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ARCHAEOLOGY, THE PALEOLITHIC OF NORTHEAST ASIA

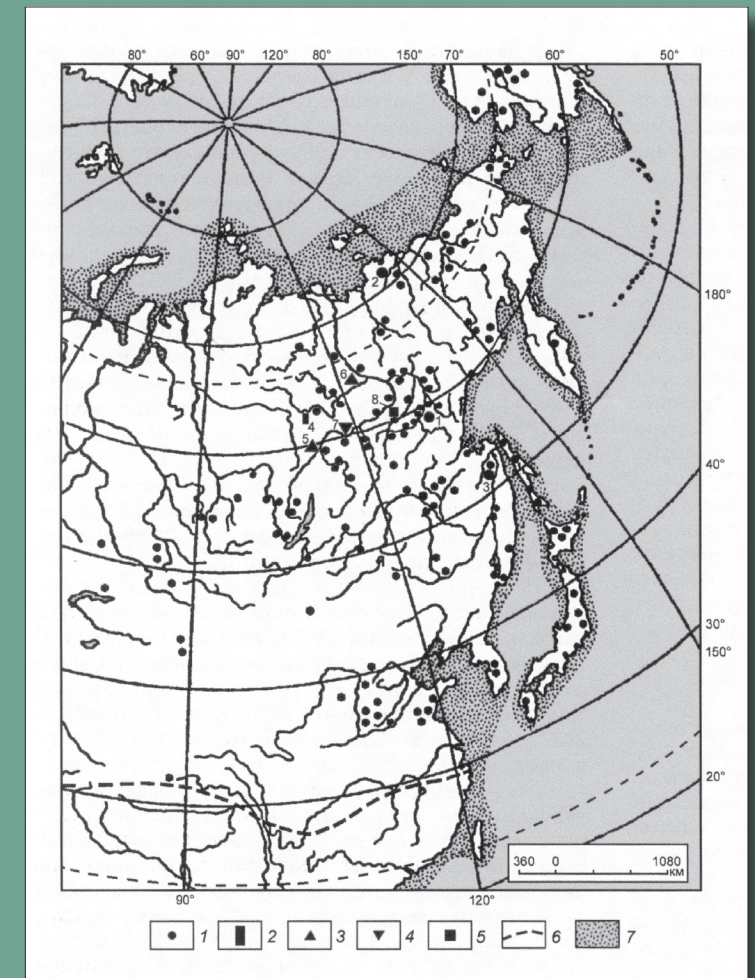
MOCHANOV & FEDOSEEVA

Archaeology, the Paleolithic of Northeast Asia, a Non-Tropical Origin for Humanity, and the Earliest Stages of the Settlement of America

Yuri A. Mochanov
and
Svetlana A. Fedoseeva

Translated by
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**Archaeology,
the Paleolithic of Northeast Asia,
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and the Earliest Stages of the Settlement of America¹**

by

Yuri A. Mochanov

and

Svetlana A. Fedoseeva

[W]hatever the difficulties may be in discovering new truths through the study of nature, the difficulties of getting them accepted are much greater still (Lamark 1809).²

Knowledge is not given to man as a gift: he usually pays for it in deprivations and hard work. Perhaps, therefore, people so willingly become accustomed to once established though entirely false views and so unwillingly begin to examine and rework them (Gorodtsov 1980).

In order to begin to speak in one tongue, to understand one another and to work together, it is necessary at least to possess common knowledge (David 1982).

¹ This work was originally published in Yakutsk in 2002 as *Arkheologiya, paleolit Severo-Vostochnoi Azii, vnetropicheskaya prarodina chelovechestva i drevneishie etapy zaseleniya chelovekom Ameriki* with the subtitle *Tr. Prilenskoi arkheologicheskoi ekspeditsii. Doklad dlya Mezhdunarodnogo Severnogo arkheologicheskogo kongressa* [Work of the Prilensk Archaeological Expedition. Report for the International Northern Archaeology Congress]. Khanty-Mansiisk, 9–14 September 2002.

² Citations for quotations are from the English sources (when they could be found) and thus not translated from Russian.—*Trans.*

TABLE OF CONTENTS

| | |
|--|----|
| Foreword | v |
| I. Archaeology, Science, and Human Evolution | 1 |
| II. Paleogeography of the North | 15 |
| III. Cold Climates and Human Origins | 21 |
| IV. Cultural Chronology of Northeastern Siberia | 36 |
| References | 41 |

Figures

| | |
|---|----|
| Figure 1. Schema of the origin of living from nonliving..... | 55 |
| Figure 2. Schema of the evolution of man | 55 |
| Figure 3. Map of survey routes of the Prilensk Archaeological Expedition | 56 |
| Figure 4. Map of the expanse of permafrost in the Northern Hemisphere. 1—complete permafrost; 2—permafrost on the shelf; 3—broken permafrost (after Washburn 1988:36)..... | 56 |
| Figure 5. Schematic map of the expanse of continental glaciation..... | 57 |
| Figure 6. Schematic map of the distribution of the Paleolithic in the European part of the USSR..... | 57 |
| Figure 7. Paleolithic sites of Northeast Asia. 1—Dyuktai tradition | 58 |
| Figure 8. “Regions in which man either entirely cannot live or lives under very difficult circumstances” (after J. Horrabin 1924:12) | 59 |
| Figure 9. Tundra-forest and adjoining zones of the USSR | 59 |
| Figure 10. “Comfort of the territory of the USSR based on the degree of favorableness of natural conditions for the life of the population.”..... | 60 |
| Figure 11. Locations of the original homelands of humanity corresponding to the ideas of various authors..... | 60 |
| Figure 12. Chronology of adaptive types..... | 61 |
| Figure 13. Map of Paleolithic sites of North, Central, and East Asia discovered by 1930..... | 61 |
| Figure 14. Map of areas of three provinces of Upper Paleolithic culture..... | 61 |
| Figure 15. Map of areas of the earliest Paleolithic cultures | 61 |
| Figure 16. Map of areas of cultural-historical regions of Asia during the Paleolithic-Mesolithic..... | 62 |

| | |
|--|----|
| Figure 17. Map of distribution of the Upper Paleolithic Dyuktai culture | 62 |
| Figure 18. Map of distribution of sites of the Sumnagin culture..... | 62 |
| Figure 19. Schema of the structure of the lower terraces of the Aldan River and stratigraphic position of archaeological type sites | 63 |
| Figure 20. View from Syurakh-Aryy Lake at the excavation of the Belíkachi I site in 1966..... | 63 |
| Figure 21. General view of the excavation at Dyuktai Cave and the apron area of the cave in 1968 | 64 |
| Figure 22. Summary stratigraphic cross section of deposits of the 125–135-meter intercylic Tabaginsk terrace in the vicinity of the Diring site | 65 |
| Figure 23. Schema of terraces of the Lena River in the Sinsk-Pokrovsk section | 65 |
| Figure 24. I—schematic not-to-scale profile of the locality and bedrock of the terraces in the vicinity of the Diring II site | 66 |
| Figure 25. View from the Lena River of the area near the mouth of Diring-Yuryakh Creek. Arrows give the terrace elevations..... | 67 |
| Figure 26. Diring Yuryakh site. Fragment of the eastern wall of excavation III..... | 68 |
| Figure 27. DiringYuryakh site. Fragment of Cluster No. 43 | 68 |
| Figure 28. Diring Yuryakh site. South wall of Excavation III..... | 69 |

Plates

The Oldest Paleolithic Artifacts

| | |
|--|----|
| Plate 1. Diring culture of the Most Ancient Palaeolithic | 70 |
| Plate 2. Diring culture of the Most Ancient Palaeolithic | 70 |
| Plate 3. Diring culture of the Most Ancient Palaeolithic | 71 |
| Plate 4. Diring culture of the Most Ancient Palaeolithic | 72 |
| Plate 5. Diring culture of the Most Ancient Palaeolithic | 72 |
| Plate 6. Diring culture of the Most Ancient Palaeolithic | 72 |
| Plate 7. Alalaïsk culture of the Most Ancient Palaeolithic | 73 |
| Plate 8. Alalaïsk culture of the Most Ancient Palaeolithic | 73 |
| Plate 9. Alalaïsk culture of the Most Ancient Palaeolithic | 73 |
| Plate 10. Alalaïsk culture of the Most Ancient Palaeolithic | 74 |

Middle Paleolithic Artifacts

| | |
|--|----|
| Plate 11. Kyzylsyysk (protodiuktai) culture of the Middle Palaeolithic | 74 |
| Plate 12. Kyzylsyysk (protodiuktai) culture of the Middle Palaeolithic | 75 |
| Plate 13. Kyzylsyysk (protodiuktai) culture of the Middle Palaeolithic | 75 |
| Plate 14. Kyzylsyysk (protodiuktai) culture of the Middle Palaeolithic | 76 |
| Plate 15. Kyzylsyysk (protodiuktai) culture of the Middle Palaeolithic | 76 |
| Plate 16. Kyzylsyysk (protodiuktai) culture of the Middle Palaeolithic | 77 |
| Plate 17. Kyzylsyysk (protodiuktai) culture of the Middle Palaeolithic | 77 |
| Plate 18. Kyzylsyysk (protodiuktai) culture of the Middle Palaeolithic | 77 |
| Plate 19. Kyzylsyysk (protodiuktai) culture of the Middle Palaeolithic | 78 |
| Plate 20. Chirkuosk culture of Middle Palaeolithic or initial stage of Late Palaeolithic (?)..... | 78 |
| Plate 21. Chirkuosk culture of Middle Palaeolithic or initial stage of Late Palaeolithic (?)..... | 79 |
| Plate 22. Chirkuosk culture of Middle Palaeolithic or initial stage of Late Palaeolithic (?)..... | 79 |
| Plate 23. Chirkuosk culture of Middle Palaeolithic or initial stage of Late Palaeolithic | 80 |
| Plate 24. Chirkuosk culture of Middle Palaeolithic or initial stage of Late Palaeolithic | 80 |

Late Paleolithic Artifacts

| | |
|---|----|
| Plate 25. Diuktai culture of the Late Palaeolithic | 81 |
| Plate 26. Diuktai culture of the Late Palaeolithic | 81 |
| Plate 27. Diuktai culture of the Late Palaeolithic | 82 |
| Plate 28. Diuktai culture of the Late Palaeolithic | 82 |
| Plate 29. Diuktai culture of the Late Palaeolithic | 83 |
| Plate 30. Diuktai culture of the Late Palaeolithic | 83 |
| Plate 31. Diuktai culture of the Late Palaeolithic | 84 |
| Plate 32. Diuktai culture of the Late Palaeolithic | 84 |
| Plate 33. Diuktai culture of the Late Palaeolithic | 85 |

Latest Paleolithic Artifacts

| | |
|---|----|
| Plate 34. Sumnagin culture of the Latest Palaeolithic..... | 86 |
| Plate 35. Sumnagin culture of the Latest Palaeolithic..... | 86 |
| Plate 36. Sumnagin culture of the Latest Palaeolithic..... | 87 |
| Plate 37. Sumnagin culture of the Latest Palaeolithic..... | 87 |
| Plate 38. Sumnagin culture of the Latest Palaeolithic..... | 88 |
| Plate 39. Sumnagin culture of the Latest Palaeolithic..... | 88 |
| Plate 40. Sumnagin culture of the Latest Palaeolithic..... | 89 |

Foreword

This monograph was originally published in Yakutsk in 2002 as *Arkheologiya, paleolit Severo-Vostochnoi Azii, vnetropicheskaya prarodina chelovechestva i drevneishie etapy zaseleniya chelovekom Ameriki* with the subtitle *Tr. Prilenskoi arkheologicheskoi ekspeditsii. Doklad dlya Mezhdunarodnogo Severnogo arkheologicheskogo kongressa* [Work of the Prilensk Archaeological Expedition. Report for the International Northern Archaeology Congress]. Khanty-Mansiisk, 9–14 September 2002. This translation by Richard Bland of the University of Oregon is very slightly abridged from the original. Both the authors and the editorial board of Archaeology Press felt that the original contained a few statements that are only of interest to Russian archaeologists, so the authors decided to eliminate them.

Mochanov and Fedoseeva have worked on the archaeology and prehistory of northeast Siberia for nearly 40 years and have published many outstanding articles and monographs. The Diuktai culture is probably the concept that is best known to Americanists because of its similarity to Alaskan remains. While this concept is widely accepted, some of their research has elicited considerable controversy. Indeed, the most controversial is their interpretation of the lithic assemblages at the Diring Yuriak site on the Lena River in Siberia. These assemblages with their early dates have highlighted a problem faced by prehistoric archaeologists the world over: how do you reconcile the archaeological remains you have uncovered with the dates provided you by specialists in the hard sciences ?

Mochanov and Fedoseeva have never been content to accept the ruling theory of the day without examining alternatives. This decision is very much what this monograph is all about. What would you as an archaeologist do when dates and geological models indicate an antiquity of your artifact assemblage of several million years, and both the attributes of the artifacts themselves and the assemblage content do not contradict such a date ?

What the authors have chosen to do is accept the early dates and place their crude tool assemblage in a model of a northern origin of humanity rather than adhere to the ruling theory of the day, the out-of-Africa model of human origins. This decision has not been taken lightly by their colleagues and has led to criticism of both the dates and claims that their artifactual remains are geofacts. This criticism is acknowledged by the authors in this monograph.

Robert Ackerman, Maureen Carlson, and myself have all been to the Diring Yuriak site and observed the excavations and the context of the artifacts. We have observed both the flaking stations with their anvils surrounded by refutable flakes and crude stone tools. This assemblage is cultural and was not re-deposited.

Mochanov and Fedoseeva go beyond the Diring material and present surprising new evidence of Middle Paleolithic lithic industries in far northeastern Siberia, and of Late Paleolithic remains already known from their previous publications.

Archaeology Press is pleased to make this monograph available in English.

Roy L. Carlson

1. Archaeology, Science, and Human Evolution

The first in the history of science International Conference of Northern Archaeology presupposes a clear realization of the ideas “archaeology” and “north.” Many inquiring people interested in scientific investigation as well as scholars, including many archaeologists, understand only poorly what archaeology is and what place it occupies in the system of other sciences. In our understanding, archaeology is one of the fundamental sciences. It has no less significance than astronomy, physics, chemistry, geology, or biology for acquiring new knowledge about the basic principles in the structure and functioning of objects being studied, oriented especially toward a perception of a picture of the world or its parts, and recognition of the laws of its development. It is not by chance that representatives of such sciences as physics and chemistry, the farthest from archaeology, conduct national and international conferences on “The Problem of Seeking Life and Reason in the Universe,” where they discuss the “problem of the emergence of stars and planets around them, the principles of the emergence of life on the planets and its evolution toward reason and civilization” (*Problema poiska ...*, 1986:4). However, in order to conduct a search for life and reason in the universe, it is probably first desirable to know how life and reason appeared on our planet Earth and how they evolved here. Today we can categorically assert that science does not have well-defined answers to these questions. With regard to the origin of life, I.S. Shklovskii (1986:23) notes: “The question of how life emerged does not have a simple answer at present; in fact it does not have an answer ‘squared’” (Figure 1). The same can also be said about the question of the origin of reason (Figure 2). About the origin of life and reason there are a variety of hypotheses that are substantiated in greater or lesser degree. Facts are needed to corroborate them.

The basic facts regarding the origin and evolution of reason on Earth can be obtained through archaeology. The greatest intellects of humanity have realized this. For example, one of the leading evolutionary biologists of the nineteenth century, creator of the theory of allopatric speciation, M. Wagner notes in 1871 that archaeologists are needed to determine by stone tools the relative age of development of the earliest humans (Mochanov 1992:152). In this same year the prominent ethnographer and cultural historian E. Tylor (1989:57) notes: “The key to the study of the initial state of mankind is in the hands of prehistoric archaeology.” The same opinion about archaeology was also maintained by scholarly thinkers of the twentieth century. Pierre Teilhard de Chardin writes: “Between the last strata of the Pliocene period [approximately 3 to 2.5 million years ago—Yu. M. & S.F.], in which man is absent, and the next, in which the geologist is dumbfounded to find the first chipped flints, what has happened? And what is the true measure of this leap? It is our task to divine and to measure the answers to these questions before we follow step by step the march of mankind right down to the decisive stage in which it is involved today” (Teilhard de Chardin 1961:164).

The significance of archaeology for study of the noosphere [the sphere of the mind—*Trans.*] was also understood by V.I. Vernadskii, who at the end of the 1930s writes:

The historical process—a manifestation of the global history of humanity is revealed before us, but its basic consequence as a natural event of great geological significance Now archaeologists, geologists, and biologists approach such a study of global history of humanity ... creating new scientific understanding of the historical process of the life of humans Scientific work and scientific thought finds a new fact in the history of the planet of paramount geological significance. This fact consists of the discovery of a new Psychozoic [Quaternary] or anthropogenic era, which is created by the historical process. In essence it is paleontologically determined by the appearance of man (Vernadskii 1991:33, 39).

The significance of archaeology is very vividly characterized by one of the greatest archaeologists of the twentieth century, Gordon Childe, who notes in his book *Progress and Archaeology*: “[A]rchaeology has revolutionized history. It has enlarged the spatial horizon of history in much the same degree as the telescope enlarged astronomy’s vision of space. It has extended history’s view backward in time a hundredfold, just as the microscope revealed to biology beneath the surface of gross bodies the lives of infinitesimal cells. Finally, it has altered the content of historical study in much the same sort of way as radioactivity affected chemistry” (Childe 1944:2).

The non-theoretical significance of archaeology, that is, the “emotional domestic” side of the activities of archaeologists, is characterized by C. Ceram in his book *Gods, Graves & Scholars* (1951:v):

Archaeology, I found, comprehended all manner of excitement and achievement. Adventure is coupled with bookish toil. Romantic excursions go hand in hand with scholarly self-discipline and moderation. Explorations among the ruins of the remote past have carried curious men all over the face of the earth. Yet this whole stirring history, I discovered, was hopelessly buried in technical publications that, however great their informative value, were never written to be read. I also learned that not more than three or four attempts had ever been made to bring this dramatic story to light. Yet in truth no science is more adventurous than archaeology, if adventure is thought of as a mixture of spirit and deed. In fact, of all sciences about man, archaeology is the only one that permits simultaneously traveling in time and space. It is not surprising that this draws many of those people who are trying to escape the concrete mercenary world of Philistines into archaeological expeditions. Some of them, carried away by the romantic expeditionary life and at times seemingly easy archaeological discovery, resolve to become archaeologists. But the expeditions come to an end and the mundane work of dealing with the materials begins. And, indeed, some “romantics” do not last. It seems to them that they are again sinking into the routine of ordinary life. A large number of them leave the archaeological field, and this is better for archaeology. But some remain in it as stray people; this is worse for archaeology, since very often it is from among those people who do not possess archaeological competency that superficial individuals emerge who occasionally become directors of various archaeological institutions.

But true archaeologists are developed only from those people, free in spirit, who by fate itself are destined to find the abstract work no less romantic than the expeditions. The view of A. Schwartz (1972:195, 196) about microbiologists can be assigned to such archaeologists:

The microbiologists were lucky ... Pasteur, Koch, and Metchnikoff were on the lips of half the world. And everything they did was so simple, beautiful, and easy. Pasteur noted the rabbit, which remained well after inoculation—there you have vaccination against rabies; Il'ya Il'ich [Metchnikoff] saw how densely blood corpuscles swarmed over the splinter—a model of immunity was prepared; somehow Koch sat Or can it not be so? Is it possible they were lost, tormented in that labyrinth, a hundred times over their rabbits [or archaeological materials—Yu. M. & S. F.] died until they discovered a way out? Everything is possible Yet they were rarely lucky, these first seekers, pioneers, these furious discoverers of new worlds.

And by whom, if not by archaeologists—when all geographic regions are placed on the map of the earth and all peoples living on it—will “new worlds” of human history, concealed within the depths of our planet, have to be discovered? Chief in this is both the strength of spirit and an understanding of the purpose of archaeological science.

For a realization of the significance of archaeology for the various sciences, it is important to understand that the problem of the origin of mankind and reason is a problem of the same rank as the problem of the origin of life. From the point of view of knowledge about the noosphere, Man represents not one of the divisions of the animal kingdom but rather the highest taxon in the classification of living nature—a superkingdom, together with superkingdoms of procaryotes (the kingdom of archebacteria and bacteria) and eucaryotes (the kingdom of animals, fungi, and plants). In general, even the taxon “kingdom” does not entirely account for the rank of Man in the “World—Life—Reason” system. It is not an accident in science that the terms “nonliving nature,” “living nature,” and “reasoning nature” are often employed.

The significance of archaeology for the study of the problem of the origin and evolution of humanity was clearly recorded in the recommendations of the AH-Union Congress on “The Problem of the Aboriginal Homeland of Humanity in Light of New Archaeological and Anthropological Discoveries,” which took place at the Earliest Paleolithic site, Diring Yuryak in Yakutia on August 17–23, 1988. Taking part in it, in addition to archaeologists and anthropologists, were astrophysicists and geophysicists, geologists, geomorphologists, geocryologists, pedologists, paleontologists, zoologists, botanists, geneticists, physiologists, ethologists, evolutionary biologists, physicians, ethnographers, linguists, historians, and philosophers. In the recommendations it is noted:

The appearance of the earliest human who consciously made the first tool conveys the beginning of a new, most dynamic form of existence of material—of cultural evolution—which takes place by means of the transfer of accumulated information from one generation to another. Inasmuch as the first stages of this evolution are basically transcribed by stone tools, archaeology (Paleolithic studies) has the greatest significance in resolving the

problem of the origin of humanity. It is archaeology that is the nucleus around which all sciences connected with the problem of the origin of humanity must be grouped (Recommendations ... 1988:3).

Of course, the problem of the origin of mankind is complex. Representatives of various sciences have attempted to solve it. And this is gratifying. Yet, scholars of the various specialties must realize the resolving possibilities of their own science and be guided by the facts obtained through this science. Nevertheless, many of them frequently prefer to occupy themselves with general argumentation instead of analysis of facts of their science and evaluation of their significance for resolving the problem of the origin and evolution of humanity—calling it philosophical and ideological—but selectively drawing on lightly treated archaeological sources for corroboration of their ideas.

