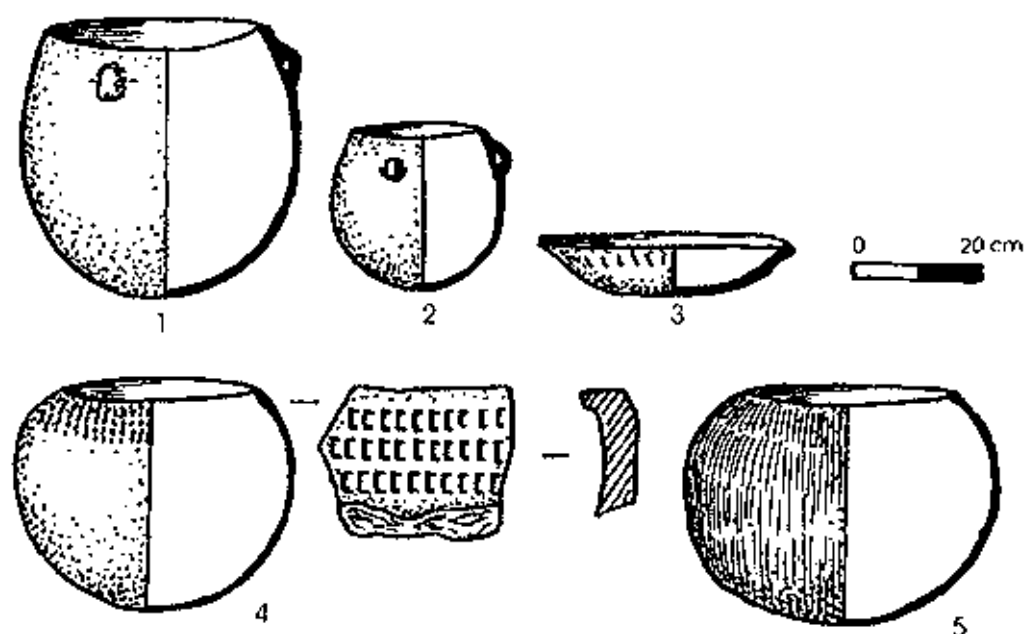


Figure 87. Forms of pottery from the Geka sites.

Leont'ev reports, using data from informants, that the pithouses served one season and each year a new dwelling was built (Leont'ev 1976b:160). Archaeological investigations in several pithouses revealed the presence of a thick cultural layer (8 cm to 15 cm). This is evidence of a long, unbroken occupation for these dwellings. The occurrence in a number of the pithouses of several cultural layers separated from each other by thin (1 cm to 5 cm) sterile strata, indicates a tradition of construction of dwellings on one spot. The depression of a previous dwelling was used for the construction of a new one.

The maximum number who lived in one dwelling depended on the dimensions of the living area and fluctuated from 15 in a one-room dwelling to 50 persons in a multi-room dwelling. This is confirmed by the quantitative body of stone and bone tools, dimensions and quantity of ceramic vessels, and number of hearths in the dwelling.

At the end of the eighteenth-beginning of the nineteenth century, with reduction in the population because of frequent famines and epidemics in the Northwest Bering Sea, the number of those who lived in the dwelling complex dropped to 15 to 25 persons (Jochelson 1908b:604). Correspondingly, the dimensions of the pithouse also diminished.

The tradition of annual construction of the dwelling could have originated in the seventeenth-nineteenth centuries with the reduction of house dimensions and the appearance of iron tools. It is also interesting that neither Jochelson nor Bogoraz, nor any other investigator of Northeast Asia, mentions the tradition of annual house construction.

It is hardly possible to agree with Leont'ev's conclusion that the pithouses were never occupied in summer, that they were exclusively winter dwellings (Leont'ev 1976b:160). Just as did the Coastal Koryak, the Lakhtina people lived in pithouses in summer in permanent summer villages. Summer dwellings of the Chukotsk yaranga type, on which Leont'ev reports, were probably used in temporary summer settlements. Within the dwelling it is possible to distinguish several household areas (complexes).

In the large central rooms the number of hearths (two to four) possibly indicates the number of families (family hearths) that lived in the pithouse. The number of hearths correspondingly are: Opukha I, Dwelling 1 - two, Dwelling 2 - four, Dwelling 3 - two; Nataliia II, Dwelling 3 - three; and Anna, Dwelling 1 - three. The largest hearth, as a rule, was placed in the center near the entry. The thick charcoal layer of the central, probably communal, hearths confirms their intensive use. The charcoal layer of the family hearths is somewhat smaller. In the lateral dwelling rooms the number of hearths was never more than one or two. Circular hearths, 0.5 m to 1 m in diameter, faced with large cobbles dominate. In several dwellings hearths represented by an oval stonework of vertically set stone slabs were found (Nataliia I, Dwelling 1; Khatyrka I, Dwelling 1; and Etchun I). Circular hearths with a cobble facing are on the whole widely represented in Neolithic cultures of Siberia and the Far East.

Accumulations of charcoal and ash in several dwellings do not appear to have been hearths (there is no layer of burned earth). They may have been removed from the hearth for household reasons, possibly for working skins. Until the recent past the Chukchi, Koryak, and Kereks used ash and charcoal for removing fat from skins. Large flat stone slabs of 0.4 m x 1 m found in dwellings were used as a cover for the hearth and the smoke hole.

The number of ceramic vessels in dwellings is possibly connected with the number of families that lived in them: Opukha I, Dwelling 1, Layer I - three, Layer II - two, Dwelling 2 - nine, Dwelling 3 - seven; Anna II, Dwelling 1 - three; Nataliia II, Dwelling 3 - two; Geka I, Dwelling 3 - nine.

The sleeping places in pithouses were most often situated on the right of the entry and in the center near the wall opposite the entry: Opukha I, Dwelling 1, Layer I - left; Layer II - center and right; Dwelling 2 - left; Dwelling 3 - right; Anna II, Dwelling 1 - right; Nataliia II, Dwelling 3 - center and right.

In several dwellings (Opukha I, Dwellings 1 and 3, and Anna II, Dwelling 1) round cache pits were found, 0.4 m to 1.0 m in diameter and 0.8 m to 1.0 m deep. They

were filled with mollusk shells (mussels and cockles), which were used for various household needs.

In the household part of the pithouse "men's" areas can be distinguished, where tools of bone and stone were made (accumulations of flakes, anvils, retouching tools, hammering tools), and "women's" areas, where meat and fish were cut up, food prepared, skins worked, clothing sewn (accumulation of knives, scrapers and skreblos, punches, needles, ceramics). But naturally such division is rather tentative. The division of the pithouse into "men's" and "women's" halves, noted by ethnographers of the peoples of Siberia and the Far East, cannot be traced in the complexes of dwellings examined.

Investigation of the remains of several dwellings of the Northwest Dering Sea suggests some inferences concerning types and plans of dwellings. The early stage of the Lakhtina culture gives us evidence of the presence of two types of dwellings.

Type 1 - surface tent-like dwellings with one circular hearth in the center of a round or oval living area 4 m to 6 m in diameter (Lakhtina). This is probably a summer dwelling. Based on the dimensions of the minimal living area for people under conditions of the north (Masson 1976), the maximal number living in a similar dwelling was probably 10 to 15.

Type 2 - dwellings set 0.2 m to 0.35 m down into the earth, probably as a result of leveling, round, and 6 m to 8 m in diameter. The maximum number living in such dwellings was probably 15 to 30 people. The thick cultural layer of the dwellings confirms a settled form of life. It is not impossible that by this stage of development semisubterranean dwellings were being constructed.

In the second stage of development of the Lakhtina culture multi-room, semisubterranean dwellings predominate. These are represented by a rather complicated complex of structures of various dimensions and functions. Each complex of dwellings of the Lakhtina culture included semisubterranean dwelling rooms and storerooms for food and household equipment. Food storerooms were of two types—exterior and interior. The exteriors are meat and fish pits 1.5 m to 3 m in diameter, round, and 0.8 m to 1.5 m deep. On top they were capped by large flat rocks or bones and covered with earth. They were situated around the dwelling complex. Interior storerooms are represented by a small "pithouse," 3 m to 4 m in diameter and joined to the dwelling rooms by an interior, tunnel-like passage. Daily utensils and hunting equipment were also stored in them. Distinct from the dwelling rooms, the storeroom, as a rule, did not have its own exterior entry. It is true that some dwelling rooms are also found that do not have an exterior entry, but they have somewhat larger dimensions and a hearth. The presence of a large number of storerooms can be explained by the necessity to preserve food since fishing, bird and sea mammal hunting, and collecting did not offer a uninterrupted source of nourishment.