A large number of articles and books about the origin and evolution of humanity have been produced by prominent philosophers. It is possible to obtain an idea about their views on this problem from the books of Yu. I. Semenov, *How Humanity Emerged* (1966) and *At the Dawn of Human History* (1989). In them can be found everything about “disordered reproductive relations” (it is interesting that several philosophizing geologists also write about this, for example, V.A. Zubakov in 1990), about the fact that the “process of the transformation of Archanthropus into Paleoanthropus and later into Neoanthropus cannot be viewed other than as the process of the emergence of new biological species,” and about the fact that the “emerging production activity was dressed in animal attire of relatively reflexive behavior” and “was not conscious and volitional,” and so on.

Not knowing the fundamentals of archaeology and anthropology, Semenov (1989:5, 6) writes:

There is no unity of opinion on many questions among archaeologists. In particular, there is absent even a generally accepted periodization for the evolution of stone technology. It is also difficult to reconstruct the history of the formation of the human physical type, although there is a substantial number of remains of developing humans at the disposal of science. In this realm much is still disputed and unresolved However, the most difficult task is reconstructing the development of human society. Nothing at all was preserved of these relations Because of the lack of direct data about the character of social relations in the beginning stage of human history we must base them on indirect data. But if direct data (human remains and stone tools) can be interpreted in different ways, then indirect data can be even more so. Any more or less detailed reconstruction of the process of development of society is inevitably hypothetical. Under conditions when data are few and they are all indirect, general-theoretical positions take on paramount significance, and these positions guide the researcher in his attempt to sketch a more or less concrete picture of the development of social relations.

One can judge his “theoretical arrangements” by the following thoughtful conclusion (Semenov 1989:12): “The animal is only a biological being, a biological organism. In the fact that the animal

is a biological organism is its essence Man is a different affair. He, above all, is a social being. Precisely in this is his essence.”

The significance of philosophy for scientific research is characterized well by S.J. Gould (1986:21): “Science can apparently develop successfully even in the face of contradictory philosophical conclusions coming from those who strive to ‘correct’ it, therefore, such debates lead to the expenditure of some amount of time and paper, but do not threaten geological research in any other way.” From our point of view, philosophers, if they are not simultaneously supreme specialists in some realm of science, acquire no facts for the understanding of the origin and evolution of humanity. Like theologians, they do not learn but only try to deal with the facts and events. Sometimes their arguments can be rather interesting; so too are the arguments of fantasy writers.

If one takes into account the duality (the “corporeal” and the “spiritual”) of man, which exists according to the dialectic law of the “unity and struggle of oppositions,” it is necessary to recognize the important significance of the different biological sciences for the study of the problem of the origin and evolution of mankind. Without their calling, it is impossible to study the corporeal (biological) part of man. W. Grant, one of the greatest evolutionary biologists, demonstrated well the possibilities of the biological sciences in this regard. He writes (1980:351): “Cultural evolution possesses its own driving force, distinct from the driving forces of organic evolution. Also, cultural evolution can be considered an entirely independent process, though in practice it interacts with the evolution of the organic. With the special study of cultural evolution it should be examined separately, but with any study of humanity it is more correct to study a present-day man as a product of combined activity of organic and cultural evolution.” Grant assigns to the factors of the organic evolution of man “individual selection, intraspecific group selection, interspecific group selection, and a combination of selection with genie drift.” To the factors of cultural evolution— “total accumulation of cultural heritage and tendencies in the development of culture, emerging as a result of competition between communities, which differ in cultural regard (but not genetically).”

Grant (1980:363) notes: “Perhaps we have the right to assert that, in spite of the existence of substantial gaps, the phylogeny of man is known to us now much better than to scholars of past generations, and that the corresponding evolutionary factors, in large part, are determined, however, our ideas about the evolutionary forces that participate in the evolution of man are nevertheless incomplete.” He adds to this conclusion (1980:360): “Our present-day views of cultural evolution bear such a general character and are so foggy, like modern ideas about the role of natural selection in the evolution of man, and, like the last, are in need of critical reevaluation.”

Anthropologists most often try to carry out such a “reevaluation.” However, they rely only on the biological essence of man and look for “transitions” in biological evolution (devising various terms of the kind such as “humanoid apes” and “monkeylike people”), but it is necessary to search for the transition from biological evolution to cultural. Even the biological evolution of man makes it more difficult each year for them to trace and substantiate. This is attested to by the following contradictory conclusions of anthropologists. A.P. Pestryakov (1990:254) writes: “The Upper Paleolithic *Neanthropus* and, even more, modern man, cannot be genetically separated from any form of *Paleanthropus* in craniological regard, or even from an intermediate form of *Archanthropus*.

The initial form of *Neanthropus* of Pleistocene times is, as before, unknown.” In contrast to this opinion, A.A. Zubov (1998:76) supposes: “It is evident that the human species is an unbroken taxon that is not easily subdivided into any isolated stages of progress.” And it is possible to find many such contradictions on the origin and evolution of humanity in the views of physical anthropologists.

Perhaps these contradictions can be explained by the fact that paleoanthropologists became accustomed to drawing very crucial conclusions while relying on singular materials, and almost completely ignoring the incompleteness of the physical anthropological chronicle. In this regard, one can be reminded of the statement of E. Mayr (1974:39): “It is unpardonable to attribute to individuals characteristics representing average significance for the race to which these individuals belong.” Besides, from our point of view, one should add that it is still more unpardonable to conclude “average significance” of different chronological and territorial taxons of humanity based on the characteristics of their individual representatives.

In addition, one should not abandon the view that primitive anthropoid skulls, which are found in sites of the Earliest and the Early Paleolithic,³ might not belong to those individuals who made the stone tools but to those devoured by the tool makers. In this regard, it can be viewed as a problem of cannibalism, which allegedly existed in the Paleolithic. Some researchers perceive it as a clearly established fact. For example, the anthropologist V.P. Yakimov (1951:82) writes of cannibalism as follows: “Not one of the more or less complete skulls of *Sinanthropus* had a whole base: it was probably destroyed upon the extraction of the brains Available paleoanthropological materials indicate that cannibalism, which arose in the earlier stages of the Anthropogene among ape-men (*Sinanthropus*) ... acquired a completely stable character among hunting groups of Neanderthals—both earlier and later ones.” For us it will not be surprising if in the future, when complete physical anthropological materials are obtained for the Earliest and the Early Paleolithic as there are for some regions during the Neolithic and Bronze Age, that the “ape-men” of the earliest people are shown to be a myth.

Not to contest the value of physical anthropological materials for the study of the evolution of humanity, it should nevertheless be recognized that they are not fundamental to an explanation of the conformity of cultural evolution to natural laws. And this is not surprising since the essence of neogenesis is not determined by biogenesis. In fact, they are even antagonistic. The antagonism between them, which is already explained by the dual unity of man, can be especially clearly seen in the multidirectional tendencies of cultural genesis (in its technogenetic manifestation, called “material culture”) and ethnogenesis (including so-called spiritual culture). Technogenesis, in its highest form being manifested in scientific-technical progress, strives toward all-human, all-worldly, and even all-cosmic spread (some call this phenomenon “globalization”) and develops according to the

³ The authors adhere to the following periodization of the preliterate history of humanity: (1) the eon of humanity—the anthropogene (all the time of human existence on earth); (2) the era of stone and the era of early metals; (3) the Stone Age separated into the Paleolithic (Old Stone Age) and Neolithic (New Stone Age), which in turn are subdivided into epochs, stages, and phases; (4) and the era of early metals, subdivided into the Bronze and Iron Ages, which are broken up into lower taxa, as with the periods of the Stone Age. In the Paleolithic, five epochs are distinguished: Earliest (Oldowan), Early (Acheulean), Middle (Mousterian), Late (many call it the Upper Paleolithic), and Latest (some call it the Holocene Paleolithic or final Paleolithic, others call it the Epipaleolithic, Mesolithic, or Protoneolithic).

law of disparity of needs and possibilities (as soon as needs are satisfied, they immediately increase). Ethnogenesis, by contrast, aspires to preserve exclusive kindred human populations (this phenomenon is often called “nationalism”) and in many ways evolves according to biological laws, using also (consciously or unconsciously) various taboos as substitutes for biological factors of reproductive isolation. Many researchers who are occupied with the origin and evolution of humanity do not take these regularities into account. Such researchers often include, unfortunately, both ethnographers and physical anthropologists.

Nevertheless, physical anthropologists, as no others but philosophers, usually overestimate the significance of their science for solving the problem of the origin and evolution of man and underestimating the significance of archaeology in this regard. For example, this is what the physical anthropologist V.P. Alekseev (1989:151) writes about archaeology:

Archaeology is ethnography knocked back into the past. But it is reminiscent of ethnography from which all ideas about the people are completely excluded, ethnography in which there are no people, where only objects of everyday life, domestic items, and structures are left—in a word, the material culture in the broad sense of the term. *The strength of archaeology is that it is one of all the disciplines that penetrate into the past; its weakness is that it finds there only a distorted and incomplete reflection of the ethnic processes of antiquity* [our emphasis—Yu. M. & S.F.]. It is hardly possible to say about archaeological materials that they are “mute,” but there is no doubt that these materials ‘speak in undertones.’

The correlation of significance of physical anthropology and archaeology for solving the problem of man's origin and evolution is examined by Alekseev in many publications. In one of them (Alekseev and Pershits 1990:32) he writes: “Historical anthropology, together with archaeology and ethnography, suggests to us the course in history of primitive society: archaeology and ethnography—in the history of culture, historical anthropology—in the history of man himself.” In another work (Alekseev 1975:7) he notes:

On one side, the object of discussion is morphological peculiarity—the place of man in a system of living organisms—in the zoological classification. Man stands out as a zoological species just as any other species of plant or animal would stand out with the same evaluation. On the other side, all the grandiose results of human activity are taken into consideration. Man comes forth not as a zoological entity but rather as an essentially new phenomenon in the history of the planet. It is clear that it is a matter of various circumstances and different criteria. The first of these criteria can be called physical anthropological since it concerns only the morphological peculiarity of man. With the aid of the second criterion the place of man is appraised in the universe as a whole, and it is appropriate to call it philosophical Each of these criteria emphasizes and appraises the peculiarity of man at various levels: physical anthropological—only as a biological being [and physical anthropologists, relying on the facts of their science, are not able to

reason professionally about the high level.—Yu. M. & S.F.], philosophical—as a social being [many kinds of animals are also 'social,' but they appear, exist, and disappear only in the process of biological evolution, with no relationship to cultural evolution, which creates the noosphere.—Yu. M. & S.F.].

Anthropologists love to draw important conclusions that do not result from a study of facts easily accessible to their competence. On what anthropological facts does Alekseev (1989:52) rely, for example, when he writes that the “theoretical ideological significance of physical anthropologists and human geneticists” is that it provides the “possibility for man to realize his place in the evolutionary process on the planet, to impute the real probability of the existence of extraterrestrial civilizations ...”? In addition, it remains incomprehensible here how this “conclusion” can coexist with his other conclusion (Alekseev and Pershits 1990:132): “In the history of Paleolithic man there is not full correspondence between the stages of formation of the physical type of the earliest and early people and the cardinal progressive shifts in their culture. Does this correspondence bear a partial character?”

It would also be interesting to know which anthropological facts were used by the physical anthropologist Zubov (1988:141, 142), who drew the following universal conclusion:

The whole course of evolution of the Universe in the post-singular period [after man becomes “unique”?—*Trans.*] is a progressing *sistemogenez* [literally, system genesis—*Trans.*] During the progress of evolution, control is perfected as one of the mechanisms for preserving the organism. It obtains a new impulse and acquires new external forms with the origin of life The formation of reason provides the possibility of manipulation by equivalents of objects and phenomena separated from concrete space-time and the creation of a base of universal optimization, universal autonomy, universal type of self-preservation, of the directed *sistemogenez*—an internal informational model of the world. Thus, man is the necessary product of universal *sistemogenez*, representative and center of the fundamental tendency of the evolution of the Universe.

It is well written, interesting, and clever (if not to say beyond clever [that is, unintelligible—*Trans.*]), but what does anthropology have to do with it here, not to mention odontology, in which Zubov is an outstanding specialist?

Standing before physical anthropology are many important questions that need to be resolved using physical anthropological materials. A leading genetic anthropologist, Yu. G. Rychkov (1979:5, 6), writes:

The opinion is widespread that with the appearance of Cro-Magnon, that is, with the origin of man in modern form, the process of biological evolution of man is completed. The development of society and culture, as a method of activity and organization of the life of people in society, delivered man from the necessity of interacting with the natural course

through physical adaptation to it. The cultural screen enclosed man in society, away from the impact of the evolutionary process that is inalterable for all living things. And thus, a living organism—part of Nature—is outside of the process of evolution of the living. Is this conceivable? This is the problem of problems of man as a biological entity.

Physical anthropologists should occupy themselves with this “problem of problems,” of course, having first cleared up the fact that a “cultural screen” arose not 35,000—40,000 years ago with the appearance of so-called sapiens but rather 2.5 million years ago with the appearance of the first tools. And with ever-increasing rapidity the tools began to improve, having established the beginning of culture-genesis, which created the noosphere. Scholars occupying themselves with the problem of the origin and evolution of humanity expect an answer from physical anthropologists to the question, How did the “cultural screen,” spreading in time and space, influence (or not influence?) the genotypes and phenotypes of different human populations, and Why does the intellect, which creates the “culture screen,” operate up to now in the clutches of the “biological wrapper” with all the functional manifestations peculiar to it.

In any case, it is necessary for all scholars who are occupied with the problem of the origin and evolution of man to realize that all facts about humanity, which can be acquired by direct observation of people contemporary with researchers or which are recorded in historical sources, belong to only 0.02% of the whole history of humanity.⁴ Making judgments about the conformity to the natural laws of the whole evolution of humanity based on certain segments of time—as ethnographers, sociologists, and historians attempt to do—would be similar to attempts by soil scientists, if such could be found, to contemplate the structure of the earth from its core to the surface based on modem plowing. “Written history” is only an instant between the past and the future (even if the future should be as long as the past). The majority of historians, especially orthodox-researchers of historical materialism, think that human evolution’s conformity to natural laws is determined by successive changes in various socio-historical formations that are divided into preclass (nonantagonistic) and class (antagonistic). They believe that class struggle is the moving force in developing antagonistic societies, which results in social revolution. The latter, in their opinion, is a manifestation of the contradiction between production forces and production relations, of a natural form of transition from one social structure to another. But, indeed, class societies did not appear earlier than 5,000 to 6,000 years ago. Historians leave unanswered the question of how humanity developed in classless societies.

⁴ Many ethnographers and physical anthropologists consider it prestigious to publish “fundamental” works under the name “History of Primitive Society.” For example, one can cite the three-volume work of the members of the Institute of Ethnography (Academy of Sciences, USSR) *History of Primitive Society* (Moscow 1983, 1986, 1988) and the book by V.P. Alekseev and A.I. Pershits *History of Primitive Society* (Moscow 1990). In these books a multitude of questions are examined that are connected with the history of humanity in the Paleolithic and Neolithic. However, the authors obviously do not understand that, not being archaeologists, they can write not about preliterate history of humanity but only, at best case, about so-called para-history. A.L. Mongait (1973:60) writes about the last: “Para-history is a smaller and later part of prehistory. It belongs to the time after the invention of writing, but outside the realm of written documents. It embraces a smaller part of the Stone Age and part of the Eneolithic, as well as the Bronze and Iron Ages.”

Neither biologists (including physical anthropologists) nor sociologists are able to answer this question. The appearance on earth of reason as a result of evolution in a solely organic world, regardless of how much genetic and ethological similarity is shown between man and chimpanzee, remains unexplained. The opinion is very widespread that in DNA and in proteins the chimpanzee and man differ a total of 1%. However, several researchers, for example, R. Reff and T. Kofmen (1986:93), believe that changes in regulatory, and not structural, systems are responsible for evolution in morphological and higher levels. F. Ayala (1984:187) also turned his attention to this: "In the branch that led to the emergence of man, the rapidity of evolution of the organism on the whole is higher than the rapidity of the evolution of the proteins. A possible explanation for this paradox is in the supposition that evolution of the whole organism is basically determined by changes not in the structural genes but rather in the regulatory." Also relevant to this question are W. Grant's (1980:290) conclusions: "Genes that determine proteins, contrary to widespread opinion, can never be viewed as an adequate selection from the genotype Using only molecular methods, we are not able to approach an understanding of the important—from the adaptive point of view—morphological, ethological, and behavioral differences between man and chimpanzee." Concerning the matter of ethological similarity between the chimpanzee and man, which, in L.A. Firsov's (1992:8) opinion, "will undoubtedly permit reducing human arrogance about his exclusivity," it should be noted that still greater similarity can be traced, for example, between man and hyenas (*Lycaon pictus*), dogs, and even ants. Among some kinds of ants, for example, slavery has been recorded. What next? But just the similarity itself, as much as one might think it convincing, far from always permits the determination of evolutionary kinship. For this, it is first necessary to establish that supporting it are homology (similarity based on kinship with a common ancestor) or analogy (similarity, not inherited from a common ancestor but rather acquired as a result of convergence).

In order to understand how cultural evolution appeared on earth, it is necessary to devote primary attention to facts that distinguish it from—but do not merge it with—biological (organic) evolution. The unique specificity of cultural evolution in the first instance is defined by evolving knowledge (at first technical and then scientific-technical), by a change of behavior (which in biology is called ethology) without a change in the morphology of man, by nongenetic memory, by education at a distance, by realization of death, by being the most eurybiontic (physically active) in living nature, by the settlement of the creators of cultural evolution of the whole earth and by departure into the cosmos, and by the reversibility of evolution.⁵

However, most scholars (both adherents to gradualism and to saltationism)—(all are apparently still captivated by the struggle with creationism) prefer to devote primary attention to the similarity between biological and cultural evolution, deriving the second from the first. They emphasize the whole time—citing C. Darwin—the similarity between man and apes. However, even Lamarck, who in 1809 (the year of Darwin's birth), following Buffon, who clearly showed the morphological and ethological similarities of man and ape, notes that it does not explain why man possesses a spirit

⁵ One of the "paradoxes" of cultural evolution is that the higher its "scientific-technical" attainments become, the more defenseless its creators—individual people—become.

and reason. A. Wallace, who created a theory of natural selection simultaneously with Darwin, also writes about this.

Especially obvious is the failure by many “natural” scientists, as by professionally qualified philosophers, to understand that the appearance on earth of reason, from which cultural evolution began, is a cosmic event such as the appearance of life, visible through their treatment of the earliest stone tools. As a rule, physical anthropologists, primatologists, and biologists of other specialties—occupying themselves with the problem of the origin of man—openly acknowledge the significance of working with tools. For example, M.F. Nesturkh and N.M. Pozharnitskaya (1965:16) note: “The thesis ‘humanity emerged when the first tool was made’ is now accepted by almost the whole scholarly world.” However, for many of them this “acceptance” is only a fig-leaf, as it were, to cover their search for an “intermediate link” in the origin of man in the chain of biological evolution. This is attested to by the following conclusion of a leading physical anthropologist, V.V. Bunak (1980:304): “The first worked stone (uniface chopper) amounts to little more than a simple operation, comprehensive for primates at the intellectual level of the chimpanzee. If the higher apes do not work stones or other objects, it is only because they do not need to.” E. Mayr (1973:37) writes about this:

Our ideas about the evolutionary role of tools over the last decades have undergone sharp changes. At the present time it has been acknowledged that the use of tools and even their preparation is widespread throughout the animal kingdom. In particular, chimpanzees artfully use tools and are completely capable of adapting for their purposes objects around them. Thus, it is not surprising that *Australopithecus*, with a brain no larger than the brain of a human-like ape, made stone tools. The preparation of simple tools evidently did not create strong pressure of selection toward an increase in the size of the brain and does not require substantial restructuring of the front extremities.

If such ideas about the peculiarity of the work activity of man and the working of the brain connected with it are left on hold, the qualitative difference between cultural and biological evolution can never be understood. The chief task of all researchers of the problem of the origin and beginning stages of the evolution of humanity, from our point of view, was, is, and will always be the study of all questions connected with the appearance and evolution of stone tools.

Regarding the study of the working of the brain: one of the main goals is to figure out if cultural evolution is directly connected or not—especially its scientific-technical progress—with reorientations of the structure and function of the brain and how it is possible with this or another answer to explain the evolution of reason. And, in general, the question arises, Did reason evolve from the moment of its appearance on earth, or did only the amount of knowledge increase without perfection of reasonableness? It is doubtful that there are now any reasonable people, except some certified doctors of philosophical science, who consider themselves wiser, for example, than thinkers of Ancient Greece, who lived 2,500 years ago. Attesting to the amount of knowledge and the degree of reasonableness that humanity possessed before the emergence of writing, in the first (and possibly only) instance, are the products of its activity, and they are embodied in archaeological remains.

From our point of view there is only one science that, relying on concrete facts, can possibly study the preliterate history of humanity and reveal laws and regularities, on the bases of which cultural evolution was carried out over 99.98% of its temporal course. This science is archaeology. The potential of archaeology and the tasks standing before it are enormous. Nevertheless, having begun to be occupied with archaeology in 1953 and having taken part in archaeological expeditions for 47 years (Figure 3), we are unfortunately forced, in spite of the admiration of several of the outstanding discoveries of our colleagues, to state that archaeology is perhaps the only fundamental science, whose significance has not been understood up to present, and indeed its potential has remained largely unrealized. Why is archaeology, especially its divisions that are occupied with the study of the Old Stone Age, which embraces 99.96% of all of preliterate history of humanity (from 3–2.5 million to 10–6.5 thousand years ago), found in such a position?⁶

The chief reason is in the overrating by archaeologists and other researchers—who use archaeological data for various constructions about the origin and evolution of humanity—of the completeness of the archaeological chronicle, which must be evaluated both in relation to time and in relation to space. Many of them do not understand that modern archaeology (especially Paleolithic studies) finds itself, with regard to knowledge about what sites of preliterate history are concealed in different geological deposits of the anthropogene, at the level of pre-Columbian geography.

With regard to taxonomy, classification, and systematics of archaeological sites and archaeological cultures (even those known at the present time, and however many will yet be discovered ...), archaeology finds itself at the level of pre-Linnaean systematics of the plant and animal world; Our science barely approaches phylogenetic classification of archaeological cultures, and indeed then only for some cultures and some regions.

Considering that each archaeological culture (a culture can be tentatively compared taxonomically to a biological species, local variants of culture to subspecies, and cultural communities to genera) Should have its own special area, without which the totality of sites composing it cannot be considered a culture proper, an independent division—geoarchaeology—should be marked off in archaeology that would correspond in its significance to “biogeography.”

In order to understand the regularities of the appearance and evolution of the biosphere, biologists strive to create an evolutionary or phylogenetic system of organisms of all taxa from kingdoms to species. It is acknowledged that, for a description of all biological taxa their areas are such important indicators as the morphological, physiological, genetic, ethological, and ecological characteristics of organisms. Acknowledgment of this fact led to a division of biological science proper—biogeography—which studies the regularities of expansion and distribution over the globe of communities of living organisms and their components—species, genera, and other higher taxa of microorganisms, fungi, plants, and animals.

The fundamentals of biogeography began to be formed from the end of the eighteenth through the first half of the nineteenth centuries, mainly owing to numerous expeditionary investigations of flora and fauna in various lands. Botanical geography (geobotany) and zoogeography are distinguished in modern biogeography, and these include areal, regional, ecological, and historical divi-

⁶ See Footnote 3.

sions. Most biologists believe that biogeography depends largely on the theoretical foundations of systematics, since without clearly defined biological taxa it is naturally impossible even to pose the question of their areas. Even more, any changes in taxonomy and systematics also involve changes in biogeographical structures. At the same time it is acknowledged that new finds of fossils often sharply change ideas about centers of origins of various phylogenetic lines of vegetation and animals.

Geoarchaeology, which corresponds in importance and by its chosen tasks to biogeography (especially its areal and historical divisions), should never be confused with the “geoarchaeology” that combines archaeology not with geography but rather with geology. Archaeologists love to use this term—especially those who obviously do not understand that archaeology without geology (especially its stratigraphic division) does not exist—since all archaeological objects, even surface materials, are always connected with different geological deposits.⁷ Such archaeologists are accustomed to studying one archaeological site or group of sites located in a small region, preferably close to settled areas, their whole lives. As a rule they are not interested in the unstudied regions. Therefore they occupy themselves with “term creation” (inventing various names such as “geoartifacts”), which allegedly justifies their “mini-expeditionary” geoarchaeological investigations. For more than 120 years such “geoarchaeologists” have studied the archaeology of the village of Kostenki on the Don, and for more than 70 years the archaeology of the village of Mal’ta in southern Priangar’e. At Kostenki and Mal’ta they have acquired splendid materials, worked out the stratigraphy of the sites, and separated distinctive cultural complexes. However, without defining the areas of these complexes it is impossible to consider them archaeological cultures of full value. In addition, “the most significant” as it is commonly believed, for Russian Paleolithic investigations those conducted at Kostenki create more questions than they answer. The main question is: Where was the tradition preserved, and thus its creators? For example, where was the Streletskaya culture when its traces are not recorded at Kostenki? Researchers of Kostenki not only provide no answer to this question, they don’t even raise it. And they neglect to raise it because for an answer it is necessary to carry out broad-scale investigations. Moreover, A.N. Rogachev and M.V. Anikovich (1984:180, 181) note: “At Kostenki, sites of the Streletskaya culture were revealed in an insignificant area As a consequence of insufficient study of the remains of the Streletskaya culture on the Don, data about the characteristics of the domestic activity of its bearers is minimal.”

Without geoarchaeology and the creation of detailed archaeological maps for the defined historical periods of the whole world, we cannot know when or where people appeared on earth or how they opened up our planet. Nor can we create a phylogenetic classification of early cultures; that is, we cannot study the evolution of humanity—noogenesis—at the level of all the requirements demanded by fundamental science. Finally, perhaps, the time has come to understand that many of our “fundamental” ideas about the preliterate history of humanity (especially about the place of humanity’s original homeland, the stages during which man opened up various regions, paleodemography,

⁷ It should be mentioned to these archaeologists that even V.A. Gorodtsov (1908:10) notes: “A special method that can be called geological-archaeological exists for the extraction of information regarding the relationship of early sites to the soil.” To this method, which corresponds in paleontology to stratigraphy and taphonomy, should now be added the method of cryoarchaeology. This method is necessary for a qualified investigation of archaeological sites located in the modern and “fossil” cryolite zone.

centers of racial and cultural genesis, migrations and autochthonous development, synchronicity and asynchronicity, and so on) are based not on knowledge but rather on our lack of it.

The development of our science is also significantly impeded by the lack of an international code of archaeological nomenclature similar to those that exist for geology and biology. Besides an archaeological code, for the successful development of archaeology it is necessary to have national and international committees, where archaeological stratotypes would be adopted—that is, type sites for distinguishing separate archaeological cultures. Without all of this, archaeology (in spite of the “principle of priority” and the “rule of distinguishing new sites”) is almost annually “enriched by new archaeological cultures,” which are frequently either part of already known cultures or even simply “archaeological monsters” (i.e., a mixture of diachronic and multicultural remains).⁸ Belonging to their number, for example, are the appallingly well-known Gromatukha, Novopetrovsk, and Kondon “Neolithic cultures” of Priamur’e. No less disconcerting is the appearance in science of falsifications—intentional (Piltdown and the “Acheulean finds” of S. Fudzimura in Japan) and, perhaps, unintentional (the “culture” of Kafu, Ulalinka, and Filimoshki)—created not through “evil intention” but out of a lack of basic knowledge of the technical-typological indices of stone tools, which, owing to the ranks and offices of their creators, sometimes “prosper” a long time.

Many misfortunes in our science can be explained as improper preparation of archaeologists in various institutions of higher scholarship on historical faculties. There the students study much that is essentially unnecessary for them in their independent archaeological work. At the same time, they do not receive the elementary knowledge about the fundamentals of geomorphology and geology, without which they cannot become good field researchers. Future archaeologists do not receive even elementary knowledge about the basics of biology, especially about the natural laws dealing with the formation of species; the various forms of selection; the different types of areas—biogeography, ethology, biological taxonomy, systematics, classification, and nomenclature; the leading signs of convergence, analogy, and homology; and so on. Without all of this it is very difficult for an archaeologist to deal with the systematics of procured artifacts, cultural genesis, and the clarification of regularities and laws of cultural evolution.

The overrating of the possibilities of our science by archaeologists brings great harm to archaeology. Some leading archaeologists even come to far-reaching conclusions, allegedly supported by facts, which in fact do not increase the significance of archaeology but rather discredit it. For example, P.P. Efimenko (1953:120) writes: “The universality of tools of the primitive human troupe of the Acheulean epoch indicates that there were no divisions of labor at this historic stage, but rather only the most primitive embryos of simple cooperation existed in labor. Prohibitions in the realm of family-marriage relations, of course, did not exist. Entirely free, disordered sexual relations (that is, promiscuity) reigned.”

But can promiscuity really be determined for the Early Paleolithic by stone tools? And what distinguishes, based on substantiation, the views of one of our leading Paleolithic specialists from such views by geologist V.A. Zubakov and philosopher Yu. I. Semenov, who are far from archaeol-

⁸ In paleontology and biology the principle of “priority” is the “right to keep the name proposed for any systematic entity by the first author” (*Geological Dictionary* 1978:2:137).

ogy? Or what can be said about the conclusion of Paleolithic scholar A.N. Rogachev (1969:185): “In the hand axe and crude stone knife of *Archanthropus*, archaeologists see a complex apparatus of material culture created by these earliest people They had a family-clan, and not a troupe form of life.” How, for example, does Paleolithic specialist A.P. Okladnikov’s (1986:16) conclusion correspond to the anthropological data when he states “It is important in principle that approval of the Levallois technique signified a great progressive shift not just in working stone It also defined substantial changes in the physical structure of man himself, the restructuring of his brain, and the whole intellectual activity ...”?

Successful development of Russian archaeology is impeded by the lack of data banks on all subjects that archaeologists are occupied with in various institutions. This frequently results in duplicated work and the futile expenditure of intellectual activity and financial means. At the same time, this contributes to a “flourishing” in archaeology due to the compilation and plagiarism of random people incapable of independent creative work. Owing to unscrupulousness and pushiness, such “scientists” sometimes occupy leading administrative posts and, remaining innately detrimental, expose our science to great danger. They try most often to mask their incompetence with a large quantity of printed works, usually “written” in coauthorship with their subordinates.

Attempts to politicize our science have significantly discredited it. Along with politicization, the striving by some archaeologists to overestimate the significance of the facts for resolving the ethnogenesis of particular peoples also contributed to a distorted interpretation of the archaeological data. V.S. Titov (1982:89) speaks of this: “In recent years, in world archaeological literature can be observed ... a strong tendency to reduce to the minimum the importance of the movements of populations in antiquity Some nationalistically disposed archaeologists consider it specifically valiant to demonstrate that their people lived in this territory, at least from the time of the Paleolithic.” This tendency in our archaeology is clearly manifested in the works of Okladnikov, who, though not a Tungus nationalist, “clearly” connected their origin with the Paleolithic population of Pribaikal’e.

Blank spots on archaeological maps of various periods and epochs, the incompleteness of the archaeological chronicle, and other weaknesses of archaeology can be explained, in addition to the above-stated reasons, as well as by the absence of a clear understanding of the significance of problems and questions with which, in the first instance, archaeologists should occupy themselves.

II. Paleogeography of the North

Problems of the initial stages of man’s settlement of northern Eurasia and America and the subsequent development there of various human populations are the most important problems, which in maximal degree can contribute to an understanding of the principles of human evolution. What explains the significance of these problems and what kind of relationship to them does the Paleolithic of Northeast Asia have? Before attempting to answer these questions, we must clarify the idea

of “north.” “North,” when we look at it as a habitation site of man, must basically be approached not from the geographic point of view (by the direction of the compass arrow, which indicates direction of the geographic or magnetic meridian) but as a special natural zone that differs from other natural zones by the distinctive conditions for the existence of all life. The most indicative natural factor of the “northern zone” is the subzero average annual temperature. If high mountain regions with glaciers are excluded, all remaining regions for which complete permafrost is characteristic will basically belong, according to this index, to the “northern zone.” The southern boundary of these regions in the Northern Hemisphere, except Northeast Asia, does not extend below 60° north latitude at the present time (Figure 4).

Subzero annual average temperatures and the distribution of permafrost are important indices not only for determining the modern northern “living zone” but also for clarifying when and where it existed in the past. For reconstruction of past (or “fossil”) cold living zones that, based on modern analogies, can be called “northern”—besides the presence of fossil permafrost—no less important are fossil traces of continental glaciers. The earliest of these are presently recorded at the level of 2.3 billion years ago and belong to the “Huronian Glacial Epoch.” It is further believed that they were repeated every 150 million years.

Most studied and important for the problem of the origin and evolution of humanity are the glacial and interglacial “climatoliths” or “climatochrons,” as I.I. Krasnov and K.V. Nikiforova (1973:164) propose to call them, of the last 3 to 2.5 million years. At present it has been established, as Nikiforova et al. (1984:24) note, that “glacial-interglacial fluctuations of the earth’s climate have been characteristic for the last 3.2 million years. Before this time a period of relatively stable climate existed, close to an interglacial. The scale of the glaciers grew, beginning 2.5 million years ago, that is, approximately at the end of the Gauss Paleomagnetic Epoch.”

In Europe, glaciation of this time is called Pretigelensk or Bibersk. For northern Asia it presently has no established name. It is possible that it should be called, at least for central Yakutia, “Diring,” based on the stratotypical cross-section of the Paleolithic Diring Yuryakh site. It is no accident that in recent and very fundamental, work in permafrost studies (*Regional and Historical Geocryology of the World*. Moscow, 1998), it is noted that “veined bodies,” found in profiles of the Diring Yuryakh site, are, the “earliest traces of frozen strata in central Yakutia” (Baulin and Danilova 1998:106).

During the cold climatolith of the anthropogene, the “glacial zone” was increased in comparison with that of the present day. The maximum distribution of glacial cover in the Northern Hemisphere—together with glaciation of the Southern Hemisphere, based on data summarized by A.S. Monin and Yu. A. Shishkov (1979:290–292)—was three times that of the present day and covered 30% of the dry land, or 45 million km². In the Northern Hemisphere the area of glaciation was 13 times that of the present day. During the glaciations the sea level was lowered substantially. It is believed that during the last glaciation (the Wurm in Europe and the Zyryansk-Sartan in northern Asia), when sea level was lowered 130 m below the present mark approximately 20,000 years ago, about 27 million km² of mainland shelf was laid bare. Part of this shelf was covered by an ice sheet, bringing the total area of continental glaciation to approximately 55 million km².

Based on the data of many researchers (e.g., E. Derbyshire [1982:129]) the “glacial zone” reached 50° north latitude in Eurasia and 40° north latitude in North America (Figure 5). “Outside of the glacial zone,” writes Derbyshire, “a subpolar and periglacial zone of tundra-steppe vegetation penetrated to central Italy.” The penetration of a “wave of cold” to the south, into the Mediterranean region, is attested to by the presence of the arctic fox in the Middle Paleolithic cave site of Geula B with a date of about 42,000 years. I.I. Korobkov (1978:65) notes that this “speaks of a cold (even severe) climate” for Palestine south of 35° north latitude. In light of this fact, the finds of mammoth remains in Middle Paleolithic Crimean sites (Kolosov 1986) are not at all surprising. V.P. Lyubin (1984) writes about “traces of early glaciations” and “frost-cleaving action” on the surface of Paleolithic tools from southwestern Turkmenistan. The distribution of the cold zone during glaciations in southern East Asia is convincingly attested by fossil finds in China of the mammoth and the woolly rhinoceros, whose distribution is clearly noted to 35° north latitude, and according to some data even to 32° north latitude. In North America, finds of mammoth remains are known in large quantity in the Great Plains. B. Schultz (1973:11) notes: “The woolly mammoth (*Mammuthus primigenius*) spread as far south as southern Nebraska during the glacial epoch.”

Most often, finds of “northern fauna,” whose upper Pleistocene complex is usually called “mammoth” (though Kal’ke [1986:5] notes that within the “framework of association of *Mammuthus primigenius*/*Coelodonta antiquitatus*” it is often “impossible to distinguish” early [Riss] from late [Wurm]), are connected with territories where permafrost is recorded. N.N. Romanovskij (1980:20) writes about the distribution of permafrost in the Anthropogene: “Of the whole region of the globe, approximately 25% of the dry land [including high-mountain regions.—Yu. M. & S.F.] was constantly in a frozen state. And during this epoch of great glaciation and cooling of the climate, the area occupied by permafrost increased nearly twice.” In Europe the southern boundary of the ancient permafrost is recorded to the Black Sea, Carpathians, and Alps (Figure 6), and in Asia almost to the Caspian Sea, northern Kazakhstan, and at least to the right bank of the Yellow River.

Many paleogeographers and paleontologists believe that the formation of the so-called periglacial zone, a characteristic feature of which is tundra-steppe landscape, is connected with glacial cover and permafrost. However, M.N. Karavaev and S.Z. Skryabin (1971:29) note: “The previously widespread opinion of scholars, that periglacial regions allegedly represented immense expanses of forestless tundra and steppe, turns out to be unreliable. Researchers have recently pointed out that, with the exception of the most northern regions, forests grew everywhere, even in the mountains near the edges of glaciers.”

In this regard, the following conclusion of one of our greatest geographers, I.P. Gerasimov (1985:175, 176), is important:

We want to emphasize and develop the view of central Yakutia as a territory that, unlike other regions located at this same latitude, preserves up to the present time a postglacial character in many of the features of its present climate, geomorphology, soils, vegetation, and so on. From the historical-geological point of view, this territory should be seen as an exceptionally interesting paleogeographic relict Apparently, all the remarkable features

of nature with a postglacial character (permafrost and icing, solifluction and thermokarst formation, cryophilic larch taiga and open steppe) were preserved in northeastern Siberia in significant degree by virtue of the preserving role of the severe climate of these territories.

Gerasimov adds to this conclusion: "During the first publication of this book (1952) the coldest region on earth was thought to be that part of northeastern Siberia located 'near Oimyakon village. Later, the global cold point was 'shifted' to Antarctica, but within Eurasia it continues to be located in the indicated region."

Regarding the location of the cold point of the Northern Hemisphere, so important for the understanding of the possibilities of man's mastery of a cold adaptive zone, it is necessary to make several additions. N. Ya. Filippovich (1972:53) writes: "It is more correct to consider that possibly several cold points existed (not just one or two), which were located in the large region between the upper reaches of the Yana and Indigirka Rivers and the lower reaches of the Aldan River. It is in this region that a core of high pressure occurs during the winter period, called the Verkhoyansk minimum Often this region of high pressure also embraces Yakutsk, causing especially low temperatures there."

One more important addition is needed for a reconstruction of paleogeographic conditions in Yakutia: "The shift of the arctic coast far to the north during the course of the cold stages," writes A.A. Arkhangellov et al. (1996:100), "led to a change of the relatively mild local maritime climate to a severe continental one similar to today's climate of the interior regions of Yakutia, According to reconstructions by I.G. Aveharius, M.V. Muratova, and I.I. Spasskaya, the average January temperatures for Yakutia 18,000 years ago were 10 to 15° colder than today."

With the examination of the position in Yakutia of the northern cold point, and this natural phenomenon's significance for studying the problem of a nontropical homeland for humanity and the earliest stages of man's settlement of Northeast Asia and America, it is necessary to note briefly some connections to these circumstances. First, of course, this question must be answered: When were natural conditions formed in Yakutia that contributed to the appearance there of the northern cold point? Geologists, permafrost specialists, and paleontologists believe that the cooling in Northeast Asia, and in Yakutia in particular, is already well recorded for the Pliocene. For example, Yu. P. Baranova and S.F. Biske (1968:110) note: "The northeast was the region of the earliest development of a temperate, later cold-stable arctic, in particular of a tundra flora, from which it spread into periglacial zones of Eurasia."

G.I. Lazukov (1973:73–76) writes even more assuredly,

The most distinctive paleogeographic event to exert great influence on the flora and fauna occurred at the end of the Neogene. This was a time of great regression. As a result, the continental shelves were dry. A huge, high-latitude landmass was formed, its coastal zone spreading 1,000 to 1,200 km north of the present one The climate over the vast expanse north of the continent must have been continental and severe at this time (especially in northern Asia, the continental nature of which must have been maximal). Under the conditions of high latitude, the icy nature of the basin, and the presence of a huge landmass

with a continental climate, perennial permafrost must have been formed. Its appearance must have greatly influenced the flora and fauna, and the landscape in general The time of formation of arctic flora and fauna must be considered the second half of the Pliocene—beginning of the Pleistocene.

Paleontologist A.V. Sher (1976:239) has devoted much attention to the paleogeographic conditions of Northeast Asia. He notes that from the Taimyr to the mouth of the Mackenzie, beginning with the Pliocene and throughout the whole Pleistocene, during cold climatic stages a “huge massif of level dry land” existed, which—along with the present skirting lowlands of Eastern Siberia and Alaska—should in his opinion be called “Beringida.” “Over the extent of the whole Pliocene,” he writes, “a cooling developed in high latitudes, resulting by the late Pliocene in the formation of tundra vegetation and fauna of subarctic type.” In connection with the progressive cooling of the Holarctic climate in the late Cenozoic, “Beringidan” animal species are able to move to temperate latitudes. Sher concludes:

The most recent data on the fossil fauna of Beringida corroborate A. Ya. Tugarinov’s hypothesis of the autochthonous formation of cold-stable fauna in this vast northern land. Beringida is an independent zoogeographic entity, the fauna of which had a long and distinctive history and played the most important role in the development of fauna of the whole Holarctic in the late Cenozoic. Therefore, it is necessary to view Beringida not as a land bridge, across which mammals passed from Asia to America, but rather as the region of formation of a distinctive fauna, whose representatives moved into both the Old World and the New.

We are in complete accordance with Sher’s view, with but one reservation. It is definitely necessary to include the continental region of Yakutia that was not covered with glaciers, was not trampled down, and possessed the lowest temperatures in the region of Beringida. It is this region that also could have been the primary center for the formation of the distinctive “Beringidan” faunal complex.

At the present time fairly reliable data have been obtained regarding when natural conditions similar to the present day were developed in Northeast Asia. Geocryologists A.A. Arkhangelov, D.Y. Mikhalev, and V.I. Nikolaev (1996) have established that, at least in Northern Yakutia, the permafrost has an age of 3 to 3.4 million years and that, beginning at this time, here existed no less severe climatic conditions than the extreme conditions of Zyryansk and Sartan times.

Upon examination of the location of the northern cold point, many archaeologists often ask the question: “Was it always found in Yakutia throughout the Anthropogene?” This question was answered long ago by K.K. Markov (1965:262): “If wandering of the cold points occurred,” he writes, “then it did not exceed 5 to 10° during post-Eocene time. Therefore, the position of the northern cold point in the quaternary period, somewhat different than it is now, could not have influenced very sharply the physical geographic conditions of the northeast or other regions.”

Based on the data of various sciences it has been clearly established that, as Markov writes (1965:238), “the most continental climate on earth” was characteristic for Northeast Asia, especially

for Yakutia. He also notes: “Eastern Siberia has the warmest summer in these latitudes, the coldest winter, the lowest precipitation, and the highest annual amplitude of temperature.” It is very interesting, though it might seem paradoxical, that precisely in Yakutia, with the cold point located there, a few distinctive natural phenomena are noted that aid in the understanding of how man could have existed under these conditions.

Yet at the beginning of broad-scale work in the study of nature in Yakutia, the outstanding Russian biogeographer and zoologist A. Ya. Tugarinov (1927:225) notes: “In the meridian of Vilyui we observe one of the most interesting occurrences of the distribution of animals in all of northeastern Siberia, namely the increase in the northern borders of their habitation.” He thought that this could be explained “by deep penetration to the north along the Lena valley with areas adjacent to it of conditions not typical of the surrounding regions, which create in the circle of the taiga oases of a steppe character” (Tugarinov 1927:229). The following conclusion by botanists M.N. Karavaev and S.Z. Skryabin (1971:69) about the vegetation of the “Yana-Kolyma mountain country” also contributes to understanding the adaptation of man to super cold conditions: “At these latitudes (63° north latitude),” they write, “nowhere on earth are forests encountered so high on mountains.”

For an explanation of all the factors that influenced the life of man under the conditions of Northeast Asia and contributed to or hindered the advance of people from there to America, the shelves surrounding this region are very significant. They were dry during cold climatic periods and provided the dryland connection between the two continents. We have already gone over the necessary facts about the northern shelf, which extended from the Taimyr to the mouth of the Mackenzie. Now it is necessary to examine some facts about the Pacific Ocean shelf located in the Bering Sea region (Figure 7).