In the center of the complex of structures of the Northwest Bering Sea, as a rule, was the central pithouse, which differs by its large dimensions and the fact that it communicates with all the remaining structures by narrow interior, tunnel-like passages. This is the communal pithouse in which basically all household activities of the occupants occurred. Other structures were located nearby. The lateral pithouses appeared in places to be night lodgings for separate families. It is possible to distinguish several basic types of structured arrangement in the complex.

1. The simplest construction is in the one-room dwelling represented by a pithouse 6 m to 12 m in diameter with a lateral tunnel-like entry (Fig. 85:1).

2. A more complex construction is the two-room dwelling. It is represented by two pithouses [rooms], which communicate with each other by an interior, tunnel-like passage. One or both of the rooms has a lateral, tunnel-like entry. The rooms can have the same or different diameters—from 6 m to 12 m. When one room has larger dimensions, it probably is the central room (Fig. 85:2, 3).

3. The three-room dwelling consists of three pithouses [rooms] of like or different diameters—from 6 m to 12 m. If different, the large one plays the central role. They all communicate with each other by interior tunnel-like passages. The rooms are arranged in a line or at the apexes of a triangle. Some lateral rooms communicate only with the central one, not having an interior passage between themselves (Fig. 85:4, 5, 6, 7).

4. The multi-room dwelling is represented by variations of the previous types, including interior storerooms for food, as well as dwelling rooms. The number of storerooms in a complex varies from 1 to 6. They are arranged around the perimeter of the dwelling pithouses (Fig. 85:8, 9).

There are rather widely spread complexes in which the entry into the central pithouse was preceded by a long (8 m to 10 m), oval corridor from which interior passages led to the lateral pithouses and storerooms (Fig. 85:11, 12).

Similar dwelling complexes with the characteristic layout and functions are a distinguishing feature of the Lakhtina culture.

Round, semisubterranean dwellings have broad archaeological and ethnographic parallels in Siberia and the Far East, as well as on the North American continent. Similar dwellings are characteristic for the early stage of development of the Old Koryak (Vasil'evskii 1971:221) and Tar'insk (Dikova 1983:116) cultures and for the Priamur'e tribes (Vasil'evskii 1971). At the beginning of the twentieth century, similar dwellings were still in use among North American Indians—Athapaskans, Tlingits, Tanaina, and others (Jochelson 1908a:35).

The bearers of the Lakhtina culture used tunnel-like entries in summer and winter. Among the coastal Koryak, Chukchi, Itel'men, and Athapaskan Indians there

were two types of entry—in winter through the smoke hole, in summer through the side (Jochelson 1908a:31). Multi-room dwellings with interior tunnel-like entries are known in several ethnic groups of Northeast Asia and North America: Eskimo, Coastal Chukchi (Okladnikov 1947), Kurile Ainu (Golubev 1976:214), and Aleuts (Jochelson 1908a:34). But, to distinguish from the round or oval pithouse dwelling of the Lakhtina culture, the pithouse dwellings of the other ethnic groups were rectangular or of a form with four irregular corners. Among the Oliutorskii (Stebnitskii 1938:50) and Apuka (Vdovin 1973:115), Koryak ethnographers know of the existence of dwellings with interior, tunnel-like passages and tunnel-like entries, but the pithouses were eight cornered.

Among the Eskimos and Aleuts (Jochelson 1908a:17), interior storerooms in dwellings existed earlier. The two-room dwellings (large pithouse, rectangular with rounded corners, and a small round one joined by an interior passage) were found in Nikul'skii village (Early Itel'men culture) (Dikov 1979).

Round pithouses with lateral entry are characteristic of the early stage of development of several cultures. This is evidence of a common tradition and unified center of the spread of this type of dwelling. With the second stage of development of the Old Koryak culture, the transformation of dwellings from round with a side entry to rectangular with rounded corners and side entry and then to octagonal with winter and summer entries be seen. With the Atarganskii stage a sharp increase in dimensions can be seen. Vasil'evskii connects this change with changes in social structure: the formation of the large patriarchal family. Similarly a transformation of the dwelling occurs among the Old Itel'men: from the round pithouse round with side entry to rectangular with rounded corners, and then to a dwelling of large dimensions, rectangular design, with winter and summer entry (Dikova 1983:96). These changes were possibly connected in part with the development of social relations. Rudenko also connects the appearance of large, sometimes multi-room dwellings among the Eskimos, beginning with Punuk times, with the process of the formation of the patriarchal family (Rudenko 1947:115).

Among the bearers of the Lakhtina culture, the larger size of the dwelling's living area results from an addition of rooms. This reflected not only the increase of inhabitants per dwelling, but the initial stage of separation of the individual family into an independent economic and social unit with preservation of the tradition of the common meal and aspiration of preserving a common economy.

In spite of several common features, which can probably be explained by common traditions of house construction and natural conditions, the dwelling complex of the Lakhtina culture is quite distinctive in several construction features, details of plan, and function.

Shrines

Sacred places are the most valuable archaeological sites since they represent the main occupations of the inhabitants of the site in the region where the site is located, as well as the tools of hunting and fishing and other aspects of the material culture (tools, ornaments, and cult objects). Investigation of sacred places allows the restoration of some aspects of the spiritual life of the inhabitants.

The shrines of the Northwest Bering Sea are located in the vicinity of the early sites. They are denoted by a dense grassy vegetation that covers the ritual area. This sharply distinguishes the surface of the shrine from the surrounding tundra vegetation. The dimensions of the oval ritual area fluctuate from 2 m x 3 m to 5 m x 6 m. Approximately in the center of the ritual area, the lower jaw of a (gray) whale is set in the ground, sloping toward the sea and arranged vertically to the surface. No traces of modification or images are found on it. The earlier height of these was substantial, and they could be seen from a distance. This can be judged by jaw fragments found in the ritual area or near them. Their height was 2 m to 3 m with a depth of 1 m to 1.5 m in the ground. In one case in the ritual area, instead of a jaw there was a wooden post set in the ground (Geka I). Surrounding the ritual area, as well as in it, are walrus skulls. The order of the arrangement of the walrus skulls in all the shrines was disturbed. These shrines evidently emerged during a period of "hunting" walrus tusks at the end of the nineteenth—beginning of the twentieth centuries. It is clear only that the walrus skulls outline the area of the shrine. At the Geka I site the local population (Coastal Chukchi) tried to restore the former arrangement of the walrus skulls in the twentieth century. They placed them along the edge of the oval ritual area, in a line, with each skull oriented toward the occiput (back) of the skull in front of it.

In the shrines the skulls and bones of the extremities of animals and birds predominate. This attests to the fact that the offering was carried out according to the principle of a part in place of the whole and reflects the existences of hunting cults. The use of walrus skulls in particular for designation of the ritual area reflects the significance of hunting walruses in the economy, as well as the existence of a walrus cult.

The early arrows preserved with inset bone points, shafts of arrows and their remains, including socketed points, attest to the fact that arrow and dart points were put in the shrine seated on shafts. On the surface and in the upper layers of the shrines wooden ritual arrows and darts were found that imitated socketed, more rarely stemmed, bone points of arrows and darts seated on shafts. On the bases of the arrows and darts is a triangular or arched cut. Their points are triangular, lenticular, and rhomboid in cross section (Fig. 8). Similar wooden ritual arrows and darts were collected by S. N. Stebnitskii in 1929 on the eastern coast of Kamchatka at a ritual place on the right bank at the mouth of the Apuka River (Apuka Koryak) (Leningrad, repository of the MAE, coll. 3896). On the inventory of this collection it says that "the arrows were stuck with

the back end in the ground beside a dog's head set on a stake. They sacrificed dogs with the aim of driving away spirits of various illnesses."

It is interesting that the wooden ritual spears, found by Vdovin (1971:Fig. 4) in the shrine at Vetvei village in the vicinity of a settlement of the nearest neighbors of the Apuka Koryak, the Oliutorskii Koryak, are sharply different from the Apuka spears and those represented in our collection. Consequently, the appearance of these arrows and darts among the Apuka Koryak can be explained by the cultural influence of the Kereks. The arrows represented in our collection are also different from the wooden ritual arrows of the Eskimos (Rudenko 1947:Table 13-21). Similar arrows and darts were also encountered by A. V. Vernander in 1931 in Amaian Bay, also in a ritual place (this is the territory of the Lakhtina culture) (Vladivostok, repository of the KM, coll. 2274). A similar arrow (without indicated origin), with two symmetrically arranged barbs and a hole in each and in one of the holes a glass bead attached by a thread, is represented in Gondatti's Kerek collection (Leningrad, repository of the MAE, coll. 442-23).