Many archaeologists, physical anthropologists, and ethnographers assign precisely to this periodically dry region, called Beringia, “the resolving role” on examination of the problem of the settlement of America by people. However, they completely ignore the conclusions of several researchers that do not suit them. We will cite some of them. S. Ya. Seregin and M.S. Shcheglov (1973:69) note: “In southern Beringia, close to the Pacific Ocean, cool summer, an abundance of precipitation, and deep snow cover was observed [during the Pleistocene.—Yu. M. & S.F.]. In combination with a deficit of solar radiation and with strong winds, this was not favorable for the appearance of forests, productivity of cereals, or the existence of animals and man.” M.G. Grosval’d and Yu. I. Vozovik (1982:82), also write about this:

Based on our hypothesis of global cooling in the Pleistocene in the southern part of Beringia, complex glacial cover of an area of about 2.8 million km² repeatedly emerged; it consisted of a 1.25 million km² glacial shelf, as well as of land and ‘sea’ glaciers of the surrounding dry land and shelves, including chains of icecaps in the Aleutian and Commander Islands The primary areas of ice-free land north of the Bering Strait and were separated from the Pacific by three rows of icy ranges. These protected the extreme dryness and other features of the paleoclimate of Beringia.

III. Cold Climates and Human Origins

Many geologists, paleogeographers, paleontologists, and biologists (neontologists) find important significance in the influence of cold on all organic evolution in the study of cold periods in Earth's history. For example, B. Dzhon (1982:9) writes: "Glaciations were accompanied by extinctions of a large number of species of plants and animals. Many species, under the influence of mechanisms of 'glacial stimulation,' had to adapt to severe and quickly changing climatic conditions, and with this the species diversity of organisms increased. If man can be called a product of the present glacial period, then many other species by analogy should be considered products of more ancient glacial periods."

Darwin (1952:376) wrote as early as 1859 about the important significance of cold, "the more active productive centers of the north," and tendencies of various species of plants and animals to move "from north to south, and not in the opposite direction." With regard to the original homeland of humanity, he adhered to another view. Relying on the morphological similarity of man with the gorilla and chimpanzee, he placed this homeland in the south—in Africa or some other "hot country," of which he wrote in 1871 in his work *The Origin of Man and Sexual Selection* (1953:265). Many of Darwin's followers, as he himself, have not given special significance to an African location for the original homeland of humanity. Primary for them was the morphological similarity of man with various species of humanoid apes and their ecology, connected with a tropical or subtropical climate.

E. Gekkel', one of the greatest Darwinists of his time, hypothesized as early as 1876 the place of the original homeland for humanity as southern Asia. He believed that man was morphologically closer to the gibbon, rather than to the gorilla or chimpanzee. Based on these assumptions, he believed that a land was once located in the Indian Ocean that stretched from Indonesia along southern Asia to the east coast of Africa. "This large land that once existed here," he writes, "which the Englishman P.L. Schlater called—owing to the characteristic semi-apes that lived on it—Lemuria, was perhaps the cradle of the human species, which developed here from anthropoid apes" (Gekkel' 1914:256).

Another adherent of the tropical concept was F. Engels, whom the majority of Soviet anthropologists consider the creator of the "working theory of anthropogenesis." Following Gekkel', he writes in 1876: "An unusually highly developed species of humanoid ape lived somewhere in the hot zone—in all probability in a huge land that is now at the bottom of the Indian Ocean. Darwin gave us an approximate description of these our ancestors. They were completely covered with hair, had beards and sharp-pointed ears, and lived in troops in the trees" (Engels 1987:144). These views of Engels probably had considerable influence on the ideas of most Soviet archaeologists, physical anthropologists, and ethnographers regarding the placement of the original homeland of humanity in a hot (thus not in a cold) zone of our planet.

In 1871 M. Vagner (Mochanov 1992:150–160) hypothesized a nontropical original homeland for humanity that was located in a cold zone. This in fact was an alternative to the Darwinian hypothesis or concept, just as there is a fundamental difference in the significance of "disputes" between adherents of different variants of the "tropical concept" or between the adherents of the "tropical"

and the “nontropical” concepts. Many arguments in Vagner’s concept (the ecosystematic approach, sharp changes in the environment and change in the adaptive zone, geographic isolation, hunting, meat food, fire, tool making, collective work, and so on) were used and are now used, and most often without reference to the author, by adherents of the different variants of the tropical concept.

In distinction from Darwin and other adherents of the origin of man in a hot zone, Vagner devoted chief attention to the influence of the sharp restructuring of the surrounding environment toward cooling in the origin and evolution of man. “It is amazing,” writes Vagner,

that Darwin in his most recent book [*The Descent of Man*, 1871—Yu. M. & S.F.] does not mention the influence that the advance of the glacial period undoubtedly must have rendered on the development of man The continuation of a paradisiacal life in the always-green, fruitful forests became impossible for Pliocene anthropoids of Europe and northern Asia with a gradually cooling climate. The struggle for existence and work interfered with worldly pleasure, and along with this began the development of thinking Only constant struggle and unbroken labor could perfect such a marvel. Only with the appearance of man in the world is an entirely new epoch in the life of nature begun. This is the epoch of reason and culture.

Vagner did not localize the place of the original homeland in Europe or Asia in any definite regions outside the Tropics. He only notes that it was located in Europe north of the Alps and the Caucasus, and in Asia north of the Himalayas and Kunlun.

At the end of the nineteenth and beginning of the twentieth centuries, Vagner’s concept found resolute adherents, among whom, in the first instance, were I. Muller, A. Quatrefage, L. Vil’zer, and D.N. Anuchin. The last writes (Anuchin 1922:232):

When the theory of the glacial period was established in geology, according to which in the geological epoch preceding the present one a gradual cooling of the climate followed—formerly warm over the whole globe—then it has to be supposed that precisely to this time must be ascribed the development of plant and animal forms of temperate and cold climates. These forms must have emerged in proportion to the whole large cooling of the polar north, in proportion to the spread of the temperate and cold zones at the expense of the tropical zone and the spread ever farther south of the ice cover that was concentrated around the northern cold point. Included in these forms could also have been man, who also must have spread from north to south and gradually settled the vast expanse of Asia, Europe, and America.

The following, for example, attests to the broad distribution of the concept of a nontropical original homeland for humanity in the scientific domain. In 1914, the editor of the Russian publication of Gekkel’s book *The Natural History of World Creation*, doctor of botany from Petersburg University, A.G. Genkel’, notes on the page dedicated to tropical Lemuria as the original homeland

of humanity: “At the present time, ever more and more this view breaks through that man became freed from an animal state under the influence of increased cold during the ice age. Only the necessity to preserve fire, which all animals in general fear, probably forced the humanlike being to actually take up the cultural forms of man” (Gekkel 1914:256).

In general, Vagner’s ideas permeate many works dedicated to the original homeland of humanity. But they are most clearly manifested in the works of adherents to the Central Asian variant of a nontropical concept. The first to turn attention to this was our greatest historiographer of the Paleolithic North, Central, and East Asia, V.E. Larichev (1969:235): “The problem of Central Asia as a distinctive center for development of life on earth,” he wrote, “emerges basically on those same principles from which grew the idea of the special role of North Asia in the evolution of the animal world and man. What is more, the creators of the new theory undoubtedly constructed its fundamental position by borrowing almost completely the principles worked out by Vagner and I. Myuller. The hypothesis developed as if from a preceding theory, at first not separated from it. North Asia is even mentioned in it together with Central Asia, but later its creators completely forget about their predecessors.”

It is remarkable that the concept of a northern origin for humanity is also supported by V.I. Vernadskii (1991:35). “It is possible,” he writes, that “the glacial period, the first ice covering of the Northern Hemisphere, began at the end of the Pliocene, and at this time a new organism was brought to light under conditions in the biosphere that approached severe glaciation. This organism possessed an exceptional central nervous system that led finally to the creation of reason, and is now manifested in the transition from the biosphere to the noosphere.”

Reading the works of Vagner and his followers, one always wonders why, as Laricnev (1981:4) writes, “they became the domain of the history of science a long time ago” and not its modern weapon? Perhaps it is possible to deliver the hypotheses into the archives of science only because there are no facts to substantiate them? In general, do we have many facts for outlining the specific area of aboriginal humanity? Indeed, up to 1891 there was no *Pithecanthropus*, but Gekkel’ anticipated its discovery; before 1960 there was no *habilis*, but L. Leakey believed that it existed. Vagner also believed, of course, in facts, which in the future will confirm his hypothesis.

Facts in archaeology and paleoanthropology are not only “stubborn things” but also are often “unrealized hopes.” It is necessary to search for them and find them and to add the very difficult work of excavation, that is, highly skilled excavation. In order to reject a scientific hypothesis, if it does not contradict the basic postulates of science, one must not refer to the absence of facts but rather to find facts, indisputable facts, that would refute this hypothesis. Meanwhile, if this is not done, any hypothesis has the right to exist. The concept of a non-tropical origin for humanity was turned aside, not because it contradicted the ideas of general regularities of development of the organic world but because no facts were found that would confirm it.

Characteristic examples of the “critique” of Vagner’s concept can be found in the works of biologist-primatologist M.F. Nesturkh and Quaternary geologist I.K. Ivanova. “The hypothesis of a North Asian homeland for humanity of Vagner-Myuller cannot be rejected in orderliness and coherence,” writes Nesturkh (1964:16).

Of special interest is the attempt to connect the transition from anthropoids to man with an increase in the unfavorable influence of a cooling of the external environment and the necessity of a special course of adaptation of a poorly protected organism to the use, and then the creation, of tools and weapons. However, this hypothesis also encounters objections. Throwing of objects is not characteristic for apes. In northern Asia the remains of humanoid apes have not been found [though they were not even sought here.—Yu. M. & S.F.] On the whole, Vagner's hypothesis bears a somewhat mechanical tinge.

I.K. Ivanova went even further. She believed, altogether, that facts favoring Vagner's hypothesis not only were not found but could not be found. "The hypothesis of a North Asian homeland," writes Ivanova (1982:135), "was connected with glacial theory—the appearance of man owing to sharp changes in the natural environment, which forced the inhabitants of a tropical forest to radically change their way of life and to lead a fierce struggle for existence Naturally this hypothesis could not be corroborated by any factual material." Many question marks could be placed here, especially regarding the word "naturally." Concerning the tropical concept, it is not so blameless from the point of view of evolutionary theory and is based chiefly on very effective—but far from convincing facts—as they are seen by the majority of researchers.

It is no accident that up to now there are no convincing answers to the question: What were the primary moving forces of transformation of any species (all species?) of primate into man? No one contests the position that work created man. But why did *Dryopithecus*, *Ramapithecus*, *Australopithecus*, or any other ancestor of man begin to work, constantly perfecting tools? This is the question of all questions. Meanwhile, science has only various versions of the answer to this question.

Meanwhile, the most important aspect of the problem of the origin of man is determination of the place (places?) where this event occurred. The extremely fragmentary archaeological, paleoanthropological, and paleontological finds, as well as paleogeographic data, do not yet permit definitively outlining the original homeland of mankind—even though some researchers do outline it. All constructions in this regard are at present only in the hypothetical stage. Therefore, forgotten hypotheses of concepts of a nontropical homeland for humanity have no less right to existence than, for example, hypotheses about an African homeland.

The practical significance of a nontropical concept is also great for the medical-biological problem connected with the study of ecological-physiological features of man's adaptation to environments of the north. Accepting the position of physicians that "adaptive remembered structural traces have important biological significance" and that the "idea of the adaptive features of man ... is necessary to lay at the base of the thinking of each physician" (Agadzhanyan and Petrova 1996:9), we should acknowledge that without study of the history of the formation of the northern adaptive type its perception cannot be sufficiently complete.

Perhaps medicine, having realized the significance of stress and cold for the formation of the gene pool of humanity, will find new approaches to the treatment of people and will create a new direction—cryomedicine.

The study of all aspects of the possibilities of the biocultural adaptation of man to natural conditions of the north becomes especially crucial because of the approaching demographic crisis of humanity. The subtropical and temperate zones of the earth become more and more overpopulated. Before very long, the peoples of such countries as Russia will have to realize that the huge unoccupied northern territories were not only and not so much a raw material base but rather a region that it is necessary to become completely adapted to and become its permanent residents. Ideas about the “comfort” and “discomfort” of life in the north must radically change. The study of the history of settlement and mastery by man of the north can play a major role in this, especially in that region where the cold point is found.

Based on modern views, the north zone is among those that create the greatest discomfort for the habitation of man. Various maps show which regions are favorable and which unfavorable for human life. On D. Khorrabin's (1924:12) map practically all of the cryolithic zone of the Northern Hemisphere is described as a “region in which man either cannot live at all or lives under very difficult conditions” (Figure 8). On his map Yu. P. Parmuzin's (1981:52) assigns almost all of northern Asia east of the Yenisei to “continental” or “sharply continental” climate zones (Figure 9). Parmuzin (1981:56) writes: “The sharp continentality of the climate and the fierce frost ... require from man, who arrives here from more favorable places, special training. Not everyone can adapt to a drop in temperature and atmospheric pressure, to the sharp difference in light and long ultraviolet deficiency.”

On a map of the “Comfortableness of the Territory of the USSR by the Degree of Favorableness of Natural Conditions for the Life of a Population,” which L.V. Maksimova (1979:61) published, all of Northeast Asia is assigned to regions of “little favorable” and “not favorable” for life (Figure 10). With an examination of the different factors of “anthropoecological conditions” of comfortableness, Maksimova (1979:60) notes that the presence of man's adaptiveness to a new environment of habitation is determined largely by his adaptiveness to the former environment of habitation. She further emphasizes (Maksimova 1979:64): “The situation of stress can be created not only as a result of excessively unfavorable conditions of the environment but also in connection with the perception that it is extremely unfavorable.” This conclusion is important for understanding how in the history of humanity different migrations from “favorable” regions to “unfavorable” ones could be carried out; this is especially important for an examination of the problem of the settlement by man of the north. Even more significant is the following conclusion by L.V. Maksimova and E.L. Raikh in “Extreme Natural Conditions of Life” (1979:80): “Analysis of the problem of man's adaptation to the environment shows that its most important constituent is adaptation to unfavorable natural conditions. Precisely this form of adaptation serves as the chief moving force, which activates the work of biological and nonbiological mechanisms of adaptation.”

It is interesting to note that the same conclusion about the influence of the climate of central Yakutia on the health of man had been made in the nineteenth century by the German scholar G. Hartwig in *Nature and Man in the Extreme North*, published in Russia in 1866. In it Hartwig (1866:167, 168) writes: “It is asked how man bears such severe cold. Amazing acclimatizational capability gives him the possibility of coming out of the struggle victorious Not only native Siberians but also travelers quickly become accustomed to winter cold Great cold is tolerated

by the fact that it acts on the health more favorably than detrimentally.” It is remarkable that this conclusion was made by Hartwig at almost the same time as the appearance of Vagner’s work on a nontropical homeland of humanity. However, in the scientific circles of “civilized” countries located in temperate and subtropical zones, the opinion of the unfavorable influence of cold on man and of cultural backwardness among northern peoples prevailed. This traditional opinion goes back to the early Greeks, Romans, and Chinese. In Europe it finds its beginnings in the works of Herodotus, Strabo, and Ptolemy.

The ideas of scholars and laymen about unfavorable northern conditions for the life of man have probably been influenced by the stories of various travelers regarding their impressions of circumpolar countries. The Russian mariner and traveler F.P. Wrangel, who worked in Yakutia from 1820 to 1824, expressed them very graphically. He writes (Wrangell 1948:136): “How did man get here? What could have lured him here, into the grave of nature? In vain will we look for an answer to our question: no monument, no legend speaks of what was in the past.”

In 1775 I. Kant, in “On the Different Races of Men,” notes that the “band of the earth between the 31st and 52nd degrees of latitude” is the most favorable for life of man. He thought that people moved into the north “relatively recently from lands with milder climates” and that cold contributed to the “expiration of life forces” (Kant 1964:2:449,456, 459). The clearest ideas about the “nonhistoric character” of northern peoples were expressed by G. Hegel in lectures on the “philosophy of history,” which he delivered at Berlin University between 1818 and 1831. Examining the history of different countries in Asia, Hegel (1935:94) noted: “Above all, the north slope—Siberia—should be noted. This slope, beginning in the Altai mountains, with its beautiful rivers falling into the Arctic Ocean, is on the whole not in the least interesting to us here since the northern zone lies outside history.”

Among Soviet archaeologists who were convinced of the negative influence of natural conditions in the north on the lives of people was A.P. Okladnikov. Speaking of the ancestors of all the peoples of Northeast Asia, he noted: “Over the course of time all these tribes—ancestors of the most recent Eskimos, Chukchi, Koryak, Yukagir, and Evenk—having reached a certain level in their adaptation to the surrounding realities, are as if this exhausted all their strength and possibilities. They reached some kind of deadlock” (Okladnikov 1943:54). He had the same pessimistic view in relation to the Yakut people. “The Turkic colonists moved to the north,” Okladnikov (1943:72) writes, “forgot about bread, and for hundreds of years lost former agricultural skills. They lost their camels and herds of sheep. The curve of their economic life dropped sharply. The old trade connections were broken. The direct routes by which influences from the foremost countries of the east penetrated were cut Thus, the pulse of cultural development gradually began to die away under conditions of isolation from related tribes and the cultural centers of the world. The twilight of the Arctic night covered the ancient culture.”

Okladnikov demonstrated especially clearly his relationship to northern peoples in his answer to A. Ya. Bryusov in his review of the monograph *The Neolithic of Baikal*. In it Okladnikov (1952:201) wrote: “Taking completely into account the peculiarity of the historical course of northern peoples that has defined their backwardness, avoiding any kind of unfounded exaggeration of their modest historical role and relatively limited cultural-historical merits, I do not believe that I have the right

to deny them—*this part of humanity that was illfated in the past* [emphasis ours—Yu. M. & S.F.]—recognition of the right to adequate participation in history.”

Thus, pretentiously declaring himself from all platforms the champion against assignment of northern peoples to “nonhistorical,” Okladnikov in fact presented the strongest argument

(since he was ostensibly supported by archaeological facts) in favor of the ideas of Hegel and others that the northern peoples were found “outside history.” All Okladnikov’s subsequent activity after completion of work in Yakutia attests to the recognition that in his heart he shared this opinion. From 1947 to the end of his days (1981) he preferred to work in southern Siberia, the Far East, Mongolia, and Central Asia—where, according to his ideas, it was probably possible to find traces of “historic peoples.”

Despite the fact that Okladnikov—after his defense in 1947 of his doctoral dissertation on the ancient history of Yakutia—turned from archaeological investigation of northern regions, he recalled with pride his work there during the years of World War II: “It is impossible to forget,” wrote Okladnikov (1950a:23),

that there stand before researchers special difficulties connected with the specific conditions of the extreme north: with its colossal territorial expanse and sparse settlement, with its severe climate and impassibleness. Simple archaeological survey in the tundra or along the great Siberian rivers is often transformed there into a scientific feat, and even with stationary investigations very unexpected and insuperable difficulties of another order sometimes occur. It is sufficient to remember, for example, how much of a hindrance permafrost is No less important are the extremely compressed time period and tempo of the work But all the more valuable is each, even single, site of the past in the north, each fact dug up from the north’s severe and sparing nature.

Okladnikov’s ideas about the negative influence of northern conditions on the life of man are at present shared and taught by his student A.P. Derevyanko, who also prefers to work in the southern regions of Siberia and Central Asia. This is evidenced by his statement about the level of material culture of the Earliest Paleolithic of Diring: “Concerning the archaicness of this complex of stone artifacts: it is made archaic by the especially complex natural-climatic conditions of Northeast Asia” (Derevyanko et al. 2000:217).

Of the physical anthropologists, V.P. Yakimov came forth most sharply against a nontropical origin of man and stressed the unfavorable influence of cold northern conditions on the evolution of humanity. He writes (Yakimov 1951:64): “Substantially greater is the basis for suggesting that in the early stages of the anthropogene, when external conditions and in particular the geographic environment undoubtedly had substantial significance for determination of the tempo and direction of the processes of evolutionary development of hominids, under the best conditions groups of primitive people were found who lived in a milder climate. Contrary to the assertions of some researchers (A. Hrdlička, H. Weinert, and others), the worsening of conditions of habitation, and in particular the advance of the ice age, played a negative role in the process of the anthropogene.”

Yakimov (1951:85) extended this conclusion to the further evolution of people in the transition from the Middle to the Late Paleolithic as well. “Most successfully,” he noted, “the process of evolutionary transformation of primitive people into people unified in ‘clan’ societies originated in the broad expanses of Afreurasia, located outside the sharp influence of glaciers.” In another work Yakimov (1972:52) stressed: “Cooling by no means contributed to the progressive development of man. The severe conditions of life made the physical type of the Neanderthal people cruder.”

We frequently cite in this report rather long quotations from various works “for” and “against” the beneficial influence of cold northern conditions on the origin and evolution of humanity, as well as quotations about the significance of archaeology for this problem, in order to help our readers form their own opinions and in order to somehow contain the spread of compilation and plagiarism. In addition, we would like to bring up the significance of facts and the opinions about these facts for the resolution of various problems. This issue was raised in our science long ago. For example, H. Obermaier (1913:451) writes: “There is no realm in science in which a persistent struggle did not have to be carried out against the substitution of precisely established facts by ‘views regarding them and interpretations of them’—and only by means of this struggle is it possible to be freed from the reign of fantasy and to establish in place of it cold but reliable inductive thinking.” We will examine shortly the question of the facts about times and routes of man’s settlement of Northern Eurasia and America.

One would think the hypothesis of a nontropical origin and the influence of cold on the creation and evolution of humanity, which finds itself in good agreement with the basic positions of modern evolutionary study and is supported by many scholars, would first have to be added to the arsenal of archaeologists who are occupied with the study of the preliterate history of northern Eurasia. Indeed, only their expeditionary investigations could clearly establish whether or not there are indisputable sites of the early periods of the Paleolithic in northern Eurasia that would permit resolving the puzzle of the time of man’s settlement of the north and authorization of the existence of the concept of a nontropical origin for humanity. Unfortunately, this has not happened. And Russian scholars, regarding the problem of the origin of humanity, have become not the leaders but the led.

All archaeologists in our country and abroad, up to the discovery in Yakutia in 1982 at 61° north latitude of the Earliest Paleolithic site of Diring Yuryakh, believed—and most of them continue to believe—that man’s homeland is located in the warm regions of our planet—in Africa and southern Asia (Figure 11)—from where the human population began gradually to move around the earth and reached the cold zone last. With this they have cited and continue to cite the presence in southern regions of the multitude of sites of people of the Earliest and Early Paleolithic and the lack of them in the north, as well as the presence in Africa of fossil remains of the presumed ancestors of man.