Evidently during the late period, the practice of offering wooden ritual arrows and darts, which replace arrows and darts with bone points, spread among the early inhabitants of the Northwest Bering Sea. Based on the structure of the bone and stone artifacts of the complexes of the shrines, it can be established that the offerings were made both by men (tools of hunting and fishing, knife handles, and fragments of sled-runner shoes) and by women (scrapers and skreblos, needle cases, picks, mattocks, fragments of ceramic vessels, and beads and seed beads). The primary bulk of objects were distributed in the western part of the ritual area of the shrines. Consequently, in their practices the early population more often made offerings to evil spirits (who lived in the west), than to good ones (who corresponded with the east). This is characteristic of the majority of Native peoples of Northeast Asia.

The multi-layered carbonaceous layers found near shrines attest to the use of fire during offerings and cult services (ancestor cult, hunting cults, walrus cult).

In addition to common features, the complexes of the shrines also have distinctive differences. The distinct feature of Shrine I of the Opukha I site is the variety of bone points. Socketed points comprise 64%. Large points of the same kind, which might be interpreted as dart points, are represented by 20 specimens (9%).

The distinction of the complex of bone points of the shrine at the Orianda II site is greater than in the above-mentioned shrines percent of dart points ($N=50-16\%$) and decorated arrow and dart points ($N=70-23\%$). This shrine has the largest number of points ($N=308$) and stone tools ($N=19$). Only here were artifacts of iron and bronze found, which were highly valued. This was evidently the cult center of not one community (the inhabitants of one site), but of several (the Navarinskii group).

The complex of bone artifacts of the shrine at the Geka I site is rather sharply different from the complexes of other shrines. Socketed points are represented by only six rather inexpressive specimens. Decorated points are lacking. Points with conical stems predominate. Points with one barb and a round hole in the lower part are similar in form to toothed harpoon points of the Eskimo type, but were seated on a shaft (Fig. 83:3). A point with two holes, possibly for a line (Fig. 83:4), was also seated on a shaft. On the whole, a strong influence from Old Eskimo cultures can be traced in the material of the complex of the shrine. However, the lack of harpoon points—the indispensable part of each Old Eskimo site of this period—and the fact that the types of points of this shrine were represented as well in the above-mentioned shrines, which are undoubtedly associated with the Lakhtina culture, permit assigning it also to the Lakhtina culture.

The shrines functioned synchronically with the sites. Their origin reflected naively realistic and animistic ideas, as well as the different cults of the early inhabitants of the Northwest Bering Sea, and first and foremost the ancestor cult. According to information from informants, the founder of the shrine was the founder of this site. After death he became the protector of living fellow tribesmen. These ritual areas were multi-functional. According to the information of informants, they carried out here the memorial service for deceased fellow tribesmen; made sacrifices to the souls of ancestors who were considered protectors of their living fellow tribesmen, as well as to good and evil spirits; and exercised the hunting cult. Offerings were accompanied by a petition to provide success in hunting and fishing and in family life and to be free from illness. Sacrifices giving thanks were also made. Thus, in the concept of the Kereks, the shrine was the place where contact with spirits was possible.

The shrines, located in the vicinity of winter sites or next to them, played the role of the community cult centers.

At the present time similar ritual places of the Kereks are called *kamak*. In his time ethnographer Bogoraz expressed several suppositions about the origin of this name. He writes, "Amulets, made of wood are called *ok-k'amak* (plural *ok-k'amak-yt*), which signifies 'wooden spirit.' It is interesting to note that the word *k'amak* is Koryak and very rarely used among the Chukchi. The word *k'amak* signifies an evil spirit among the Koryak and is identical to the word *kala* (kelu among the Chukchi). Among the Chukchi *k'amagrytn* also signifies mammoth tusk or mammoth bone (literally, devil's tooth). Among the Koryak *ok-k'amak* is the name for a large wooden pole, which represents 'guardians of the village' and is set in the ground somewhere near it" (Bogoraz 1939:49). The last supposition is the most probable.

In our view the name *k'amak* was borrowed by the Kereks from the Koryak, the Kerek name for shrine having been forgotten. The name of the ritual vessels *kamak'am* comes from *kamak*. It is interesting that among the Koryak, including as

well the closest neighbors of the Kereks (the Oliutorskii and Apuka Koryak), similar ritual places were called *appapil'*—grandfather and *ypapil'*—grandmother.

The external form and functional assignment of the shrines of the Northwest Bering Sea are distinctive. They are different from cult sites of Siberia and Pribaikalie, where they in general entail rock art. The use of the lower jaw of a whale and walrus skulls for denoting a shrine has some analogies in Old Eskimo cultures. The shrines of the Northwest Bering Sea only have a few analogies in the Old Koryak culture. Special investigations of ritual places of Northeast Asia have not been conducted. Because of this we have at our disposal very limited material for comparative analysis.

In 1955 at Vetvei village, Vdovin (1971) examined a ritual site, *appapil'* (Oliutorskii Koryak). Distinct from the shrines of our region, this ritual place was indicated by a cluster of deer antlers on an oval ritual area overgrown with grass and an inset wooden post, which has not been preserved.

The composition of the faunal remains attests to the fact that the site was supplied by deer herders and hunters. A small number of bone-and-stone arrow and dart points, as well as the presence of artifacts of iron, confirms a recent time for the origin of the shrine (59 objects). The bone points, in contrast with the Lakhtina ones, were made from deer antler. Of the socketed points, similar in form to ours, 19 specimens were encountered here, stemmed points predominating ($N=22$); but those with a conical stem are lacking. Five iron points and four compound points with iron insets were found. In contrast to the Lakhtina stone points these are exclusively of rhomboid cross section. Thus, the complex of the shrine at Vetvei village is in significant measure different from the complexes of the ritual sites of the Northwest Bering Sea. Considering that socketed arrow and dart points were not found by Vasil'evskii in sites of the Old Koryak culture of the Okhotsk coast, their presence at Vetvei can be explained only by influence from the Lakhtina culture.

More similar in inventory is the shrine at the mouth of the Apuka River (Apuka Koryak). It is, as are the ritual sites of the Lakhtina culture, indicated on the surface of the ritual area by a cluster of walrus skulls and the lower jaw of a gray whale set in the ground. We were given eight arrow and dart points of walrus tusk and walrus bone from this shrine. With the exception of two points, they are similar in form to the Lakhtina points. Four points are socketed. Their presence can be explained by influence from the Lakhtina culture.

The presence of several ritual places at several sites of the Northwest Bering Sea (Opukha—four shrines, Etchun—three shrines, and Geka—three shrines) probably points to a number of communities living here, which were not related to each other. Each such community had its own community cult center—the shrine.

In the literature the classification of the early cult sites of Northeast Asia is given by external features (Arutiunov, Krupnik, and Chlenov 1982:70; Leont'ev

1983:44). The proposed classification should be viewed as preliminary, since subsequent archaeological investigation of these sites will permit refining it. At the present time only the shrines of the Lakhtina culture have been examined in sufficient degree in archaeological regard.

The Domestic Character of the Economy

Economy

In Northeast Asia two large ecological zones are distinguished. These are the interior and the coastal. The route of the inhabitants from the interior to the coast starts, judging by the archaeological materials, at the beginning of the second millennium B.C. This distinguishes the formation of two distinct (by their basis and structure) types of economy. The localization by region of occupation of a united cultural commonality (or two Mesolithic cultures) in six independent Neolithic cultures simultaneously arises (Dikov 1979).

The Lakhtina archaeological culture preserves some archaic features of the economy of the transition period, of the transformation of an interior economy to a coastal one. The development of this culture in the Northwest Bering Sea can be traced from the second millennium B.C. up to the seventeenth-eighteenth centuries A.D., being quite close to the ethnographically known culture of the Kereks. This permits assuming the existence of genetic connections between them and in full measure making use of the retrospective method in the reconstruction of the economy.

The early stage already points to the presence of a complex economy. The exploitation of pinnipeds is developed from the early stage of development of the Lakhtina culture (second millennium B.C.), which is visibly attested to by the faunal remains in the dwellings and at the ritual places. This is confirmed also by the presence of ovens for cooking the meat of pinnipeds (Lakhtina, Orianda I) and lamps. Bows, arrows, and darts with stone points were used in hunting; that is, the methods of traditional dry-land hunting can be seen transferred into the new sphere. There is no evidence of the presence of a maritime means of transportation. Baidars, covered with walrus skins, of the Koryak type are known among the Kereks ethnographically and probably are a late borrowing. However, the possibility of their convergent appearance cannot be excluded. The exploitation of pinnipeds (walruses, seals, and sea lions), thus, was limited to procuring them at the haulouts.