The views of various researchers on the origin of humanity are reflected on the map (see Figure 11). With examination of the map it must be noted that, regarding the inclusion of Russian territory in the realm of the original homeland of humanity, V.A. Gorodtsov (1908:184) notes: “Within the boundaries of Russia sites of the early period of the Paleolithic epoch have nowhere been found. It is possible that they do not exist at all, but it is even more possible that they exist but have not yet been found. In any case, both at the end of the Tertiary and at the beginning of the

Quaternary geological periods, the territory of European Russia was an entirely favorable arena for the life and activity of man.” Gorodtsov bases his conclusion the fact that during the time he indicates, which he considers “preglacial,” a warm climate was characteristic of the territory of “European Russia.” Therefore, Gorodtsov can be considered one of the first Russian supporters of the “northern variant” of the tropical origin. Later, practically all archaeologists followed his lead—including the southern territory of Russia, especially the Transcaucasus, in the supposed region of the homeland of humanity. The most extended view of the “northern variant” of the tropical concept is given in the works of Efimenko (1953:89), where he includes in the “zone of possible humanizing of apes” the whole area of the Black Sea and the Sea of Azov, and all the Caucasus and Central Asia up to the Aral Sea in the north.

Our outstanding physical anthropologist G.F. Debets was the last of all specialists to examine the problem of possible inclusion of some regions of the Caucasus, Central Asia, Kazakhstan, and Mongolia in the area of the origin of humanity from the position of the concept of a nontropical homeland. “The desert-steppe zone of Central and West Asia,” he writes (Debets 1952:16), “was not, of course, especially favorable for the spread of primates. The climatic conditions, especially in winter, were evidently already rather severe even at the end of the Tertiary period Therefore, the expansion of the late Pliocene and early Pleistocene steppes and semi-desert in Central Asia does not at all oblige us to expect the expansion into these same regions of early anthropoids. But, those anthropoids who were for this or that reason in this zone found themselves, according to P.P. Sushkin’s theory, in favorable conditions to develop the biological prerequisites for becoming human.”

Debets’s views had no influence on the frame of mind of specialists who occupied themselves with the problem of the origin of humanity. Most scholars believed that because of lack of facts corroborating a nontropical concept, it was not enough to resolve the problem of the origin of humanity. Soon followed remarkable discoveries by physical anthropologists and archaeologists in Africa, and this continent for a long time attracted the attention of specialists. Disputes between them, if they occurred, were only within the framework of the concept of the tropical origin of humanity. In addition, along with archaeological and paleoanthropological facts, some researchers even try to bring in physiological data to support the tropical concept.

In this connection the following statement by D. Harrison and his coauthors merits attention (1979:74): “All paleontological, archaeological, and even physiological data point to the fact that the evolution of hominids began in tropical regions, located beyond the boundaries of the zone directly experiencing the influence of glaciation It is evident that man was able to become adapted to a cold climate only at the end of the Pleistocene.” It would be most interesting to examine the “physiological data,” since if they were found to be indisputable, then they are a weighty argument in favor of localization of the origin of humanity in a tropical zone. However, in their book, *The Biology of Man*, we were unable to find any very convincing physiological data. It gives the impression that it is not physiology that substantiates the necessity of life of the hominids in the Tropics but vice versa: the existence of hominid bone remains in the Tropics substantiates their physiological predisposition toward tropical conditions of existence.

This paradox is obvious in the works of T.I. Alekseeva (1977, 1986). Dedicated to different adaptive types and the time of their appearance, these works should contain clear biological facts supporting the antiquity of this or that type. The author even brings in a schematic illustration that shows when this or that type emerged (Figure 12). As might be expected, Alekseeva considers the earliest type tropical. From it arise all other types distinguished by her: humid, continental, temperate, high-mountain, and arctic. By what kind of data does the biologist substantiate the antiquity of the “tropical adaptive type”? The author refers to the bone remains of Australopithecines, Oldowan stone tools, and the data of paleogeographers about reconstruction of the environment of the “immediate ancestors” of man in Africa.

Again there is no biological basis for the antiquity of the “tropical type” but rather a basis for its biological antiquity based on nonbiological data. Of course, T.I. Alekseeva (1977:258) notes:

Extrapolating these observations, which were made on physiological adaptive complexes in a modern population, to a population of Australopithecines, we can think that, among Australopithecines within the boundaries of their entire area, adaptive reactions were limited by the adaptation to climatic conditions in the tropical zone and living within the bounds of a medium elevation above sea level. Specifically, this could be expressed in tendencies toward a lowering of the fundamental metabolism, a diminishing of the thickness of the fatty layer, an increase in the content of the gamma globulin fraction of the albumin in the blood serum, in an increase in the perspiration factor, a lowering of the body temperature, and a reduction in the number of heart contractions per unit of time, that is, in the development of that physiological complex that now prevails among inhabitants of the tropical zone.

The list of traits looks imposing. But what does it represent, and what does it prove? Only that among residents of the Tropics such physiological signs are present and no more. T.I. Alekseeva does not cite any physiological data indicating that the tropical type is maternal for all remaining types. And, it is evident, she cannot cite any. This is confirmed, as it were, by V.P. Alekseev’s (1985:192) following “reservation”: “Physiological and genetic features of early hominids remain unknown to us, and all the extrapolations in this area have only tentative outlines.”

An examination of the works of T.I. Alekseeva is fundamental for understanding that physical anthropologists, in spite of all their attempts to occupy the leading position in the system of sciences on the origin and evolution of humanity, cannot prove by purely biological methods (with which they have to occupy themselves) either the antiquity of the “tropical” adaptive type of humanity or the youth of the “arctic” type. All of their arguments about this have in the best case, as some of them have acknowledged, “only tentative outlines.”

What archaeological data does science have at its disposal for an answer to the question, when and how was northern Eurasia settled, and when did the possibility appear for humanity to settle America? Archaeological data about man’s settlement of the northern part of Europe are shown on the map (see Figure 6, composed by I.K. Ivanova et al. 1989:50). Publishing this map, the authors note that “the territory of the USSR does not belong, as is well known, to the number of regions that

might be viewed as the place of origin of people.”⁹ They do not view the possibility of the Earliest Paleolithic sites being here at all. The earliest sites are considered to be Acheulean, which are not spread “north of the 48th parallel.” The climatic conditions of the Riss-Wurm interglacial, according to their opinion, permitted people in Mousterian times to settle on the Russian Plain substantially north—to 54° north latitude. “The late Paleolithic population,” they write (Ivanova et al. 1989:54), “sharply increased in comparison with the Mousterian and penetrated farther, though not uniformly, to the north. The northernmost site (Byzovaya) in Eastern Europe is 175 km south of the Arctic Circle. People are already completely adapted to conditions of a severe climate of Wurm-Valdai times The climatic minimum (18,000 to 20,000 years ago) apparently resulted in some outflow of the population to the south People, however, were already so well armed against unfavorable natural conditions that they could maintain the primary areas of their habitation.”

Modern ideas about the beginning stages of settlement by man of Europe north of 60° north latitude are most clearly stated by P. Yu. Pavlov (1991:109–111). He proposes subdividing the process of man’s settlement of northern Europe into the stages “penetration,” “opening up,” and “settlement.” In addition, he notes that natural conditions, “analogous to modern arctic,” were widespread in the middle and upper Pleistocene to 55° north latitude, and therefore this entire region can be considered “Pleistocene Arctic.” He cites the following data for various stages of opening up the “Pleistocene Arctic”:

The penetration of man into arctic latitudes was obviously episodic, short-term, and did not require deep adaptation. In the period of mastery, that is, relatively permanent occupation, a distinctive experiment occurred, directed toward a search for specific adaptive mechanisms With a correctly elaborated strategy the next stage emerges—settlement, that is, permanent occupation by man in this region with securing and developing of expedient mechanisms of adaptation

Based on available preliminary data, man’s penetration into northeastern Europe, including northern subarctic regions (Kharuta—66° north latitude), belongs to the beginning of the middle Pleistocene (Mindel-Riss, Likhvin) and hardly occurred under severe climatic conditions. ... The penetration of some early Paleolithic communities [here the Middle, and not the Early, stage of the Paleolithic of our periodization is meant.—Yu. M. & S.F.] did not have a stable character. Characteristic for this stage was adaptation of the first order: fire, clothing, and dwellings. It is also possible that during this time the search for functional adaptive mechanisms began.

The beginning of man’s true mastery of the Pleistocene Arctic in northeastern Europe occurs in the second half of the late Pleistocene and is correlated with Upper Paleolithic

⁹ The expressions “as is well known” and “usually accepted” are very widespread in our literature. V. I. Lenin’s statement about “sensible meaning,” as about “prejudices of its time,” suits their appraisal quite well (Lenin 1978:245). Whoever does not understand this should not occupy himself with science.

times The maximal development of culture in the Upper Paleolithic of northeastern Europe was attained in the middle Valdai [this climatolith is assigned to 50,000 to 25,006 years ago and corresponds in time with the North Asian Karginsk.—Yu. M. & S.F.]. Upper Paleolithic communities during this time were possibly adapted to the subarctic conditions of the region in a most adequate form The following stage of opening up and further settlement of the territory of northeastern Europe was connected with the Pleistocene-Holocene boundary and the Paleolithic-Mesolithic.

Paleolithic sites of Europe have, of course, vital significance for the study of the stages of man's settlement in the north. However, they are not fundamental for substantiating the problem of a non-tropical place of origin for humanity. This can be explained by the fact that significant areas of Europe, especially its northern part, were periodically covered by glaciers (see Figure 5). Therefore, based on the study of the Paleolithic in Europe, the schema "arrival-departure-arrival" of man into a territory and from a territory that was periodically being opened up and covered with ice sheets was worked out.

For Europe this schema is completely logical. Of course, it has one essential deficiency since it does not explain how the "departure" of people occurred into an already settled region. Who waited for them there? Settling in an already populated region could occur only through armed clashes and force or extermination of the original inhabitants by the new arrivals. This is a very important problem. The Paleolithic materials of Europe that are supported by facts do not at present permit resolving it, but it is necessary—at least for those who adhere to the schema "arrival-departure-arrival"—to reflect upon it. Unfortunately, ideas logical for Europe about the late settlement of "cold regions" and the schema "arrival-departure-arrival" of the population by many researchers were also transferred to the Paleolithic of all northern Asia, including its northeastern region, a large part of which was not covered by glaciers.

In general, all the thought and conclusions about the earliest stages of man's settlement of northern Asia before the opening of the Paleolithic in Yakutia were based on materials obtained in southern regions of Siberia. In most cases they were studied as early as the 1930s (Figure 13). It is remarkable that upon publishing this map V.E. Larichev (1969:386) notes: "1930 was a distinctive turning point in the study of the whole North Asian and East Asian Paleolithic Finds in severe taiga regions of Siberia have not corroborated the hypotheses of French and German researchers regarding the exclusive role of this region of Asia in the formation of early cultures of the Stone Age of the Old World." Here one should turn attention to the fact that all the Paleolithic sites of Siberia discovered by 1930, in regions that Larichev calls "severe taiga," are generally located south of 55° north latitude and are assigned by L.V. Maksimova (1979:61) to the zone of "most favorable and favorable (comfortable) natural conditions for the life of a population" (see Figure 10). It is precisely under these conditions that all Paleolithic scholars of Siberia have worked and continue to work.

The only specialist who tried to break out of this zone was Okladnikov, who from 1941 to 1944 led specific investigations for the Paleolithic along the Lena to approximately 60° north latitude. However, study by geologists of Paleolithic sites on the Lena led me to the following conclusion: "A.P. Okladnikov's data, about the Paleolithic of the Lena, cannot at present be used

for stratigraphic purposes since the precise geological position of these sites is presently unclear” (M.N. Alekseev et al. 1962:54).

In spite of the very limited facts about the Paleolithic of northern Asia, especially about the region located north of 55° north latitude, some archaeologists have tried to use these facts to draw very responsible conclusions. For example, S.N. Zamyatnin (1951), relying on the preliminary conclusions of G. Merkhart (1923) and Sosnovskii (1934), drew a “generalizing conclusion” about the *sharp* distinction in all the primary characteristics between Late Paleolithic Siberia and the European Paleolithic (Figure 14). No less “indicative” is the conclusion of Okladnikov (1966), who, using conclusions by G. Merkhart and Kh. Movius (Figure 15), assigned all of northern Asia to the “eastern cultural-historical region,” where development of the Paleolithic was clearly distinct from the “western cultural-historical region” from the very beginning (Figure 16). P.I. Boriskovskii (1957:178, 179) drew the same “important” conclusion about man’s settlement of all of northern Eurasia and America. “Quite large territories, judging by the data available to us,” he writes, “were not accessible to people even in the Late Paleolithic. These are all of the expanses of the European part of the USSR and Siberia north of approximately the 60th parallel. Some of these expanses were covered with ice during the last glaciation, and some were probably not settled by people because of extremely severe climatic conditions Late Paleolithic people also did not settle America and Australia.”

All these “generalizing conclusions” did not endure the test of time and would not even be mentioned were it not for one circumstance connected with them—which up to the present hinders the development of archaeology on the whole and Paleolithic studies of northern Eurasia in particular. All the above-enumerated conclusions are based not on facts but on the lack of them, that is, on an incomplete archaeological chronicle, which our scholars either did not take into consideration or did not want to consider. .

Thus Zamyatnin (1951:122), evaluating his conclusions about the Late Paleolithic of Eurasia, writes: “In essence, all the expanse occupied during the Late Paleolithic in this or that degree has been studied today It is now difficult to expect any new discoveries, which would force a change in the presently developed picture in a basic way.”

Okladnikov (1950b:154, 155) was inclined to substantially overestimate the degree of study of the Paleolithic in Siberia as well. “As is well known,” he writes, “

in the region of Siberia no traces have been found of the existence of any primates, from which man emerged, that could be found in connection with the relatively severe climate of these regions at the end of the Tertiary and beginning of the Quaternary periods It is entirely natural, therefore, that the process of settlement of severe and huge expanses of northern Asia could begin only in relatively late times The most appropriate time of the widespread movement of primitive man was the period of existence of the highly developed hunting culture of the Upper Paleolithic Of course, it is permissible to suppose that, in Siberia, sites of the Paleolithic earlier than Mal’ta and Buret’ may still be found. But as we know, the basic regions of distribution of the Paleolithic in Siberia have been studied no less fundamentally than the other most important, in this regard, regions of the Soviet

Union [the author dared to write such in 1950!—Yu. M. & S.F.], and in any case better than, middle Asia for example, where whole clusters of first class Mousterian sites were found with the first systematic searches. From this it follows that the possibility of discovery in Siberia of sites of Mousterian times and, even more, of preceding epochs of the Paleolithic is not very probable.

In this regard we mention that as early as 1935 Efimenko (1935:12) wrote: “It cannot be doubted that by middle glacial times (Riss times) more southern regions of the USSR from the Ukraine to the Far East were settled by primitive hordes of Neanderthals. Of course, for Siberia this assertion is based chiefly on the wide spread of remains here from later periods (Upper Paleolithic), which obligated assigning the initial settlement of the country to a significantly earlier time. As it happens, Okladnikov, 15 years after Efimenko’s prophetic prediction, was also unable to find sites earlier than Late Paleolithic in Siberia and therefore decided to declare that it was impossible for them to be there.

Striving to overestimate the completeness of the archaeological chronicle is also characteristic of P.I. Boriskovskii. In the preface to the concluding collective monograph *Paleolithic of the USSR*, which was published under his editorship, he states (1984:15): “The regions of our country that could have been inhabited in the Paleolithic—though no or almost no reliable and compelling sites of these periods are found there—are few in number and relatively small.” And this he wrote at the time when the whole huge territory from the Urals to Chukotka located north of 55 degrees north latitude, except Yakutia, remained completely unstudied in Paleolithic regard! This was written by the head of the Paleolithic branch of the Institute of Archaeology of the Academy of Sciences, USSR! That was, and is, the state of affairs in our science!

But perhaps S.A. Vasil’ev, a member of the Paleolithic sector of the Institute of Archaeology of the Russian Academy of Sciences, outdid them all in ambitiousness. His chief merit in the study of the Paleolithic of Siberia is concluded by the fact that he “heroically” examined the left bank of the upper Yenisei over the course of 12 km and excavated two or three sites there ordinary for this region. And what did this archaeologist tell us? This: “And now in Siberia simply a ‘general flight’ to the Lower Paleolithic is observed,” he writes (Vasil’ev 1996:197).

Of course, everyone wants to find in the territory being examined the earliest of all possible sites and, in fact, here sensation follows sensation and a whole stratum of formerly unknown cultures is revealed to us. However, looking truth square in the eye, one will not soon be able to definitely judge the chronology or variants of the Mousterian and, even more, the Acheulean, of Siberia or the features of transition from Mousterian to Upper Paleolithic, and so on. In fact, the long years of dispute concerning these problems will bear in many ways a speculative character. At the same time, in the Late Paleolithic of Siberia, especially in its final part, we already have at our disposal a splendid stock of material; it is truly huge. Another affair, that it is scattered about, is very selectively and incompletely published and poorly interpreted.

This is how it turns out: all Paleolithic scholars except Vasil'ev work from palatial sea-front St. Petersburg. They strive beyond sensations and scatter materials about, and they do not turn them over to Vasil'ev for preservation and processing. They have a poor record of publishing materials, and, most chiefly, are unable to comprehend the materials.

But what do we see in five years after Vasil'ev's extravagant conclusions about "huge and poorly interpreted material" of the Late Paleolithic and of the "impossibility of interpreting earlier materials"? We see his article "Siberia and the First Americans" (Vasil'ev 2001:66–73), written "with the support of the Russian stock of primary investigations." This article is notable in that it gives an idea of the kind of factual and interpretational baggage—for resolution of the most important questions on the origin and evolution of humanity—with which Siberian Paleolithic studies entered the twenty-first century. The primary questions that can and should be resolved based on the Paleolithic materials of northern Asia are connected, from our point of view, with problems of a non-tropical origin for humanity and the initial stages of man's settlement of America.

What do we find out about this from the article by Vasil'ev? "It is clear that in the search for the ancestors of the American Indians, it is worth turning to the archaeology of Northeast Asia. Siberia," writes Vasil'ev (2001:69),

is uncommonly rich in sites of the Old Stone Age. But they are found mostly in the southern part of Siberia (the Altai, upper Yenisei, Pribaikal'e, Zabaikal'e) and rather far from the places interesting us. The extreme Northeast Asian mainland, a huge region lying north of Baikal, remained for a long time a blank spot on the archaeological map. Only in the 1960s, by the powers of Yu. A. Mochanov was the Dyuktai culture revealed, the clearest manifestations of which are bifacially worked spear and dart points. Sites of such type are located not only in the valleys of the Aldan and Lena but also far to the north, beyond the Arctic Circle. The Dyuktai sites are primarily dated to a range of 11,000–10,500 to 18,000–17,000 years ago.

The continuation of investigations in Yakutia led to still more sensational finds. On a high—over 100 m—bank of the Lena, close to the entrance of Diring Yuryakh Creek into it, unusually archaic stone artifacts were found Mochanov, the initial discoverer of the site, was carried away by the theory of a so-called 'nontropical origin of humanity,' ascribing a completely fantastic antiquity (more than 1.8 million years) to Diring, comparable to the age of the earliest sites in Africa. Recently a group of American scholars were able to obtain a series of dates that permit determining the approximate age of the deposits containing cultural remains. The published figures (from 250,000 to 350,000), of course, are not so impressive as the declared millions, but even so such dates force us to reexamine the ideas of the movement of the ancestors of man that have been developed The discovery of such an early site in Northeast Asia speaks of the reality of the opening up of this territory by the Lower Paleolithic and the principal possibility of the penetration of man into Beringia.

With the writing of this article Vasil'ev obviously completely forgot that in 1996 he complained of the “poor interpretation” by researchers of the Late Paleolithic of Siberia and considered it impossible, “if one looks truth in the eye,” to speak seriously about a Middle and Early Paleolithic in North Asia. Well, and how would it be possible to distinguish, “without the interpretation of materials” as early as the 1960s, the entirely new, for North Asia, Late Paleolithic Dyuktai culture—the only culture he examines for the “resolution” of the problem of man’s settlement of America? And how was it possible, simply in “pursuit of sensation,” to discover and interpret Diring Yuryakh, which Vasil'ev considers a site of the Early Paleolithic, and “forces us to reexamine the ideas of the movement of the ancestors of man that have been developed”?

We note one more detail characteristic of “archaeological figures” of Vasil'ev’s type. Describing (or copying, as some students) Dyuktai and Diring and publishing illustrations of tools of these sites, the author does not cite the monograph *The Earliest Stages of Settlement by Man of Northeast Asia* and *The Earliest Paleolithic of Diring and the Problem of a Nontropical Homeland for Humanity* (published by Nauka in 1977 and 1992), but instead the short articles published in Yakutsk. Vasil'ev, who so stingingly regretted in 1996 the lack of monographic publications on the Paleolithic of North Asia, does not cite them because he understands: It is easier for members of different backgrounds to consult a monograph than an article, and after this, obtaining a grant to create a compilation will be problematic.

In order not to overload an already overloaded report, we will limit ourselves to the cursory reiteration that we have succeeded over many years in studying the Paleolithic of Northeast Asia. The primary results of our work are presented in plates of illustrations of the Paleolithic cultures of this area. Up to the present, because of the lack of generally accepted archaeological nomenclature, the illustrations and photographs remain as the unique reliable and accessible language of archaeologists just as Latin names of different taxa for biologists and formulas for mathematicians.

IV. Cultural Chronology of Northeastern Siberia

Hypotheses regarding man’s settlement of America from Northeast Asia, and about a nontropical origin for humanity, began to be supported by the facts only after the discovery of a consistent chain of the archaeological cultures of Yakutia: Diring (Earliest Paleolithic, 3—2.5 to 1.8 million years; Plates 1–6); Allalai (Early Paleolithic, 1.8 million years to 150,000 years; Plates 7–10); Kyzylsyr (Middle Paleolithic, 150,000 to 35,000 years; Plates 11–19); Chirkuo (Middle Paleolithic or beginning stage of the Late Paleolithic, similar to the Ordoss culture at Shuidungou; Plates 20–24); Dyuktai (Late Paleolithic, 35,000 to 10,500 years; Plates 25–33) (Figures 7, 17); Sumnagin (Latest Paleolithic, 10,500 to 6,500 years; Plates 34–40; Figure 18); Syalakh (Neolithic, 6,500 to 5,200 years); Bel’kachi (Neolithic, 5,200 to 4,100 years); Ymyyakhtakh (transitional stage between the Neolithic and the Bronze Age, 4,100 to 3,300 years); Ust’-Mil’ (Bronze Age, 3,300 to 2,500 years); various cultural complexes including the Eskimo; Early Iron Age (2,500 to 500 years). The strati-

graphic position and chronology of the late Pleistocene and Holocene archaeological type sites of these cultures are shown in Figure 19.

All these cultures were distinguished and studied by the archaeological expedition of the Yakutsk Science Center, Northern Branch, Russian Academy of Sciences, which from 1958 to 1964 was called the Vilyui Archaeological Expedition (VAE), and from 1965 to the present the Prilensk Archaeological Expedition (PAE)—and which operated all these years and continues to operate under the leadership of the authors.

For the study of type (stratotypical) sites of some cultures, all of which are located in the modern cryolith zone, the authors have worked out a new special method of studying them. It is simple but labor intensive. It basically deals with opening up a site over a large area. This leaves some parts of the excavation to natural gradual thawing and draining of the frozen soil without disturbance of the structure of the culture-bearing layers. This method permitted for the very first time—first, at the alluvial sites of Bel'kachi I (Figure 20) and Dyuktai Cave (Figure 21), and then at other places—to open up archaeological sites in the cryolith zone to any necessary depth and to obtain all necessary information with the study of them. In order to determine the areas of early cultures, and the exposure of possible local variants of these cultures and their coordination with special geographic regions, our expedition, beginning in 1965, proceeded toward complete archaeological investigation of Yakutia and adjacent territories. Thus, special geoarchaeological work was begun. To the present time the extent of survey routes of the PAE exceeds 50,000 km (see Figure 3). In an area of about five million square kilometers, practically all the different regions of Northeast Asia were studied from the point of view of the possibility of their settlement by man during different periods of preliterate history: innercontinental and maritime; taiga and tundra; lowlands, high plateaus, and mountains; valleys of large and small rivers; large and small taiga and tundra lakes. Finally, a “transect cross” was accomplished: north-south, west-east. Thus by 1981 crews of the PAE had surveyed from the islands and shores of the Arctic Ocean to the Amur Basin and from the Yenisei Basin to Chukotka, Kamchatka, Priokhot'e, and the Shantar, Kurile, and Commander Islands.

As a result of geoarchaeological work it was shown that, with the exception of some mountain regions episodically covered with ice, beginning in the Earliest Paleolithic there were no uninhabited places in Yakutia. Everywhere that large animals, such as the mammoth, rhinoceros, bison, horse, reindeer, saiga, and so on, could go—animals that were not “rock climbers” such as snow sheep and mountain goats—man could also freely go.

Supported by concrete archaeological materials, it is now possible to confirm that the population of Yakutia over a larger part of the history of humanity, up to 10,500 years ago, did not lag behind at the level of development of culture in populations of the remaining regions of the human Ecumene [permanently inhabited portion of the earth—*Trans.*] and was developed autochthonously. In some periods the population migrated, following the North Holarctic “mammoth” fauna south to the right bank of the Kuanke and northeast to Beringia, and through it to America. Meanwhile it has been established that the most widespread migrations were connected with the Dyuktai culture (see Figures 7 and 18).

The question of an autochthonous origin for the Dyuktai culture in Northeast Asia was demonstrated in 2000, after the discovery—by S.A. Fedoseeva at the mouth of the Mungkharyma, a tributary of the Vilyui (64 degrees north latitude)—of a site that belongs, based on technical-typological data, to the beginning stage of the Middle Paleolithic. Stone tools and bones of mammoth, woolly rhinoceros, and other Pleistocene animals lay in deposits of the Vilyui terrace. The age of the layers underlying the cultural finds has been determined by a radio-thermoluminescence dating to 600 ± 150 thousand years (RTL-957), and the stratum covering it to a date of 150 ± 38 thousand years (RTL-958).

The chief defining feature of the Kyzylsyr Middle Paleolithic (proto-Dyuktai) culture are bifacially worked tools (bifaces): quartzite hand axes, spear points, knives, and skreblos (Plates XI–XIX). Based on the completeness of their form and the technique of manufacture, these artifacts are in no way inferior to standard Middle Paleolithic forms of Europe.

After the discovery in 1982 in Yakutia of a site of the Earliest Paleolithic at Diring Yuryakh (Figures 22–26), many Russian and foreign scholars began to accept the concept of a nontropical origin for humanity—and not as scientific nonsense but as a serious hypothesis—the basis of which has not only theoretical development but also factual data. In the resolution of the All-Union Conference, which was held in 1988 at Diring Yuryakh, it was noted (“Recommendations ...”, 1988:4): “Sites of the Diring Yuryakh culture of the Earliest Paleolithic, being studied by the Prilensk Archaeological Expedition (PAE), are not only national property but that of all people on the planet. Their multidirectional study can have important future significance in world science on the origin of humanity and substantially refine ideas about general laws of evolution of the whole organic world.”

Resolute opponents of an early age for Diring, even of the possibility of posing the question of a nontropical origin for humanity, appear in the voice of A.P. Derevyanko and the archaeologists subordinate to him. “The Diring Yuryakh stone tool complex,” writes Derevyanko and his coauthors (2000:217), “produces the impression of deep antiquity and, in Yu. A. Mochanov’s opinion, are comparable in technical-typological features only to collections of stone inventory of the Oldowan culture in Africa, which is 2.5 to 1.7 million years old [we note that the authors do not have citations to our specific works in the list of literature; not only a description of stone tool is given in our works but also detailed studies of the geology; geomorphology; cryolithology; and paleomagnetic, radio-thermotuminescent, and other data on the age of Diring—Yu. M. & S.F.]. But subsequent absolute dates [note the term “absolute dates”—Yu. M. & S.F.] refute such an early age for Diring Yuryakh. The stratum that covered the artifacts has an age of 267 ± 24 thousand years, while a date from an ice wedge is 366 ± 32 thousand years. The reliability of these dates is not doubted; therefore the question of a ‘nontropical origin for humanity’ can be removed.” Thus, the following must work: Does it suit you? means “this is correct”; does it not? means “it is not correct.”

At the present time, about 150,000 cubic meters of frozen ground have been opened in the excavations, trenches, and test pits at Diring Yuryakh. The culture-bearing layer was broken down into an area of 36,254 square meters. Fifty-one clusters of cultural remains have been found, the total quantity of which amounts to 4,782 items.

With the investigation of Diring we strove from the very beginning toward maximal attraction of all specialists who by various methods would help us zero in on the age of the culture-bearing layer. However, in order to analyze the data obtained by various methods, it was necessary first to know the limits of possibility and error of these methods. Among the various physical-chemical methods used for determining the “absolute” age of the different strata at Diring were radio-thermoluminescence and thermoluminescence, as well as paleomagnetism.

On the basis of his investigations conducted at Diring Yuryakh, A.V. Peh'kov (1992:185) came to the following conclusion: “Magneto-chronological estimates of the profile at Diring have a probabilistic character. It is most definitely possible to exclude assessments of an age of less than one million years. The least contradicting to the whole complex of presently available paleomagnetic information is the variant of the upper boundary of the age of the culture-bearing layer at about 3.2 million years (earlier Mammoth episode of the Gauss period).” Agreeing with this conclusion is the conclusion of geologists-lithologists A.V. Korobitsyn and T.I. Komzina (1990:108), who conducted multiyear investigations at Diring Yuryakh: “The ascribing of deposits containing the culture-bearing horizon to the different facies of alluvium of the earliest Lena terrace—Tabagin—does not contradict the dating of archaeological materials to the range of 3.2 to 1.8 million years, which is proposed for the Diring site by the researchers of PAE.”

Important data were obtained by geologist-permafrost specialist N.N. Romanovskii for reconstruction of the natural environment in which the Diring people lived and regarding the time of their occupation of central Yakutia. He clearly demonstrates that, during the formation of all the Diring deposits except Layer 3 (Figure 22), constant permafrost existed; that is, the average annual temperatures were below freezing. In the conclusion to his report about the work at Diring, Romanovskii (1993:28) noted: “We are inclined to join the position of Yu. A. Mochanov and A.V. Pen'kov on the age, conditions of deposition, and genesis of the deposits in the Diring profile, having added to this that a natural environment of the region, caused by a different type of circulation of the atmosphere, was different from the environment of the Pleistocene and Holocene. And restructuring of the circulation requires changes in the macroorography of Eurasia, which, judging by known information, also occurred at the end of the Pleistocene.

The radio-thermoluminescence dates of O.A. Kulikov contradict somewhat the earliest variant of the Diring date (Figure 22). However, they are important for refutation of assertions of some geologists, for example, M.N. Alekseev et al, (1990:43), about the fact that deposits of the Diring terrace were formed in two stages separated by a long break. To the “first stage” they assigned Layers 2 and 3, to the “second” all the remaining layers. The first stage, in their opinion, dates to a time earlier than 2.5 million years, and the second to less than one million years.

Data obtained in the U.S. (Waters et al. 1997:1281–1284) are not at all in agreement with the age, which was established by different methods. The dates and method of obtaining it that are given in this article were subjected to critical analysis in an article by Canadian and English physicists (Huntly and Richards 1997:48–49). The physicists came to the conclusion that the method of obtaining thermoluminescence dates for Diring by the researchers in the U.S. suffered from many errors. In their opinion, the age of the deposits of the different strata at Diring should be earlier

than that proposed by the authors of the article in *Science*. To this conclusion can be added the opinion of the greatest specialist in the Earliest Paleolithic sites of southern Siberia, G.I. Medvedev (2001:271), who noted: “*The material from Diring Yuryakh is undoubtedly earlier than the dates obtained in the laboratories in the U.S., but by how much is unclear.*”

Any specialist who uses different physical-chemical methods to determine “absolute” age of geological and archaeological objects knows well that the thermoluminescence method for determining the age of specimens that come from deposits older than 100,000 years is the least developed and the most controversial. It is no accident that specialists from Moscow State University had to say about this method: “The thermoluminescence method of dating does not have up to now a firm methodological basis. The variances present frequently have the primary character. In the opinion of some specialists, the age frame of the method reaches several million years, others using the same mineral limit it to several hundred thousand years. Such contradictions attest rather well to the inadequacies of the theoretical-experimental process providing the dependable base for the method” (Shakhovets and Shlyukov 1987:197).

In its time the Dyuktai culture and the biface and uniface cultural tradition that we distinguished for the Paleolithic of North Asia brought on bitter criticism. Leading this criticism were Z.A. Abramova and A.P. Derevyanko. The latter wrote (Derevyanko 1975:196): “All discussions regarding the Dyuktai culture [Mochanov 1970, 1972, 1975]—being wished for, are not corroborated by any serious arguments.” Even more “weightily,” Abramova (1981:115) stated: “Mochanov’s assertion—that the distinction of two traditions is most fruitful for clarification of different aspects of the earliest past of North Asia—has no basis. The lack of historical support of the concept being proposed is not fruitful; rather it hampers the further development of science, putting it in a blind alley.”

It is quite amusing that now almost all archaeologists, including Abramova and Derevyanko, “victoriously march” precisely along this “blind alley,” finally turning attention to the border along the Yenisei, to the west of which bifaces were not characteristic during Sartan times, and to bifacially worked stone points and knives as the leading types of classification, and distinguishing the different biface communities such as the “Ust’-Karakol,” “Malysheva,” and “Selemdzhin” cultures.

Now it is evidently their turn to criticize the Kyzylsyr’ Middle Paleolithic proto-Dyuktai culture. But this is not terrible—they criticize, they wait for some time and begin to rename the Kyzylsyr’ culture as they think it should be, and they think this will be favorable to them. But for all the specialists who are occupied by the problem of the settlement of America, the Kyzylsyr’ culture will surely have important significance. Now the position of archaeologists (including the authors) who believe that there could have been proto-Dyuktai migrations (Mochanov 1969p) to America before the Dyuktai migration is substantially strengthened.

At present it is possible to consider as potential migrants to America—besides the proto-Dyuktai people and Dyuktai people—the Sumnagin people, Bel’kachi people, and Ymyyakhtakh people (Fedoseeva 1999; Mochanov and Fedoseeva 1976). However, archaeological materials of Yakutia point only to potential possibilities of the appearance of man in America, which after the discovery of the Earliest Paleolithic of Diring become, in our opinion, boundless. The precise number of migrations from Asia to America and the time of their accomplishment can be determined

only by American archaeological materials, which can be interpreted at a sufficient level only by researchers discovering and studying them.

In themselves the archaeological materials of Yakutia now are of definite value not only for the resolution of man's settlement of America, of the problem of a nontropical origin for humanity, and of the division of special groups of archaeology—geoarchaeology and cryoarchaeology—but also for an understanding of the general regularities of formation of the noosphere and neogenesis. At least they help clear up the fact that the severe conditions of life and struggle with adversity is not the route to extinction but the only possibility for well-deserved life.

H.G. Wells (1935:186-187) described this excellently at the end of the nineteenth century in the novel *Time Machine*: "It is a law of nature we overlook, that intellectual versatility is the compensation for change, danger, and trouble. An animal perfectly in harmony with its environment is a perfect mechanism. Nature never appeals to intelligence until habit and instinct are useless. There is no intelligence where there is no change and no need of change. Only those animals partake of intelligence that have to meet a huge variety of needs and dangers."

We understand that beyond our discoveries it is necessary to trace new, broader and deeper archaeological works, both in Yakutia and in all the remaining territories of the modern and ancient cryolith zones. If one compares the archaeological investigations of PAE in the northern cold belt with the history of the discovery of Antarctica, it can be said we only saw the archaeological mainland. Its investigation is still before us. Especially important for the Paleolithic will be the study of caves, and for all the cultures, investigation of burials, which, unfortunately, are most often discovered by chance.

For all those who will take part in these investigations, it is necessary to remember the words of Norbert Weiner (1967:310-311): "Important is the fight for knowledge, but not the victory The very understanding of victory is dissolved at the very moment when it is attained."

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FIGURES

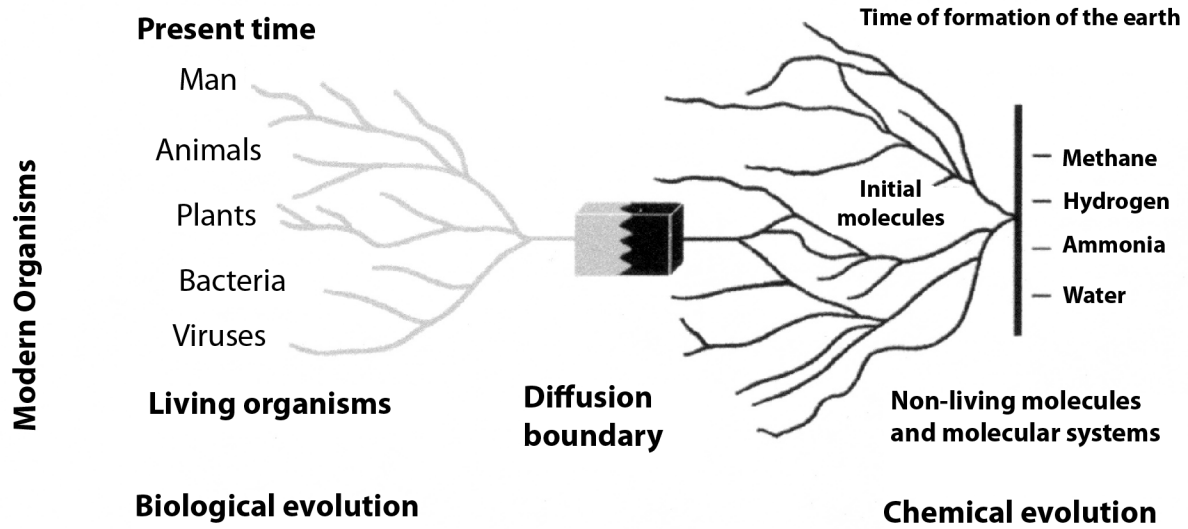


Figure 1. Schema of the origin of living from nonliving (after M. Kal'vin 1971:12).

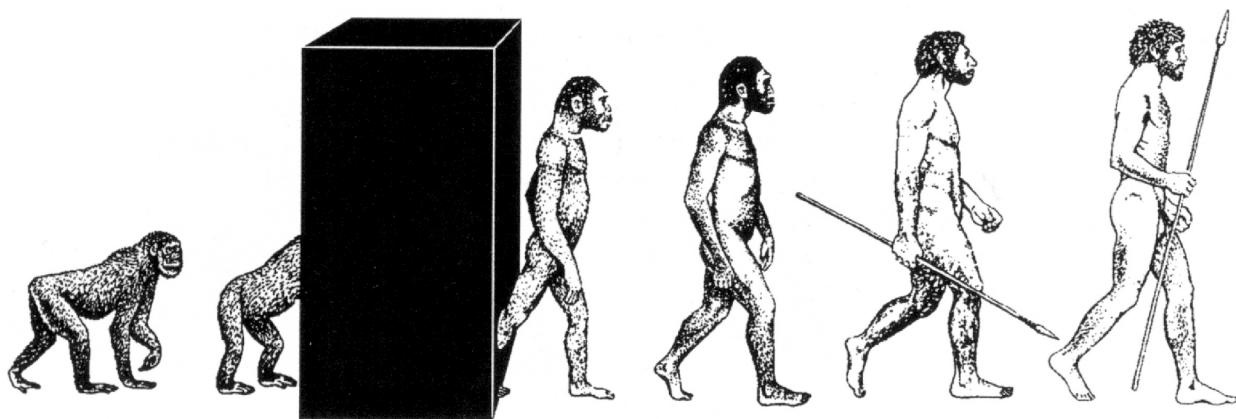


Figure 2. Schema of the evolution of man (after Newton 1986:90–91) with additions by D. Lambert (1991:142—Neanderthal, 158—*Homo sapiens*).

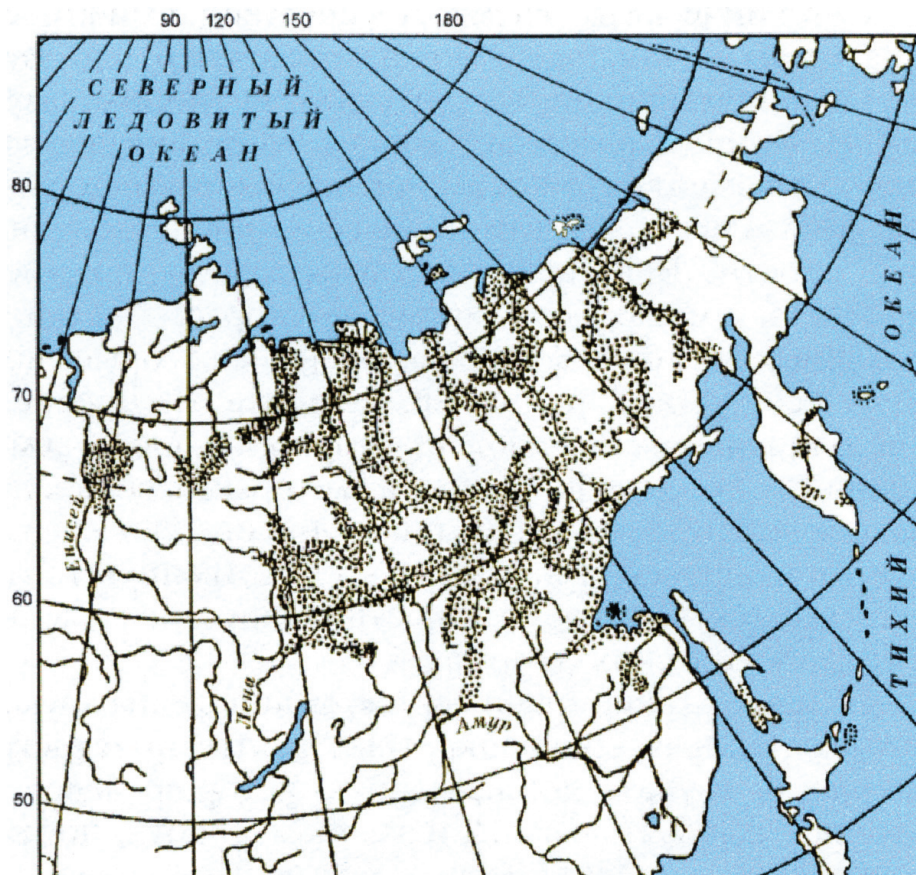


Figure 3. Map of survey routes of the Prilensk Archaeological Expedition.

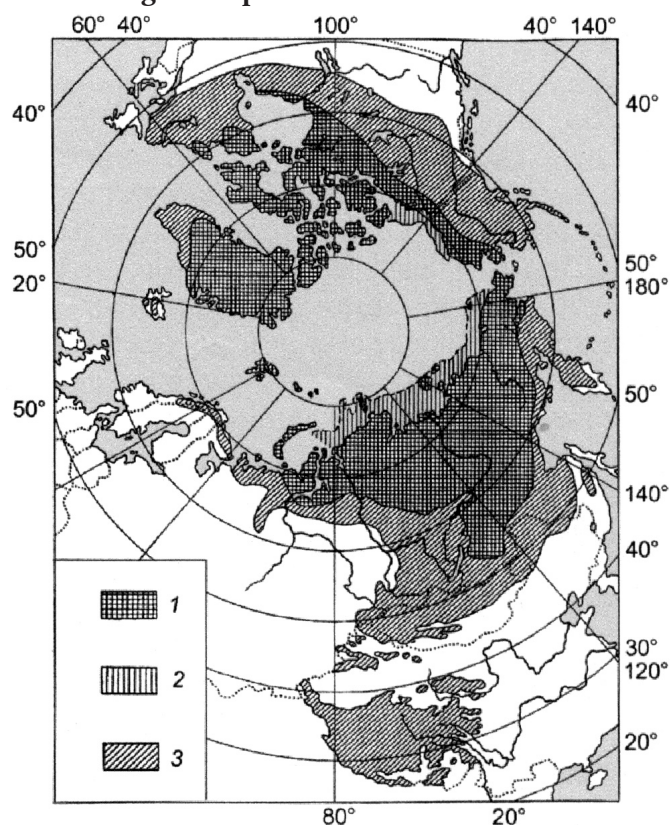


Figure 4. Map of the expanse of permafrost in the Northern Hemisphere. 1—complete permafrost; 2—permafrost on the shelf; 3—broken permafrost (after Washburn 1988:36).