In this stage specialized tools of exploitation are also represented—bone arrow and dart points with barbs. They are present at the ritual places and in the dwellings in layers dating to this period. According to the report of informants, the Kereks only hindered the animal's ability to move and then killed it with clubs. Small barbed points

were used in hunting the small pinnipeds (ringed seals, large seals). Large points were used in hunting bearded seals, sea lions, and walrus. The predominance of the bones of walrus indicates that the hunt for this species prevailed. Among the bone points barbed ones predominate, which confirms the primary role of hunting pinnipeds in the economy.

The find of an ice pick (Etchun II) indicates the presence of winter hunting of pinnipeds, which was probably not widely applied. However, precisely this kind of economic activity determined the use of snow houses (hunting shelters) during hunting season far from the village, which Jochelson mentions. Among the coastal Koryak of the Okhotsk littoral zone, winter hunting of pinnipeds was lacking (Vasil'evskii 1971). Atlals were not encountered in the complexes of the Lakhtina culture; though in the complexes of the neighboring maritime cultures they are represented.

In the exploitation of pinnipeds the Kereks used distinctive striking tools, according to ethnographic data, for procuring wounded animals on the haulouts. These were artifacts of walrus tusk, with one or two points, set through a transverse round hole in a wooden handle of 1.2 m to 1.4 m (Leningrad, repository of MAE, coll. 408-56, 57).

Bones of whales in dwellings and at ritual places, encountered especially often in the second stage, attest to the presence of whale hunting. In whale hunting, large barbed arrow and dart points were employed, possibly with the use of poison. They inhibited the nerve centers of the tail and fins; and the whale, deprived of the ability to move, was moved to the shore by the surf.

Several contemporary ethnographers argue that in this period, among the maritime people, there was no whale hunting that they used dead whales that had been cast ashore. However, evidence from the beginning of the nineteenth century of a similar method of whale hunting among the inhabitants of Kodiak Island (Khvostov and Davydov 1812) and data in the ethnography of the Kereks (Leont'ev 1983) confirm our assumptions. Poisoned arrows were used in whale hunting by the nearest neighbors of the Kereks as well-Alcuts, Itel'men, Ainu, Oliutorskii Koryak (Krasheninnikov 1949:240).

It is possible, like their nearest neighbors the Oliutorskii Koryak, the Lakhtina people practiced whale hunting with the use of nets woven from thongs of bearded seal and walrus skins. Narrow necks of lagoons of the Northwest Bering Sea, where whales liked to feed, were favorable for the use of this method of whale hunting. These nets could be used as well in hunting pinnipeds, as observed among the maritime Koryak.

Whale hunting is not possible without a means of transportation on water. According to ethnographic data the baidars of the Koryak type appeared later among the Kereks. However, the development of whale hunting indicates an earlier appearance for it.

The development of harpoonless maritime exploitation is a peculiarity of the Lakhtina culture. A harpoon complex of the Chukotsk-Eskimo type among the Kereks

is known from the nineteenth century. Harpoons were originally not made by the Kereks, rather acquired through exchange with the maritime Chukchi and Eskimos. Borrowing the harpoon was the result of a search for more effective tools during a period when the conditions for exploitation had sharply worsened. For a long period, in spite of rather close contacts with other cultures, the harpoon complex was not borrowed by the Lakhtina peoples. This can probably be explained by the fact that traditional hunting tools used in the conditions of the Northwest Bering Sea were sufficiently effective and provided the needed quantity of pinnipeds.

The hunt for pinnipeds demanded participation of a substantial group of people (15 to 20 men) and was a collective kind of economic activity. All the men of the settlement participated in it, as well possibly as some from neighboring settlements. They were occupied by the hunt in spring and fall, more rarely in winter, with the fall hunt dominating. The development of exploitation of pinnipeds and whales led to the appearance of new material (walrus tusks and bones of pinnipeds and whales). This also determined the appearance and development of a new technology for the preparation of tools, and new kinds and forms of them. The development of the exploitation of pinnipeds and whales contributed to the appearance of new features in the technology of the structure of dwellings. Bones of whales and walruses are used as construction components of roofs and walls of dwellings. New elements appear in the daily life-lamps with the use of oil of seals, walruses, and whales. Whale vertebrae were used for seats and as supports for the working of wood and bone. Habitation in the littoral zone brought about the appearance of a new kind of transport-the means of traveling on water-baidars, covered with walrus skins.

Ninety percent of all bone artifacts in the second stage of development of the culture were made from walrus tusks and bones of pinnipeds and whales, which confirms the main role of maritime exploitation in the economy. On the whole, as was so for the majority of the northern maritime cultures, full utilization of the catch was characteristic for the Lakhtina culture.

In the early stage the development of fishing can also be observed. It was connected with the run of salmonids during spawning season. Found sinkers attest to the development of taking fish with nets. Ethnographically it was known that the Kereks wove nets from sinews of walruses and whales.

Specialized bone arrow and leister points-narrow points with one or several barbs-are represented. Fishing was carried out by spearing, the result of the transfer of a method of land hunting to a new sphere, as was exploitation with leisters. To the shaft of the leister, points were fastened in several pieces in the form of a divergent bundle with one point in the center. The second stage provides evidence of the use of compound bone hooks with several barbs for catching fish. Also known was the more primitive method of striking the fish (Opukha III). The Kereks partitioned off the passage of the salmon to the spawning grounds by dams. Overcoming the obstacles, the fish made a jump; and at this moment they were stunned with a special club. Fishing was an

individual form of economic activity. When occupied by fishing, the Kereks divided into small groups, most often individual families. The fish caught were considered the property of the whole domestic community.

The exploitation of birds is noted in the early stage. Bow and arrows with small stone points were used. In the second stage there are special bone arrow points-bunt and bird spear points. The small number of bunts attests to the fact that this method of hunting birds was not the primary one. With the aid of the bird spear, they hunted birds during the period of molting. In bird hunting slings were also used. Round pebbles for the sling were found in dwellings and at ritual places.

Killing birds during molting is known ethnographically, as well as the use of nets and dip nets for catching birds in the rookeries. The latter method emerged as a result of adaptations in the coastal zone. The Kereks, like the Itel'men, collected birds' eggs in spring in the rookeries and on islands. They were also occupied with hunting birds in spring. The methods of catching birds and processing them among the Kereks, as ethnographer Leont'ev notes, were original, archaic, and do not have analogies in the occupations of neighboring Paleo-Asiatic peoples, except the Itel'men (Leont'ev 1983). They hunted ducks, geese, swans, and guillemots. Hunting was done individually.

The faunal remains in the dwellings and ritual places give a representation of the objects of the hunt. The Lakhtina people hunted wild deer,¹ mountain sheep, brown bears, Arctic fox, fox, hares, wolverines, and Arctic ground squirrels. In the first stage they hunted with the aid of a bow and arrows with stone points, with the predominance of micro-points attesting to the fact that they generally hunted small animals. In the second stage bone points with barbs and without barbs were used for hunting. In hunting furbearing animals they used arrows with bunt-points. Snares were also used. Such a snare, according to the inventory list "a 'trap' for catching foxes and Arctic foxes," is represented in the Kerek collection of Gondatti (Leningrad, repository of MAE, col. 4-42). In the hunt, striking tools were also used, the so-called bear clubs, a description of which has already been given.

They were occupied by hunting in fall and procuring furs in winter. In fur hunting and regular hunting, they used dogs beginning in the early stage. On the whole [land] hunting did not have great significance, being an auxiliary form of economic activity. Fur hunting up to the seventeenth century provided only for the internal requirements of each community. The push to intensive development of fur hunting in the seventeenth century was made by an increased demand for furs by the Koryak and Chukchi, who played the role of intermediaries in the exchange operations between the Russians and the Kereks.

The meat of land animals, as of sea animals, was preserved in meat pits and interior storage pits and used in raw, dried, cooked, soured, and stewed form. The skins were used for the preparation of sleeping accessories and sewing clothing.

The role of [land] hunting declines in connection with resettlement into the coastal zone and with the development of the exploitation of pinnipeds.

The single domestic animal among the Lakhtina people was the dog. Bones of dismembered carcasses of dogs in dwellings and at ritual places speak of using dog meat as food. This probably took place during long famines.

Elements from dogs' harnesses and shoes for sleds attest to the early development of dog teams. A potiag central belt was fastened along the longitudinal axis of the block on two sides through an oval hole. A slot was cut for it, and in order to avoid displacement, the potiag was fastened through the round hole by leather thongs. Traces were fastened to the block as well. In harnessing 9 to 11 dogs, 4 to 5 blocks were used. Sled shoes were made of whale bone and fastened to the wooden runner by bone pins through round holes. The parts of dog harnesses and sculptural representations suggest the type of harness. This was the long paired one. From the eighteenth century, this type of harness is encountered among the Itel'men, coastal Chukchi and Koryak, the Eskimos, the settled, hunting Even, and, in part, among the Yakut and Yukagir. It is interesting that until the eighteenth century the transverse (fan or block type) type of dog harness had been used by these ethnic groups (*Istoriko-etnograficheskii atlas Sibiri*, 1961).