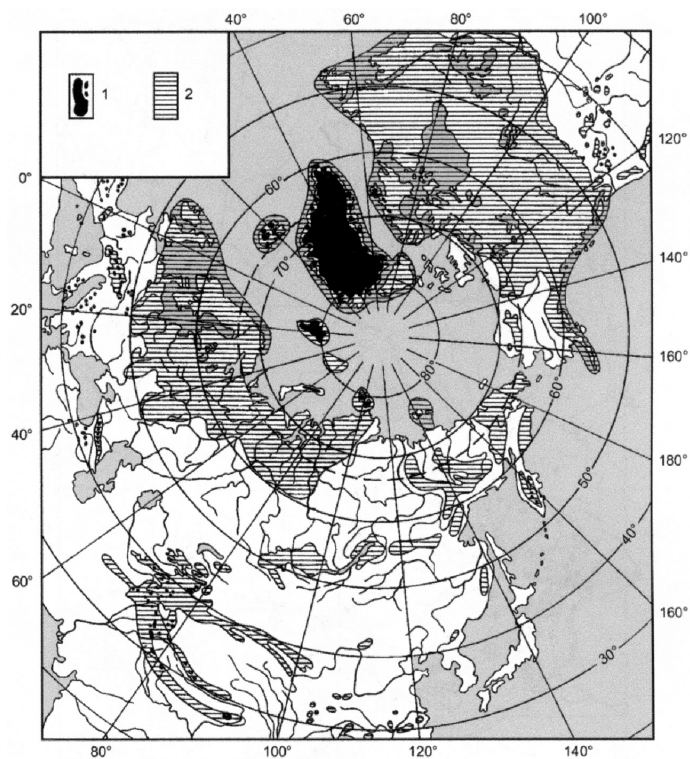


Figure 5. Schematic map of the expanse of continental glaciation. 1—modern continental glaciation; 2—ancient continental glaciation (after K.K. Markov and A.A. Velichko 1967:88).

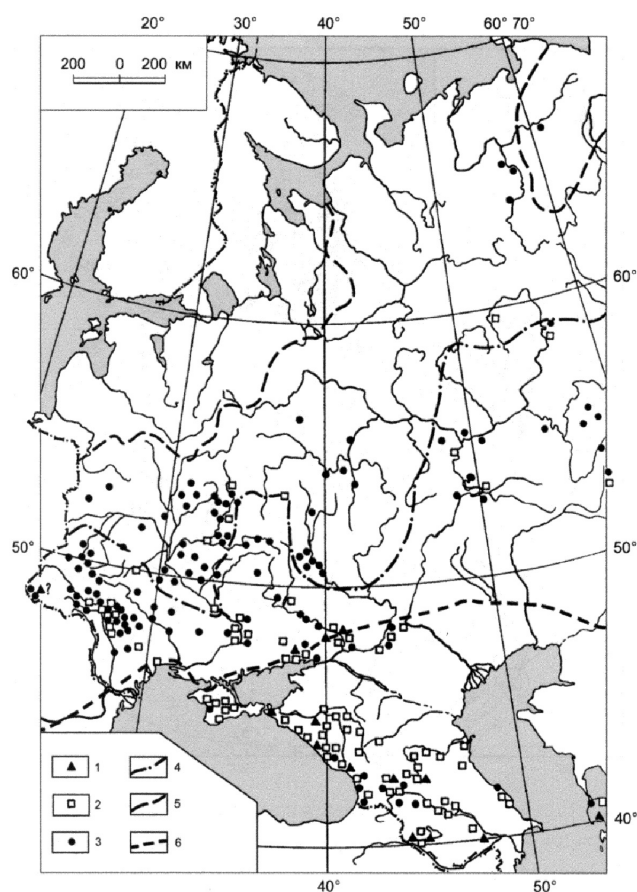


Figure 6. Schematic map of the distribution of the Paleolithic in the European part of the USSR (after I.K. Ivanova, V.P. Lyubin, and N.D. Praslov 1989:50, with additions). 1—early Paleolithic; 2—Middle Paleolithic; 3—late Paleolithic; 4—boundary of maximum glaciation; 5—boundary of last glaciation; 6—permafrost boundary in the Pleistocene.

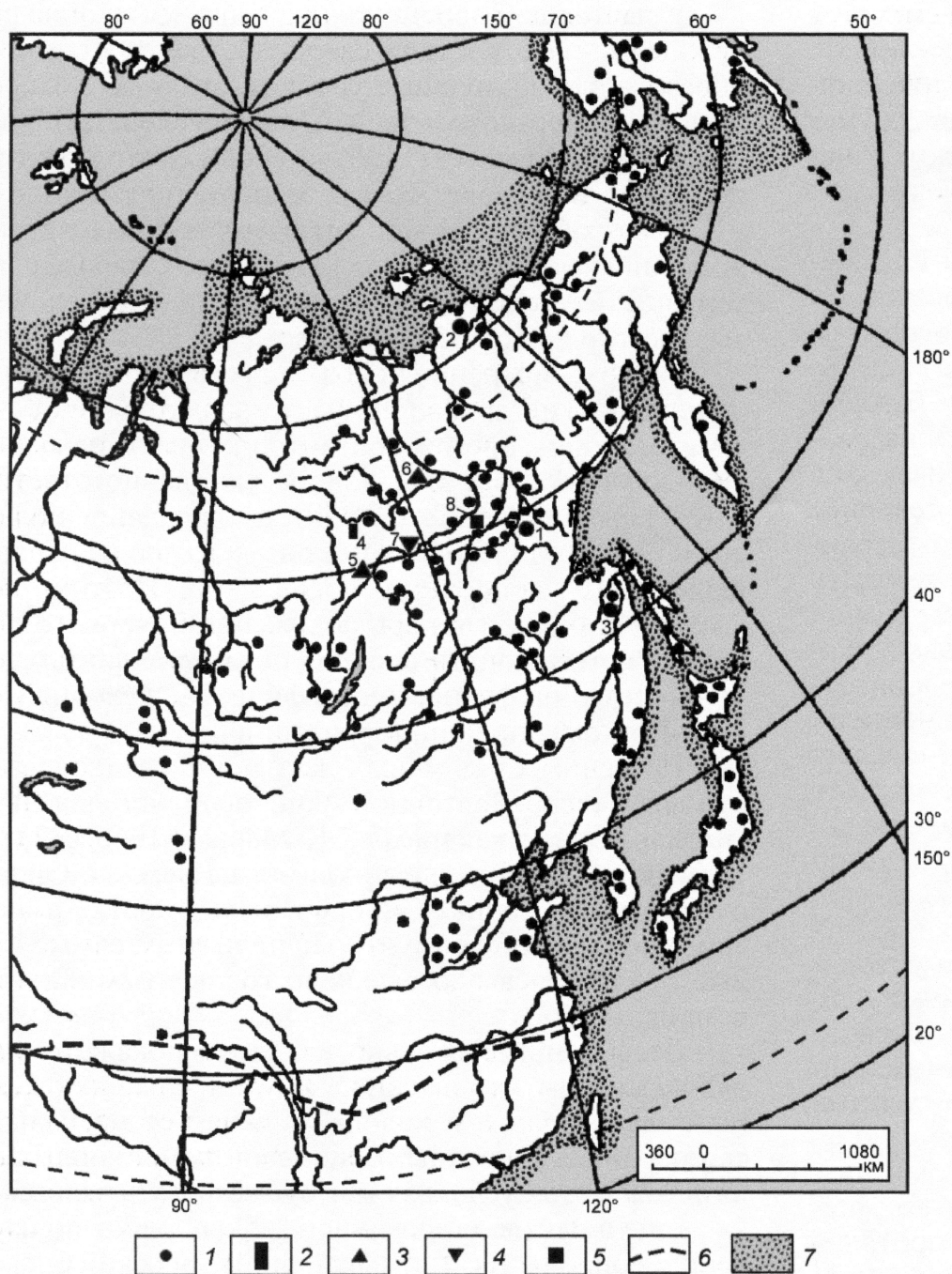


Figure 7. Paleolithic sites of Northeast Asia. 1—Dyuktai tradition (1—Dyuktai Cave; 2—Berelekh; 3—Kondon, a Paleolithic site discovered in 1960 by Yu. A. Mochanov); 2—Chirkuo culture (4—Ust'-Chirkuo); 3—Kyzylsy culture (5—Kyzyl-Syr; 6—Mungkharyma); 4—Allalaika culture (7—Allalaika); 5—Diring culture (8—Diring-Yuryakh); 6—boundary between the Holarctic faunal region of the arctogaeon realm and the Indomalaisk region of the palaeogaeon realm; 7—shelves that were dry in the Pleistocene.

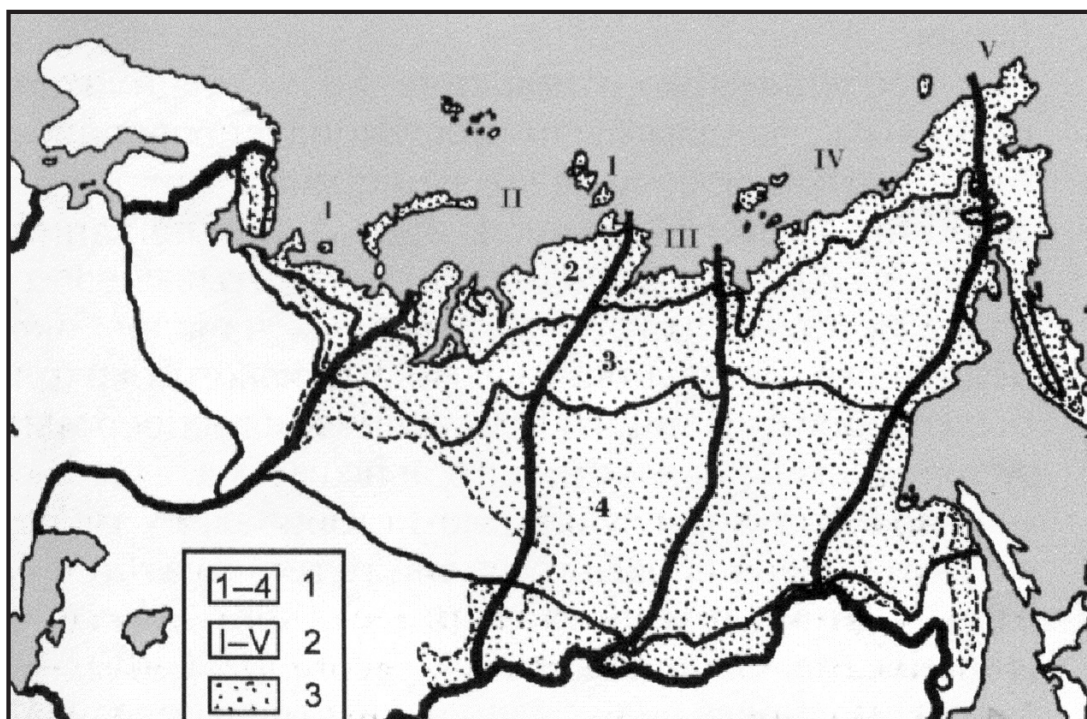


Figure 8. “Regions in which man either entirely cannot live or lives under very difficult circumstances” (after J. Horrabin 1924:12).

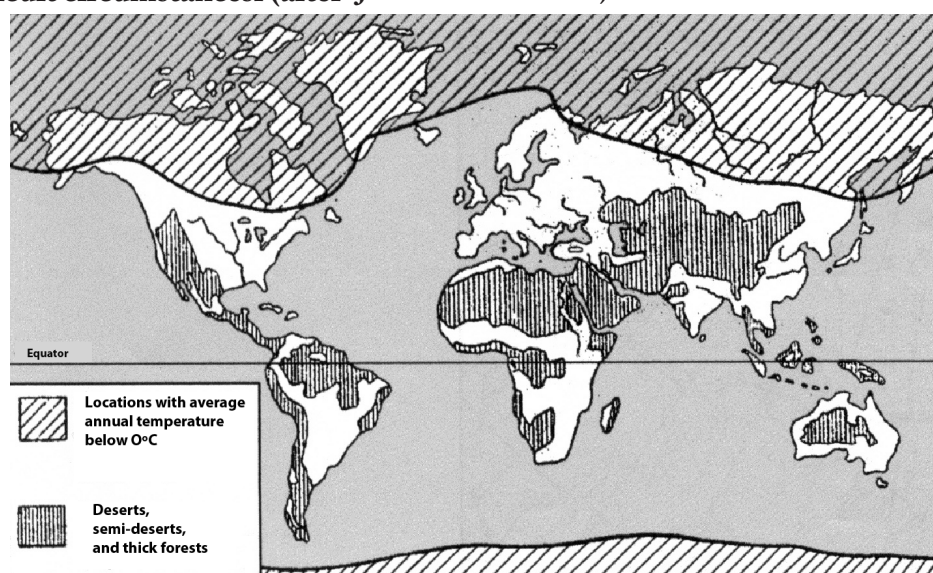


Figure 9. Tundra-forest and adjoining zones of the USSR (after Yu. P. Parmuzin 1981:51, with additions). 1: 1—cold desert and ice, 2—tundra, 3—tundra-forest, 4—taiga; 2: 1—temperate-continental zone, II—continental zone; III—sharply continental zone, IV—extracontinental, V—monsoon zone; 3: cryolite zone.

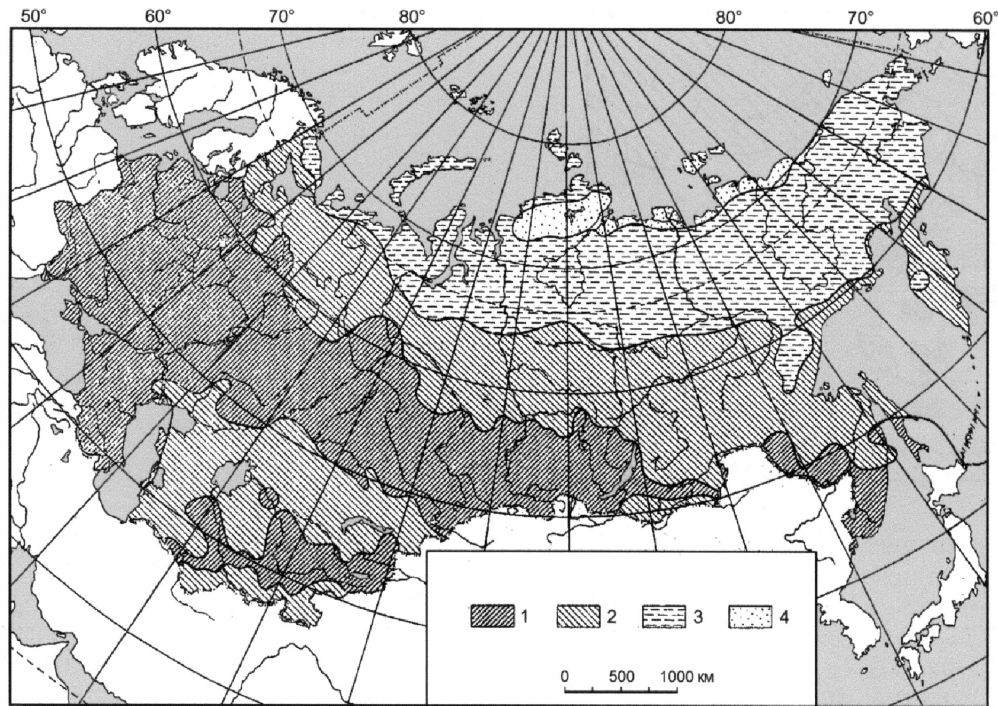


Figure 10. "Comfort of the territory of the USSR based on the degree of favorableness of natural conditions for the life of the population." 1—most favorable and favorable (comfortable); 2—little favorable (transitional); 3—unfavorable (causing discomfort), 4—extremely unfavorable (causing extreme discomfort) (after L.V. Maksimova 1979:61).

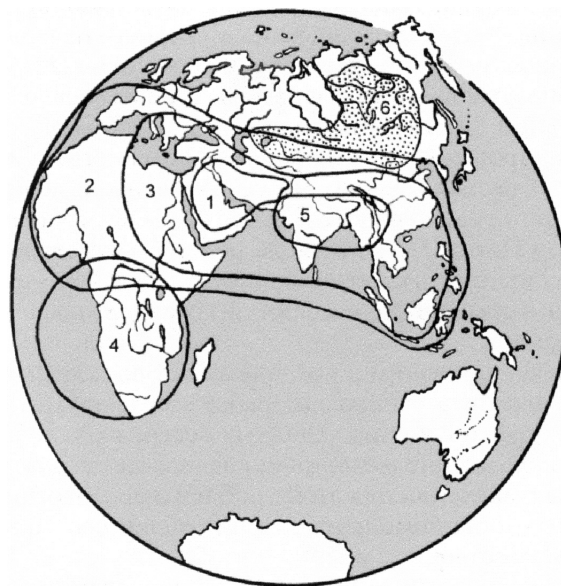


Figure 11. Locations of the original homelands of humanity corresponding to the ideas of various authors (after V. P. Alekseev 1984:104). 1—Valua 1946; 2—I.G. Pidoplichko 1958; 3—M.F. Nesturkh 1964; 4—V.P. Alekseev 1974; 5—Jia Lanpo 1980; 6—Mochanov and Fedoseeva.

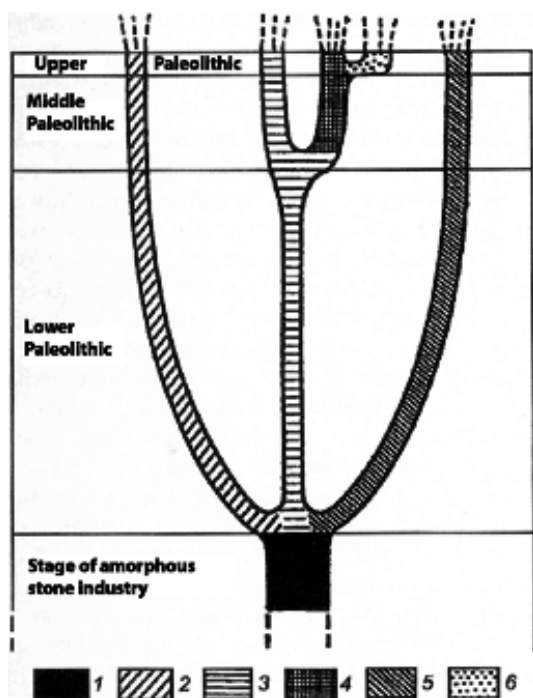


Figure 12. Chronology of adaptive types. Adaptive types: 1—tropical; 2—humid; 3—continental; 4—temperate; 5—high mountain, 6—Arctic (after T.I. Alekseeva 1986:193).

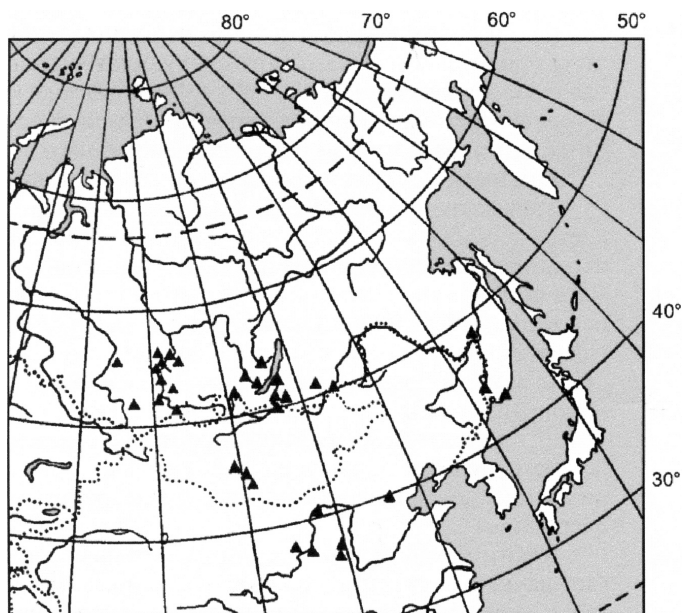


Figure 13. Map of Paleolithic sites of North, Central, and East Asia discovered by 1930 (after V.E. Larichev 1969:387).

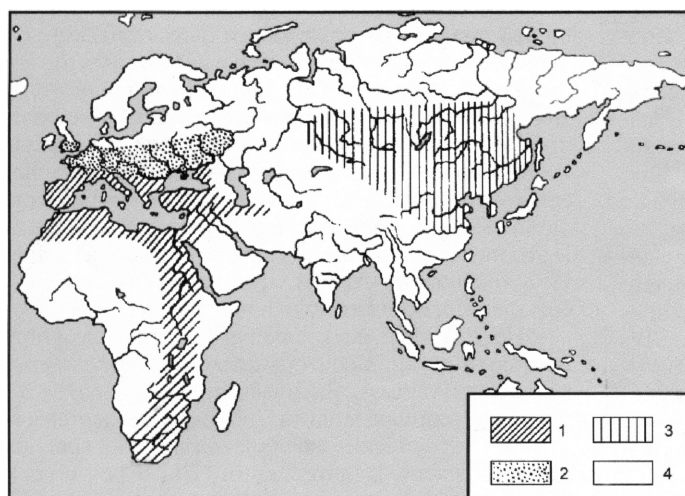


Figure 14. Map of areas of three provinces of Upper Paleolithic culture (after S.N. Zamyatnin 1951:121). 1—Mediterranean-African region; 2—European periglacial region; 3—Siberian-China region; 4—unexamined territories.

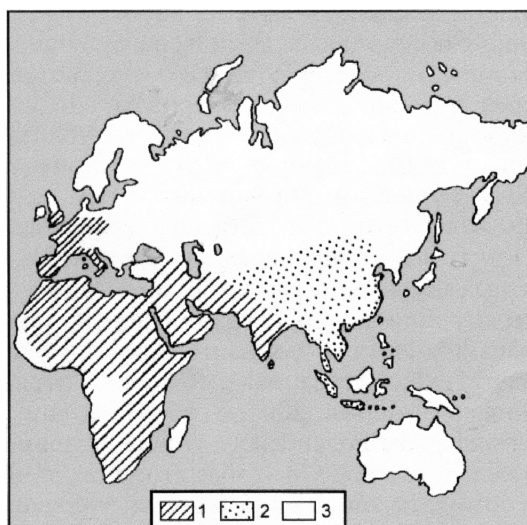


Figure 15. Map of areas of the earliest Paleolithic cultures (after H. Movius 1944:103). 1—area of culture with hand axes; 2—area of culture with uniface and biface choppers; 3—unexamined territories.