Material from an ethnographic collection (Leningrad, repository of MAE, col. 442) provides evidence of the distribution among the Kereks of a neck type of dog harness with three loops. This type of harness has no analogs. These materials confirm the presence among the Kereks of freight and riding sleds with rectangular supports (three-support and five-support rods) with a single arc in front. Similar sleds were distributed among the Itel'men, coastal Chukchi and Koryak, and Eskimos.

According to the report by the informant I. Uvaargin, they also used dog harnesses when traveling baidars. When going along the shore, the dogs were connected to a baidar by a line that was managed by the oarsman. It is known ethnographically that the Kereks bred special sacrificial dogs that were not used in the harness.

Our archaeological materials (Opukha I, Dwelling 2; Opukha II, and Etchun I) suggest that dog teams were developed in the first to fifth centuries A.D. It is not impossible that they were developed earlier. It is just possible that the long, paired type of dog harness was borrowed from the Lakhtina people by representatives of surrounding cultures.

Together with traditional collecting on the mainland, marine collecting is developed in the early stage of development of the Lakhtina culture. The remains of mollusk shells in dwellings are found in the early stage. Tools that were used in main-

land collecting, in digging roots, were picks and mattocks and are represented in the early stage. Specialized tools for marine collecting are represented in the second stage. These are bone spades for separating mollusk shells from stones during low tide and bone points for opening the shells. They have several analogs in complexes of Old Koryak culture of the Okhotsk coast (Vasil'evskii 1971). Collecting was done exclusively by the women.

The complex of stone and bone tools from dwellings permit discussing the development of the domestic economy. The men made tools for work and procurement, as well as everyday objects, of stone, bone, and wood. For this, tools for working these materials were used: hammers, adzes and adze-like tools, axes, knives, spoke-shaves, burins and gravers, drills, and bone adzes and retouch tools. They also made ornaments—beads of porphyrite.

The women worked skins with scrapers, skreblos, and polishers. They made sleeping accessories with the aid of punches, bone needles, and sinew thread. For cutting up meat, fish, and cutting skins they used retouched knives, flakes, and shells with sharpened edges, and ground slate knives. Judging by the dimensions of the finger impressions in ceramic vessels, the women were occupied in producing those vessels also.

The development of the economy of the Lakhtina culture reflected the adaptation by hunting-fishing tribes of the interior zone to the new ecological conditions of the littoral zone. The structure of the economy changed. In the first stage, the leading kinds of economic activity, judging by correlation of the faunal remains and tools, were hunting and fishing, while bird hunting, hunting pinnipeds, and collecting played an auxiliary role. With the second stage, exploiting pinnipeds became the most prominent, and exploitation of fish and birds played an auxiliary role, as well as [land] hunting, which had lost its previous significance.

New structural changes in the economics of the Kereks can be seen in the eighteenth—nineteenth centuries. They were connected with the predatory exploitation of pinnipeds, primarily walruses, as well as whales, in the Bering Sea by Japanese and American whaling ships. Gondatti reports: "The Kereks were poor, often suffering from insufficient food, especially in recent years, when, owing to the activity of American ships that annually visited this coast in spring, over the course of many years, and even now not leaving it unattended, completely exhausted the population of whales and walruses, or, better said, these, intensely frightened, became entirely unattainable by the local population with its faulty baidarkas and projectile tools" (Gondatti 1897:177). Bogoraz adds that "the arrival of American whaling ships drove the walruses farther to the north..." (Bogoraz 1903:114). During that period the Kereks preserved their traditional economic occupations. Thus, Shmalev reports that they "have for subsistence sea mammals, birds, and fish, as well as collecting roots and berries" (Kosven 1962:287). Gondatti writes that the Kereks "are occupied with fishing and taking sea mammals

and fur-bearing animals" (Gondatti 1897:177). Bogoraz stressed that the basic form of exploitation was walrus: "In early times they (the Kereks—A.O.) lived by feeding themselves on walrus" (Bogoraz 1903:114). However, owing to a sharp decrease in the number of pinnipeds, predominantly walrus, and whales the maritime hunting of the Kereks fell into decline. The primary branch of the economy became fishing and bird hunting. Leont'ev's conclusion, that "among the Kereks the hunting of birds and small rodents was of primary importance" (Leont'ev 1976(a):227), can be recognized as correct particularly for the period of the nineteenth to the beginning of the twentieth century. Fishing and bird hunting could not completely compensate for sea mammal hunting.

As a result of the influence of the Chukchi and owing to the decline in maritime exploitation in the eighteenth to nineteenth centuries among the Kereks there occurs the development of small deer herds were developed, which, however, did not play a large role.

The process of adaptation of the Lakhtina people in the coastal zone determined a seasonal settlement pattern and a new stage in the development of productive forces, the appearance of skills and knowledge, specialized tools, and new forms of economic activity. The economy became more complex, and a high level of development and diversity was attained by the bone industry. This shows a higher degree of development of the productive forces of the Lakhtina and surrounding maritime cultures relative to interior cultures. On the whole, characteristic for the economy of the Lakhtina culture, is the primitiveness of the adopted economy, with the exception of its late element, small-scale reindeer herding.

The seasonality of the economy determined the appearance of summer sites connected with fishing at the mouths of rivers and at lakes, and in winter, connected with hunting pinnipeds on the coast. The economic unit was the household group.

Commerce and Exchange

Adaptation in the coastal zone and the reduction in the role of [land] hunting caused the necessity for exchange between the bearers of the Lakhtina culture and interior tribes of wild deer hunters. The exchange embraced some kinds of economic activities, not violating the economic autarchy of the Lakhtina community, which was typical for a primitive community system.

Products of maritime hunting (seal skins; thongs; walrus, seal, and whale oil; and walrus tusks) and trapping were exchanged by the bearers of the Lakhtina culture for the meat and skins of deer. The equivalents of exchange were probably the deer carcasses and skins, the latter having been necessary for sewing clothing and the preparation of sleeping accessories. Commercial operations bore the character of natural

exchange. The increase of natural exchange began with the origin and development of reindeer herding among the Chukchi and Koryak. The necessity for exchange was the Lakhtina people's purpose for the connection and contacts with representatives of the surrounding cultures.

From the seventeenth century, glass beads and seed beads of Russian origin, as well as artifacts of iron (that were very highly valued) of Koryak (prepared by forging) and Russian production, among the Lakhtina people can be explained as a result of exchange operations. The southern Kereks participated in exchange commerce at the fair at the mouth of the Pachakha and Apuka rivers (there people were few: 200 to 400 people with an exchange amounting to 1,000 rubles) (Jochelson 1908(a)). In the territory of the Kerek settlements in the eighteenth and nineteenth centuries there were two centers of exchange commerce: a village at the mouth of the Khatyrka River and the village of Mainypil'gyno at the confluence of the streams flowing from Lakes Vaamochka and Pekul'neiskoe. The coastal Chukchi came here for trade (Vdovin 1973:260). Penetrations of monetarily based commercial relations are not seen on the Northwest Bering Sea until the beginning of the twentieth century.

During the period of intertribal warfare, the Kerek villages became the object of attacks by the Chukchi and Koryak. Using numerical and physical superiority, the Chukchi and Koryak plundered the food supplies of the Kereks. The women and children were taken into slavery (Leont'ev 1976a), inasmuch as they were needed in the work force for pasturing the deer herds. Exchange acquired an all the more unequal character in this period. In connection with the decline of maritime hunting, a part of the Kereks becomes dependent on wealthy Chukchi deer herders. "Kereks, living on Cape Barykova," reports Bogoraz, "repeatedly complained that the Tel'pek Chukchi treated them very badly, took furs without payment, and forced their women and children to work as herders" (Bogoraz 1934:29). "The northern villages of the Kereks," adds Jochelson, "are all still an object of oppression by the Chukchi, who like the Koryak, often steal the supplies of the Kereks and demand obedience from them" (Jochelson 1908:810). The economic connections of the Kereks with surrounding peoples weakened.

Social Characteristics

Community Relations

The basic economic and social unit of the Lakhtina culture was probably a collective of relatives and kindred living in one dwelling, the household unit. It is char-

acterized by communal property in the means of production and objects of use, as well as hunting territories. Personal property was also there in everyday objects and tools of the individual's hunting and fishing. Possibly the decoration on bone points denote personal property.

The sites, which numbered several dwellings, and which represented the totality of economic unities, were an association of household groups. The combined living stipulated the common hunting-fishing territories and the cult centers, and in case of need, the association of the collective in economic activity. In connection with the dominating role in an economy of hunting pinnipeds, it was inevitably necessary to increase the role of men's work, the role and significance of men in economic and social life.

The increase in patriarchal relations and the increase in significance of men in economic and social relations are connected with the development of productive power and production relations.

Shnakenburg considered the Kerek family patriarchal (Shnakenburg (1939:99). Leont'ev believed that the basis of the Kerek village consisted of a matriarchal family (Leont'ev 1976A:36-37). Such diametrically opposed points of view can be explained by the fact that, in spite of the increase in economic and social significance of men's work, women among the Kereks retain more significance in the economy and, on the whole, in the group than among surrounding peoples.

The data of informants confirm the fact that the head of the household group and the village was the oldest man (the principle of seniority prevailing). At the same time, in domestic questions, the leading role belonged to the oldest woman.

Resin noted in his description, "Women of this people have substantially more significance than among others. They direct the whole economy, occupy a large part in commerce, and, in appearance, they seem more advanced than the men" (Resin 1888:37). This is reflected in Kerek folklore. Leont'ev reports that in the dwelling, in addition to the family of the head of the household group, the brothers of his wife with their families also lived, that is, relatives of his wife's lineage. Leont'ev reconstructs the composition of only one of the "families" living in one dwelling. As a single example, these data cannot serve for long range conclusions, but on the whole reflect the social role of women. This is also corroborated by a tradition existing among the Kereks of calling the sister of one's mother "mama." The special position of women in Kerek families stresses her part and role in defining religious cults (Leont'ev 1983:55).

Leont'ev's report regarding the fact that the Navarin Kereks preferred to take wives from the Khatyrka Kereks and vice versa, is in our view evidence of formerly existing, strictly regulated, exogamic marriage. Marriages with other tribal members were formerly strictly prohibited. Among the Kereks patrilocal marriage was most often practiced, but matrilineal was also encountered. The increase in the social and

economic role of men is reflected in Kerek folklore (Leont'ev 1983). The heroes of folklore are primarily male personages.

Up to the end of the nineteenth century the process of disintegration of primitive communal relations cannot be seen among the Kereks. During the twentieth century the privileged class of shamans appears (Leont'ev 1983). Archaeological materials attest to a lack of inequality of property among the Lakhtina people. And in the later period of the eighteenth to the end of the nineteenth century in Kerek culture, the material prerequisites for the emergence of inequality of property are lacking, as well as the use of forced labor in the economy. Among the Koryak and Chukchi the dissolution of the primitive communal structure and the emergence of inequality of property were caused by the development of large-herd reindeer breeding. During that period the use of forced labor in the economy also became economically justified, primarily in reindeer herding. The dissolution of the primitive communal structure among the Koryak and Chukchi was accelerated by Russian influence and the emergence of monetarily based commercial relations. Among the Kereks, small-herd reindeer breeding is developed only in the nineteenth century, the development of monetarily based commercial relations is not seen, and the Kereks did not experience direct Russian influence until the end of the nineteenth—beginning of the twentieth century.

Religious Ideas

One of the important aspects of spiritual life, which partially yields to reconstruction on the basis of the archaeological and ethnographic data available to us, are religious ideas.

Religious ideas as a form of social perception are inevitably reflected in the material culture. The material culture of the Lakhtina people, about which the archaeological material gives some notion, points to the existence of developed animistic ideas as early as the second millennium B.C. Echoes of naive-realistic ideas can also be seen. The emergence and development among the Kereks of shamanism at the beginning of the twentieth century is ethnographically known.

Echoes of naive-realistic ideas, which are reflected in the material culture of the Lakhtina people, are closely connected with their economic activity and living conditions. Economic activity and naive-realistic ideas were a basis for development and are reflected in the art of small forms, primarily in carved sculpture. In our collection carved sculpture is represented by two figurines of birds clearly of cult assignment and a figure of a dog in an assemblage of amulets.

The first figurine, a bird of walrus tusk, is decorated with the characteristic design of tripled and coupled parallel lines with triangular checks. A hole was bored on

its upper part for suspension. It was found by Leont'ev at the Orianda I site (Keniut) in the layer beside stone Hearth I. According to the information of informants, this is a sculptural representation of an owl, which was one of the popular personages of Kerek folklore. However, the form of the head of the figurine is more reminiscent of the outline of the head of a seal. With the realism we observe in the carved sculpture of the Kereks, this is difficult to explain through sketchiness or inability. In addition, in Gondatti's Kerek collection there is a sculptural representation of an owl with a realistic representation of the head, distinct from the figurine described above (Leningrad, repository of MAE, coll. 442-28/58). The figurine being described is probably a composite form, as well as an amulet.

The second carved figurine of a bird of wood is similar in appearance to the one described above, but without feet. This is probably a representation of a waterfowl. Along the back it is decorated by parallel engraved lines, and on the upper part a hole is drilled for suspension or attachment. On the back and breast of the figurine there are rounded depressions with scorched black edges—traces of rotation with a wooden stick (Fig. 35:1). This reflects a definite ritual with which the "striking" of the vitally important centers on the figurine would guarantee successful bird hunting. The revolving of a wooden stick in this case was also probably used in obtaining "sacred" fire, which played a significant role in religious rituals. This figurine, like the first, is of composite form. This probably reflects the idea of reincarnation.

The figurine of a dog of wood in a group of amulets (a modern work) attests to the significant role of the dog in the religious rituals of the Kereks. This tradition departs from the Natives of the distant past. We see a similar picture among the Koryak (Jochelson 1908a), the Chukchi (Bogoraz 1904), and the Itel'men (Krasheninnikov 1949).

Sculptural representations of animals and birds are widely represented in Gondatti's ethnographic Kerek collection (Leningrad, repository of the MAE, coll. 441, 442). These are figurines of animals and birds that had important hunting and economic significance or played a definite role in the spiritual life of the population and its religious ideas. Some figurines clearly had a cult assignment. Here figurines of sea mammals are represented: whale, walrus, seal, sea lion; land animals: brown bear, mountain sheep, wild deer, dog, arctic fox, fox, sable, hare, and arctic ground squirrel. Among birds, figurines represent swans, ducks, and owls.

Of the small engraved sculpture of the Kereks, the realism in delivery of the characteristic pose of the animals and birds is distinctive, though the motifs of ornamentation are similar to Eskimo carved bone.

The transference to animals and birds of human traits and its communal and social organization, characteristic for the naive-realistic ideas, is reflected in Kerek folklore (Leont'ev 1983).

The schematic flat images of animals and birds, revealed in structural components of walls and roofs (Opukha I and Etchun II), are connected with economic activity and naive-realistic ideas. In a dwelling of the Etchun I site this is a schematic images of a bellowing deer (Fig. 44:2). In the collection several indeterminate schematic illustrations are also represented. There are as well two schematic illustrations reflecting the existence of a bird cult among the Lakhtina people. These are the images of a flying bird on a piece of whale rib from the Yankinen site (Fig. 44:1), as well as the images of an imprint of a bird's foot on the lower jaw of a whale in Dwelling 2 of the Opukha I site (Fig. 22:4). The ritual sense of the last illustration is confirmed by the schematic images of a toadstool located in the same place (Fig. 22:3), which was widely known in Northeast Asia as a hallucinogen. The images described above were connected, in our view, with the raven cult. This is confirmed by ethnographic data. Thus, the elaboration in Kerek folklore of the myth about raven and his circle of kindred (Leont'ev 1983:60) attests to the existence among the Kereks of the cult of the raven as a sacred bird, the ancestor and protector. This cult has its roots in the distant past. A similar cult is noted by investigators among the Koryak (Jochelson 1908b:680), the Chukchi (Bogoraz 1934:172), the Itel'men (Krasheninnikov 1949:407), and several tribes of North American Indians (Jochelson 1908b:65). The existence of the raven cult among the Lakhtina people is confirmed as well by decorations on three bone points from the shrine at the Orianda II site. These decorations are in the form of schematic images of imprints of birds' feet. There are similar decorations on two bone arrow bunt-points in an ethnographic collection, which Volkov and Rudenko (1910, Fig. 12-m, 14-a) define as schematic images of the raven totem (Nelson 1899) (1910, Fig. 12-m, 14-a).

The reflection of the existence of naive-realistic ideas is the emergence and development among Kereks of hunting festivals and ceremonies, which are known ethnographically (Leont'ev 1983) but undoubtedly have ancient roots. It is possible that the separation of the Kereks into two groups—the upper and lower, or by Leont'ev's definition, the Navarin and Khatyrsk (Opukha) groups—is connected with the by-now-forgotten totemistic ideas defined. This division was hardly only territorial. This is confirmed by the practice of exogamic marriage between these groups of Kereks (Leont'ev 1983). The division into two groups—upper and lower—we observe as well among the Koryak, Itel'men, and Ainu (Jochelson 1908b, Krasheninnikov 1949). The division into two or more phratries existed among North American Indians. For example, among the Tlingits there existed the Raven and Wolf (according to some information—the Eagle) phratries (Shternberg 1936).

Archaeological materials attest to the existence among the Lakhtina people of a more complex form of religious ideas—animism. Among them was developed the worship of spirits—"masters of places." By a reflection of faith in the "master of the sea," on whose will in sea mammal hunting depends, comes the ritual of sacrificial offering, during which they throw wooden ritual arrows and darts and pieces of food into the river flowing into the sea. This ceremony is reported by the informant I. Etyneku.

The ceremony probably has an ancient source, and earlier in the ritual real arrows and darts were used. Sacrificial offering was accompanied by entreaties to guarantee successful hunting.

Connected with animistic ideas and the ancestor cult are the origin and functioning of communal cult centers—the shrines.

The Kereks imagined and represented evil and good spirits variously. Thus, the spirit of the ritual place, Kamak, according to information of informants, they imagined as a large man. It is possible that this is connected with the legend of the appearance in the land of the Kereks of a large man dressed in walrus skins and who left tracks (Bogoraz 1934:121).

It is interesting that even now these "tracks," that were the basis for the legend, are encountered rather often on the coast. We observed them at the base of the spit at the Opukha I site. The "tracks," actually strikingly reminiscent of a chain of human tracks, are imprinted in the soil. The longitudinal distance between the "tracks" is 1.28 m, the width between them 0.22 m. The length of a "track" is 0.38 m and the greatest width 0.24 m. The nature of these "tracks" is meanwhile unknown.

Evil spirits, according to the information of informants, are often imagined as an evil dog. In Gondatti's ethnographic Kerek collection there is a wooden, sculptured likeness of a personal spirit—a protector (according to the list a,k,k'amak) on the belt of a hunter. This is a conventionally rendered figurine of a man with a pointed head on which are schematically carved eyes, nose, and mouth, and with conventionally denoted legs in the form of an inverted V (coll. 442-18). The anthropomorphic figurine from the Etchun II site is probably a representation of a spirit-protector of the family hearth and dwelling. A design on a bone point, found by Leont'ev at the Orianda I site near Hearth I (Fig. 59:4), is also probably a representation of a spirit.

The use of fire by the Kereks for "purification" and deliverance from the influence of evil spirits is ethnographically known. Connected with faith in a spirit-protector of the dwelling among the Kereks are festivals and ceremonies, known ethnographically, that accompanies the move into a new dwelling. This is one of the family cults, including as well the cult of fire.

Animistic ideas are also reflected in the burial ritual of the Kereks. They believed that the spirit of the deceased left the body and set off to the invisible "land of ancestors," where it remained until returning as a newborn child in the family of its closest relatives. Among the Kereks there existed two methods of burial—sea and land. The first method is known ethnographically and was described by Jochelson. He reports: "The Kereks, who did not have trees or driftwood for construction of a funeral pyre, cast their dead, dressed in burial dress, into the sea. They tie the deceased to a long pole, pull it with ropes to the sea and then push it into the water with sticks" (Jochelson 1908b:104). All the work at the village ceased until the burial. The existence of sea burial among the maritime Chukchi, during which the deceased was dropped

into the sea from a cliff or rock, is reported by Bogoraz (1934). Among the other peoples of Northeast Asia no similar method of burial is found. We found and investigated only one land burial at the Opukha I site. According to information from the informant I. Uvaargin, pieces of dog skin with white fur were used as amulets for protecting the spirit of the dead from evil spirits on its journey to the "land of ancestors." The white color thus had symbolic significance.

The ethnographer Leont'ev adds information about the burial ceremony of the Kereks. He reports that sea and land burial were accompanied by an identical ritual. The Kereks, emerging from animistic ideas, believed in the existence of a close connection between the deceased and his living relatives. The method of burial was determined by the wish of the deceased expressed during life or determined in the course of fortune telling (Leont'ev 1983:90). A community cemetery for the Lakhtina people was not found. Separate land burial existed.

Among the Kereks echoes of the Sun cult can also be observed, probably having taken place earlier. This is understandable since the seasonal economy of the Lakhtina people was connected with the change of seasons. Ethnographically it is known that the Kereks always lay down to sleep in the dwelling with their head to the east, while the deceased, until burial, were placed with the head to the west (Leont'ev 1983:93). The orientation of the land burial (head to the east) also corroborates the existence of an earlier Sun cult.

The presence among the Kereks of a more complex form of religious ideas-shamanism-is ethnographically known. In the nineteenth-beginning of the twentieth century, the early stage of development of shamanism can be observed, "family shamanism," or, as Bogoraz defines this stage, "general shamanism." The leading role in the religious ceremonies among the Kereks was played by women. "All the old women of the Kerek tribe," reports Bogoraz, "are considered very skilled in sorcery, and this peculiarity of theirs is also mentioned in stories" (Bogoraz 1934:210). Krashennnikov reports on shamans, predominantly women, and medicine men among the Itel'men. The specialization of shamans among the Kereks originates at the beginning of the twentieth century. This is possibly the result of Chukchi influence. Leont'ev points to the presence among the Kereks during this period of shamans who were not occupied with hunting or fishing and who only conducted religious ceremonies (Leont'ev 1983:97).

The religious ideas of the Lakhtina people and the contemporary Kereks, though they have several features in common with the religious ideas of the Koryak, Chukchi, and Itel'men, are on the whole rather distinctive. They are not completely analogous to those in the Koryak culture, and several traits are more similar to those in the Itel'men culture (Leont'ev 1976a:224).

¹ The expression "wild deer" sounds somewhat odd in English. In Chukotka most or all deer are reindeer, and since most or all of these are now domesticated, the Russians make a distinction between wild deer, hunted in the past, and domestic deer. For the sake of clarity the Russian usage is followed. - Trans.

CONCLUSION

INVESTIGATIONS INDICATE that the archaeological sites of the Northwest Bering Sea belong to the Lakhtina culture. This is corroborated by the common traditions of the stone and bone industry, ceramics, economy, and house construction.

The complexes of Dwelling 3 and the shrine in the Geka I site indicate strong influence from the Punuk culture. It is possible that they are mixed in cultural and ethnic respects. These complexes outline the northern border of the distribution of the Lakhtina culture. The southern border is at Cape Oliutorskii.

The type of dwelling, economy, traditions of the stone and bone industries, and ceramics of the Lakhtina culture were original; and distinguish it from the surrounding synchronic archaeological cultures. According to the indicated parameters, the coastal Lakhtina culture can be distinguished from the interior cultures of Yakutia. Therefore the inclusion of the sites and complexes of the Lakhtina culture in the realm of the Ymyiakhtakh culture (Fedoseeva 1980) has no foundation.

The Neolithic complexes and the complexes of the Paleo-Metal epoch characterize two stages of development of the Lakhtina culture. In the territory of the Northwest Bering Sea development of the Lakhtina culture is noted from the second millennium B.C.

The movement of hunting-fishing tribes of the interior regions to the coast probably followed the river courses, which flowed into the Bering Sea. These tribes began to intensively occupy regions of the coast separated from the interior by the Koryak Range. As a result of this the pure, original coastal Lakhtina culture developed.

The Lakhtina culture was formed on a base of a Mesolithic culture characterized by archaeological complexes with conical and prismatic cores and knife-like blades on the Inas'kvaam River (tributary of the Khatyrka River). This tradition goes back to Paleolithic complexes with wedge-shaped cores (Late Ushki culture) (Dikov 1977, 1979). The interpretation of the Mesolithic complexes is complicated by the combination in them of features of Sumnagin (the technique of flaking and secondary reworking) and Malan (types of tools) Mesolithic cultures. This question can be cleared up with the discovery and study of stratified Mesolithic complexes and collections from this region.

Meanwhile sites of the Early Neolithic have not been found. Thus, between the complexes on the Inas'kvaam River and the Lakhtina culture there exists a chronological break of several millennia. This does not permit, at the present time, tracing the history of the region from the Paleolithic epoch.

The factor that influenced the process of formation of the Lakhtina culture was a migration wave about 4,000 years ago.

As a result of this migration, the interior tribes were forced on to the coast. The migrants brought ceramic traditions and traditions of a slate grinding industry. This wave of migration was probably connected with the region of the Lena River (the upper and middle course) and Lake Baikal.

The formation of the coastal Lakhtina culture with an original inventory, form of economy, manner of life, and house structure was also determined by the localization process.

The formation process of some independent cultures, of bearers of a designated ethnic group, on the base of the oldest ethnocultural stratum was stipulated, as Dikov (1979) correctly notes, by the weakening of cultural connections of Northeast Asia with the south and between individual regions within the distribution of this stratum.

Cultural connections and mutual influence were also factors that promoted the formation and development of the Lakhtina culture. Connections with Northern Chukotsk, Okhotsk, Northern Okhotsk, and early Aleut cultures, and closer connections with the Tar'insk and Paleo-Eskimo cultures, are noted in the early stage. During the Paleo-Metal epoch there exist close connections with Old Eskimo (Old Bering Sea, Ipiutak, Birnirk, and Punuk) cultures and the Norton culture (Alaska) of the Asian and American continents.

However, a weakening of cultural connections with the Tar'insk culture and a strengthening of connections with the Old Koryak culture is observed. This accounts for the penetration of the bearers of Old Koryak culture in the second half of the first millennium B.C., as Dikov (1979) correctly proposes, onto the eastern coast of Kamchatka up to the coast of Oliutorskii Bay. Being wedged between the bearers of the Lakhtina culture in the north and the Tar'insk culture in the south, their traditional cultural connections would be weakened in significant degree, if not completely broken.

Under the conditions of isolation in a territory difficult to access beyond the Koryak Range, the Lakhtina culture preserved its originality during the course of independent development up to the eighteenth century. In the later period the Kereks were exposed to strong influence from the reindeer Chukchi who, in significant degree, assimilated the Native population of the Northwest Bering Sea.

Linguistic data confirm the existence of contacts of the Kereks with the Itel'men, Koryak, Eskimos, and Chukchi.

Archaeological materials do not corroborate the ethnic interpretation of the Kereks as an eastern branch of the coastal Koryak. Even in the early stage of development the Lakhtina culture is sharply distinguishable from the Old Koryak culture of the Zav'ialovsk stage. Incidentally, the membership of the archaeological sites of the Zav'ialovsk stage to the Koryak culture is still in need of confirmation. In addition, the earliest sites of the Zav'ialovsk stage ought to date, due to the presence of iron items in

them, to a period no earlier than the second half of the first millennium B.C. The Lakhtina culture indeed had its development in the territory of the Northwest Bering Sea from the second millennium B.C. It is understood that the possibility of finding earlier sites of this culture here cannot be eliminated.

We enter into the realm of speculation when tracing earlier genetic sources of the Lakhtina culture. Dikov (1973) has expressed a very interesting supposition about the existence of an earliest ethnic stratum that was the basis for the formation of several ethnic groups of Northeast Asia. On the basis of anthropological data, anthropologist A. A. Zubov leans toward a very similar conclusion. Dikov expressed as well the proposition that the Kereks could be genetically traced back to the earliest Proto-Eskoalet and Itel'men ethnic stratum. The archaeological materials available now suggest the formation of the Lakhtina and Tar'insk cultures on the base of a common earliest ethnocultural stratum. [Physical] anthropological materials of the Lakhtina culture (fragments of four skulls) permitted [physical] anthropologist Zubov to make conclusions regarding the presence of gracility and softened Mongoloid traits and to propose a hypothesis about the membership of the Lakhtina people to a "non-standard" arctic type (owing to several features similar to the "Paleo-American" type represented by South American forms). He even notes the [physical] anthropological nearness of the Lakhtina and Tar'insk cultures.

These very features were characteristic for the Kereks and Itel'men. At the same time the Koryak represented a mixed type where individuals were represented with clearly expressed features of an arctic race (Dikov 1979).

The nearness of archaeological cultures and the presence of common, softened Mongoloid features and gracility among the Lakhtina and Tar'insk peoples suggest the formation of this culture on the basis of a single ethnocultural community.

The limit of distribution of sites of the Lakhtina culture coincides with the area of occupation of the Kereks. The northern limit passes through Geka Spit (the Anadyr' estuary); and the southern limit of residence of the Kereks, even in the nineteenth century, passed through Cape Oliutorskii. Here they bordered on the Opuka Koryak, who were the result of a mixture of Koryak, Kereks, and Even (Vdovin 1973). We even believe the Itel'men took part in this process.

The traditions of the stone and bone industries, mode of economy, construction of dwellings and shrines, and ceramics characteristic of the Lakhtina archaeological culture continue development in the ethnographically known culture of the Kereks. This attests to genetic connections.

The appearance itself of a pure original Lakhtina culture confirms a higher level of development in the Neolithic of the productive forces of coastal cultures (the bone and stone inventory, settlement, complex economy, carved sculpture in small forms, and ceramics) by comparison with interior cultures (up to the development of large-herd reindeer tending).

Thus, the data of archaeology, ethnography, [physical] anthropology, and linguistics attest to the fact that the Kereks, as an independent stable ethnic group, formed

Table 2. Comparative typological table of the stone inventory of the Lakhina culture and Neolithic cultures of Northeast Asia.

Tool category	Tool type	Lakhina culture/ Neol/PM complexes		Zav' cult	Tar' cult	Pal. & Early Eskimo	Okhot cult	NChuk cult.	Ymy cult
Arrow & dart points	1	1	1	+	+	+	+		
	2	2	6	+	+	+	+		
	3	4	1		+			+	
	4	2	1	+	+			+	
	5	1	2			+	+		
	6	7	4		+	+		+	+
Retouched knives	1	72	32		+				
	2	26	16	+	+	+	+		
	3	8		+	+		+	+	
	4	13	2						
	5	6	7		+				
	6	4	4		+	+	+	+	
	7	1	2	+	+	+		+	
Ground slate knives	1	2	13			+	+	+	
	2	3	15			+		+	
	3		17			+			
	4	1	6			+			
	5		1						
	6		3						
	7		15						
	8	2	3						
Scrapers	1	10	21	+	+	+	+	+	+
	2	4	14	+	+	+	+		
	3	3	5	+	+	+	+	+	+
	4	10	11	+	+	+	+	+	1
	5	1	6	+	+	+	+	+	
Skebblos	1	9	8	+	+	+	+	+	
	2	6	9		+	+			
	3	4	4		+	+	+	+	
Adzes	1	3	2	+	+	+			
	2	4	3			+			
	3	1	3			+			
	4	1	2			+			
Burins		11	6		+			+	

(cont.)

Table 2 (continued)

Tool category	Tool type	Lakhtina culture ¹ Neol/PM complexes	Zav' cult.	Tar' cult.	Pal.& Early Eskimo	Okhot cult.	NChuk cult.	Ymyy cult.
Prismatic cores		3		+			+	+
Axes	1	5	+	+	+	+		
	2	2	+	+	+			
	3	4						
	4	1						

¹Lakhtina culture shows the number of tools in its Neolithic stage and Paleo-Metal stage compared to those of the:

Zav'ialovsk stage of the Northern Okhotsk culture;

Tar'insk culture;

Paleo- and Old Eskimo cultures;

Okhotsk culture;

Northern Chukotsk culture;

Ymyiakhtakh culture.

in the territory of Northwest Bering Sea under conditions of relative isolation beyond the Koryak Range.

The basis for the formation of the Kerek ethnic group was the Lakhtina culture. The latter traces itself to the Sumnagin and Mal'tan Mesolithic traditions.

A complex specialized coastal economy was the stable economic base for the mobile progress of the Lakhtina culture. Attracting attention is the fact that the culturally significant, original features of this culture do not undergo change from the second millennium B.C. to the seventeenth century A.D. This is probably explained by the fact that substantial migrations were lacking (mutual influence was manifested in the zones of cultural contacts in the north and south), as well as territorial isolation together with ethnocultural self-isolation in large degree. A response of this tradition is the prohibition of marriage with representatives of other ethnic groups. This prohibition remained in effect into the twentieth century.

The penetration of progressive exogamic innovations, with the predominance of the endogamic, could not break the ethnocultural autarchy.

The appearance of metal (especially iron) in the region promoted further development of the economy of the bearers of the Lakhtina culture. However, the insignificance of the entrance of metal from the south limited its wide application.

The Lakhtina culture occupies an important place in the region of the Pacific North. Its bearers exerted significant influence on the development of the surrounding synchronic cultures. Progressive new influences spread from the south along the coast as a result of the contacts of the settled coastal peoples. Several attainments of these Lakhtina-lements of house construction, construction of dog harnesses, and traditions of work on bone-ere largely borrowed by neighboring tribes.

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