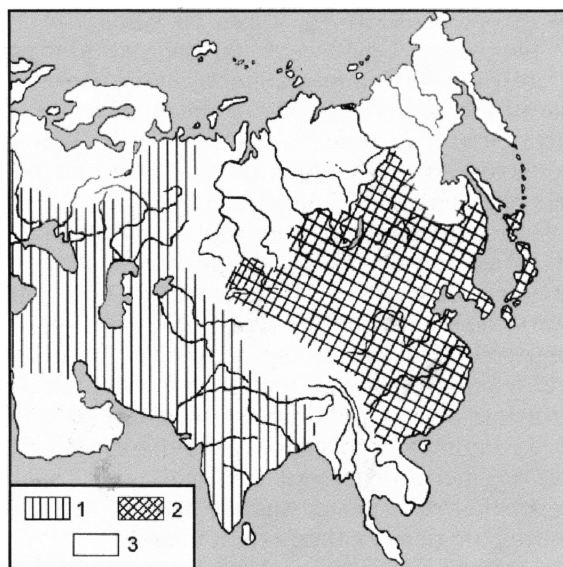


Figure 16. Map of areas of cultural-historical regions of Asia during the Paleolithic-Mesolithic (after A.P. Okladnikov 1966:222). 1—European-African region (Paleolithic—hand axes; Mesolithic—with geometrically shaped tools); 2—East Asian-Siberian region (Paleolithic—uniface choppers; Epipaleolithic—with tools of Siberian and East Asian forms); 3—unexamined territories.

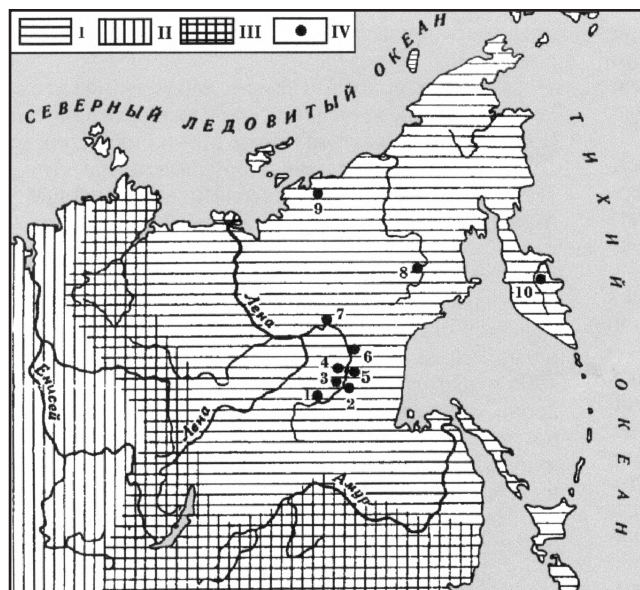


Figure 17. Map of distribution of the Upper Paleolithic Dyuktai culture (after Yu. A. Mochanov 1972:99). I—eastern ("Dyuktai") ethnocultural region; II—western ("Mal'ta-Afontova") ethnocultural region; III—contact region; IV—sites of the Dyuktai culture: 1. Sumnagin III; 2. Dyuktai Cave, Ust'-Dyuktai; 3. Ust'-Bilir II; 4. Ust'-Mil' II; 5. Verkhnetroitskaya, Nizhnetroitskaya; 6. Ezhantsy; 7. Ikhine I, II; 8. Maiorych; 9. Berlekhi; 10. Ushki.

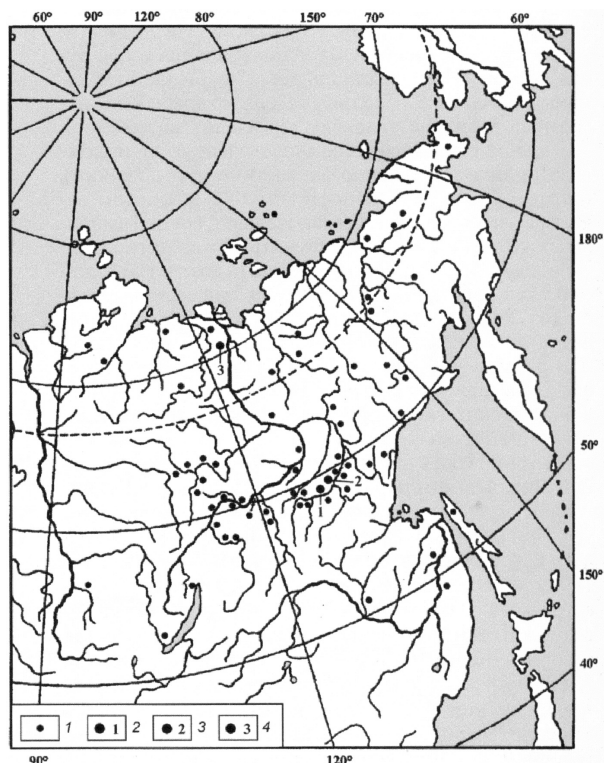


Figure 18. Map of distribution of sites of the Sumnagin culture. 1—sites of the Sumnagin culture; 2—Sumnagin I; 3—Bel'kachi 1; 4—Siktyakh.

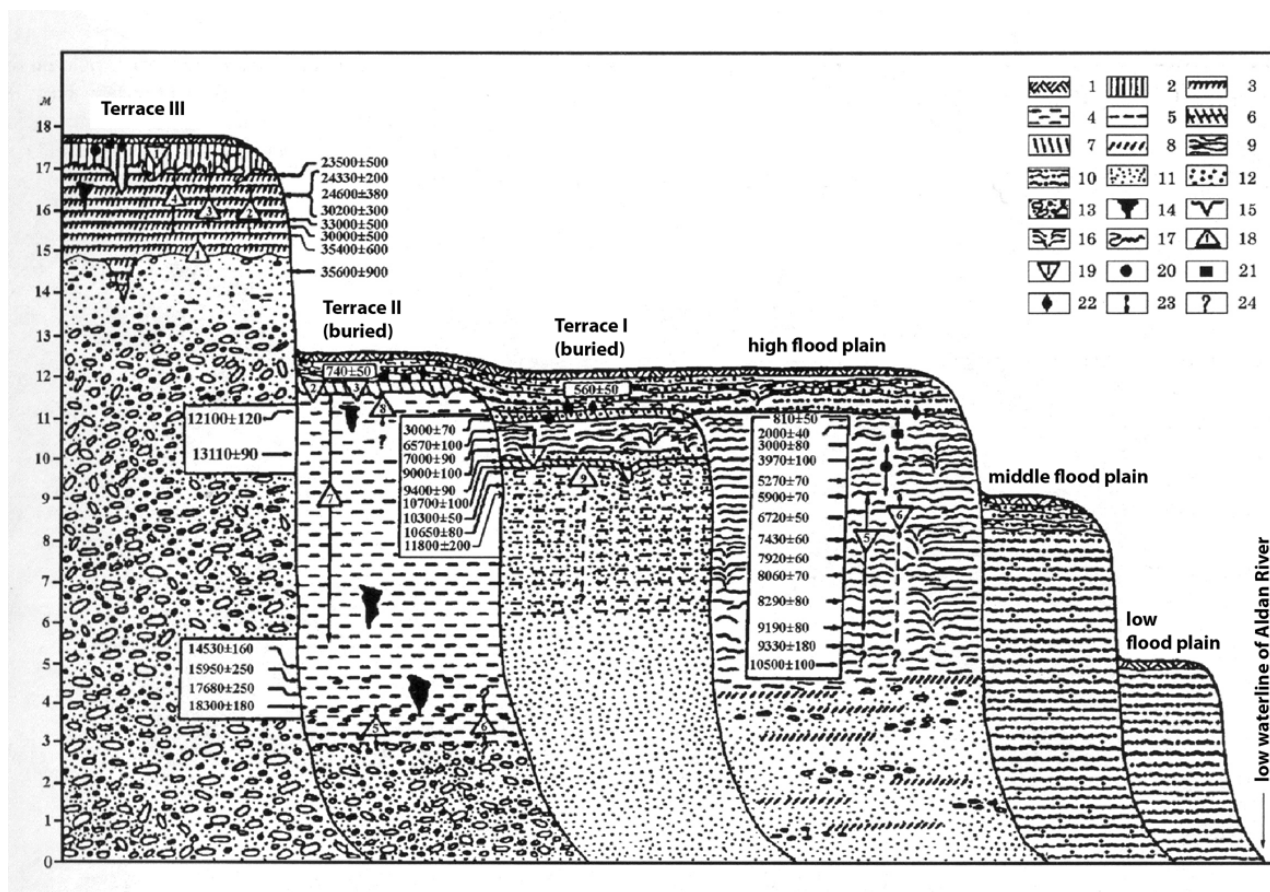


Figure 19. Schema of the structure of the lower terraces of the Aldan River and stratigraphic position of archaeological type sites (after Yu. A. Mochanov 1975). 1—sod; 2—covering loam; 3—horizontally laminated alluvial loams; 4—horizontally laminated alluvial sandy loam; 5—thin bands of loam; 6—humic sandy loam (buried soil); 7—humic loam (buried soil); 8—lenses of loam; 9—horizontally laminated silty sand and sandy loam with wood; 10—horizontally laminated sand and sandy loam with wood; 11—inequigranular sand; 12—large-grained sand; 13—pebbles and gravel with sand; 14—ice vein; 15—fill of pit houses; 16—bendings of pit houses; 17—traces of solifluction; 18—upper Pleistocene Paleolithic sites (1. Ezhantsy; 2. Ust'-Mu" II; 3. Ikhine I; 4. Ikhine II; 5. Verkhnetroitskaya; 6. Nizhnetroitskaya; 7. Dyuktai Cave; 8. Tumulur; 9. Ust'-Timpston I, Layer V-b, VI); 19—early Holocene Paleolithic sites (1. Ust'-Mil' I, II; 2. Verkhnetroitskaya; 3. Dyuktai Cave; 4. Ust'-Timpston I, Layer IV-V; 5. Bel'kachi I, Layer VIII-XXIII; 6. Sumnagin I, Layer XVII-XLIV); 20—Neolithic sites; 21—Bronze Age sites; 22—early Iron Age sites; 23—vertical distribution of cultural remains; 24—supposed levels of distribution of cultural remains.

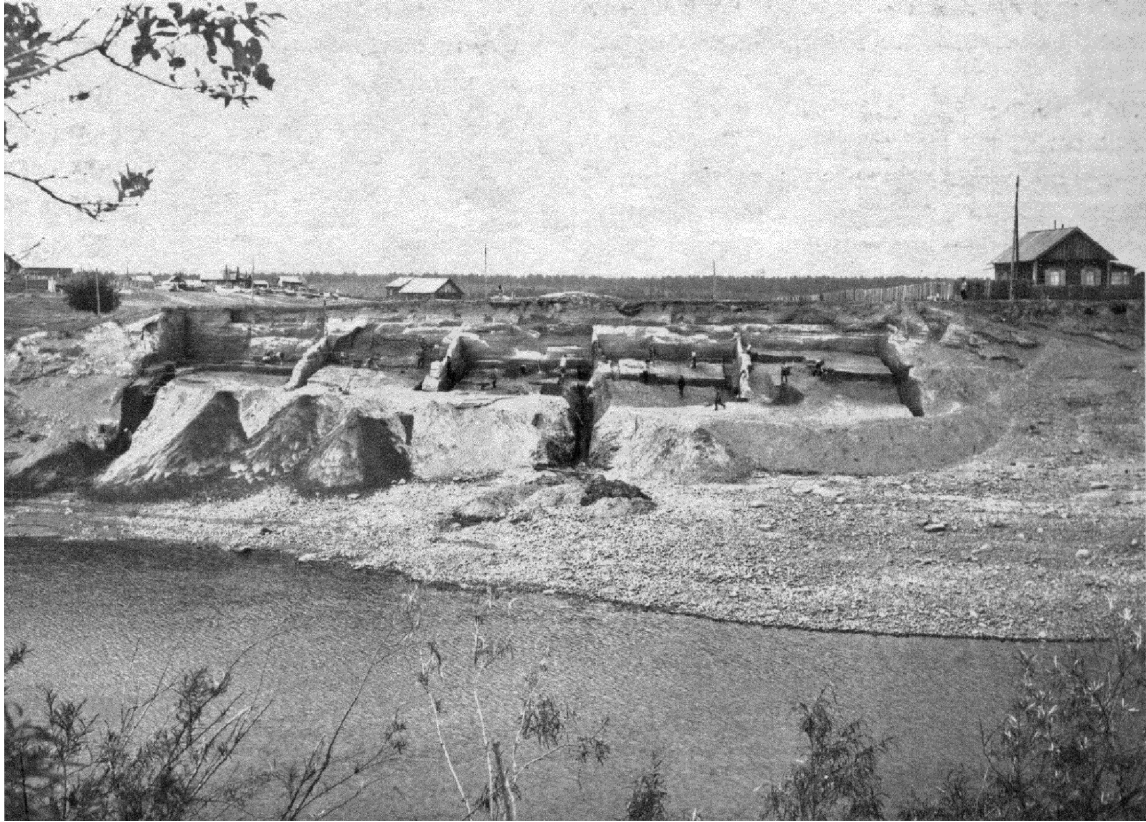


Figure 20. View from Syurakh-Aryy Lake at the excavation of the Bel'kachi I site in 1966.



Figure 21. General view of the excavation at Dyuktai Cave and the apron area of the cave in 1968.

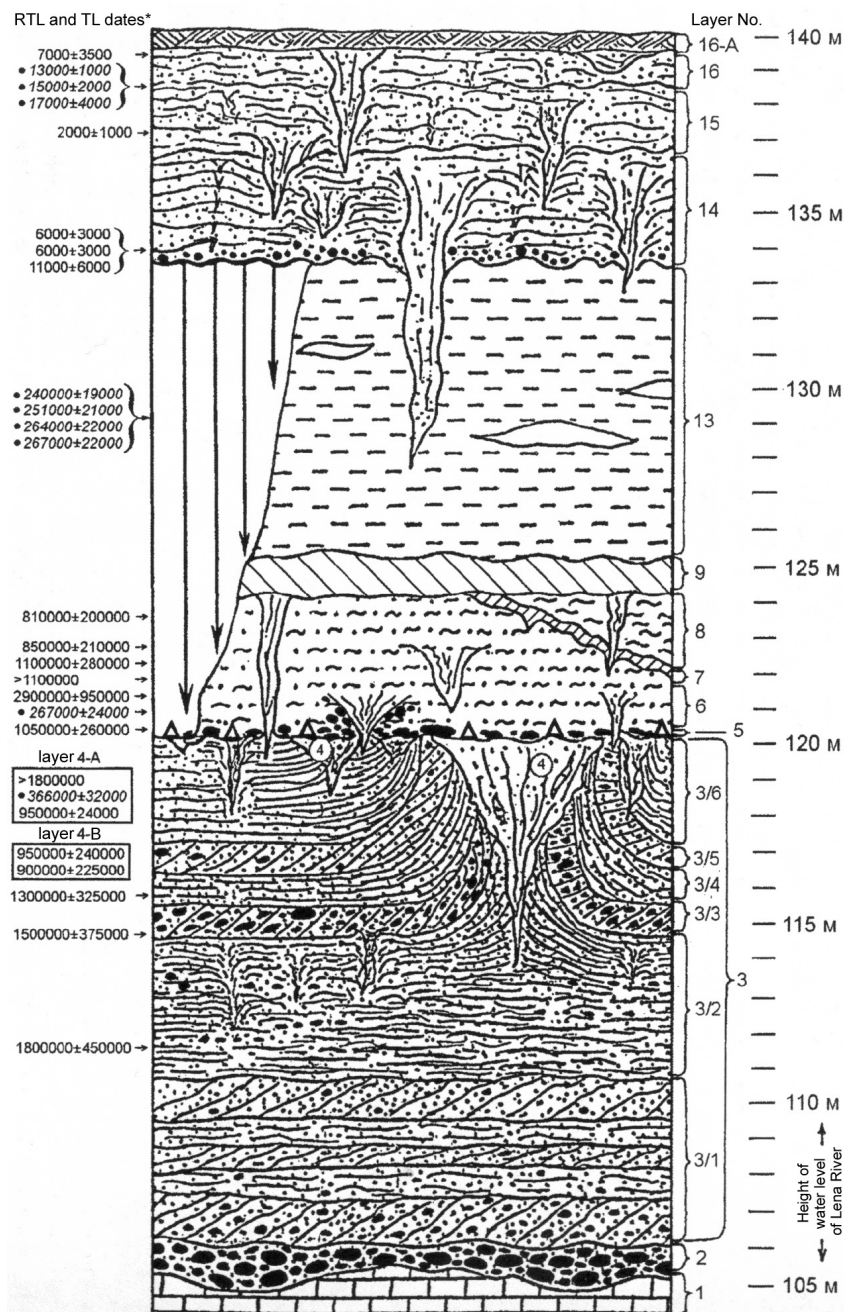


Figure 22. Summary stratigraphic cross section of deposits of the 125–135-metre intercytic Tabaginsk terrace in the vicinity of the Diring site. 1—modern soil layer; 2—sand Layers 16–14; 3—corraded gravel and small pebbles in contact between Layer 14 and the layers which it covers; 4—loam and sandy loam of Layer 13; 5—lenses of ice in Layer 13; 6—loam and sandy loam of Layer 9; 7—sandy loam of Layer 8; 8—sandy loam and loam of Layer 7; 9—sand and sandy loam of Layer 6; 10—deflated culture-bearing gravel of Layer 5; 11—corraded cultural remains of the earliest Paleolithic; 12—frozen sandy veins of Layer 4; 13—various frozen structures in Layers 16–14, 9–6, 3; 14—sand, gravel, isolated pebbles, and cobbles of Layer 3; 15—sand, pebbles, and cobbles of Layer 2; 16—Cambrian limestone (terrace bedrock); 17—superposition of Layer 14 on various strata due to scouring. [RTL=radio-thermoluminescence, TL = thermoluminescence]. Note: • noted are TL dates (after M.R. Waters, S.L. Foreman, and J.M. Pierson 1997:1282); all remaining RTL dates after O.A. Kulikov.

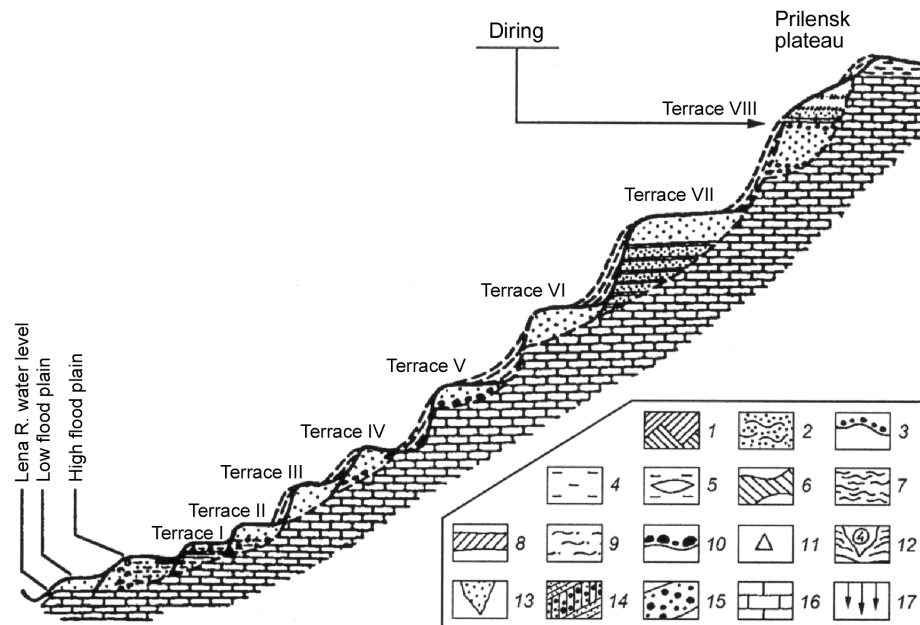


Figure 23. Schema of terraces of the Lena River in the Sinsk-Pokrovsk section (after S. S. Korzhuev 1977:40, with additions) and with conventional signs as in Fig. 22.

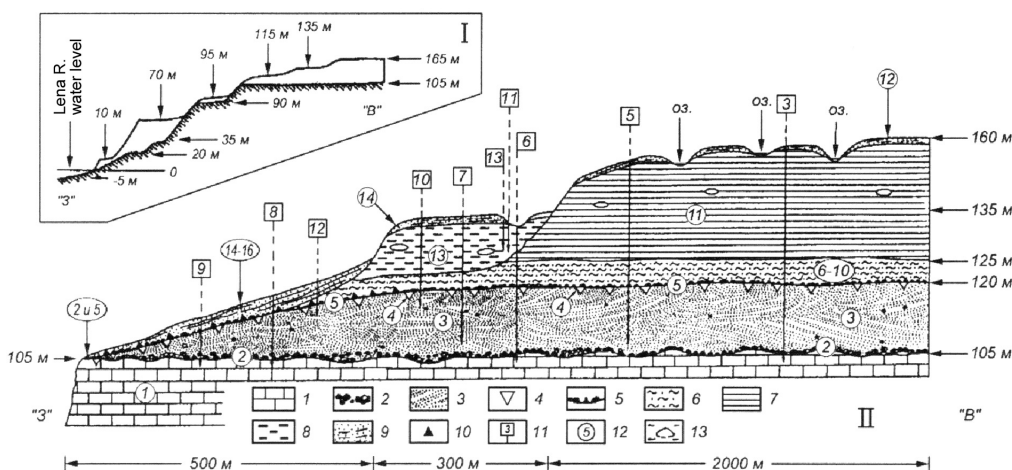


Figure 24. I—schematic not-to-scale profile of the locality and bedrock of the terraces in the vicinity of the Diring II site; II—schematic not-to-scale longitudinal profile of the Tabaginsk terrace in the vicinity of the Diring site. 1—Cambrian limestone; 2—gravel of Layer 2; 3—sand of Layer 3; 4—frozen sandy veins of Layer 4; 5—deflated culture-bearing gravel; 6—sands, sandy loams, and loams of Layers 6–10; 7—sandy loams and loams of Layer 11; 8—sandy loams and loams of Layer 13; 9—sands of Layers 12, 14–16; 10—cultural remains of the earliest Paleolithic; 11—holes and their size; 12—numbers of layers; 13—ice lenses.

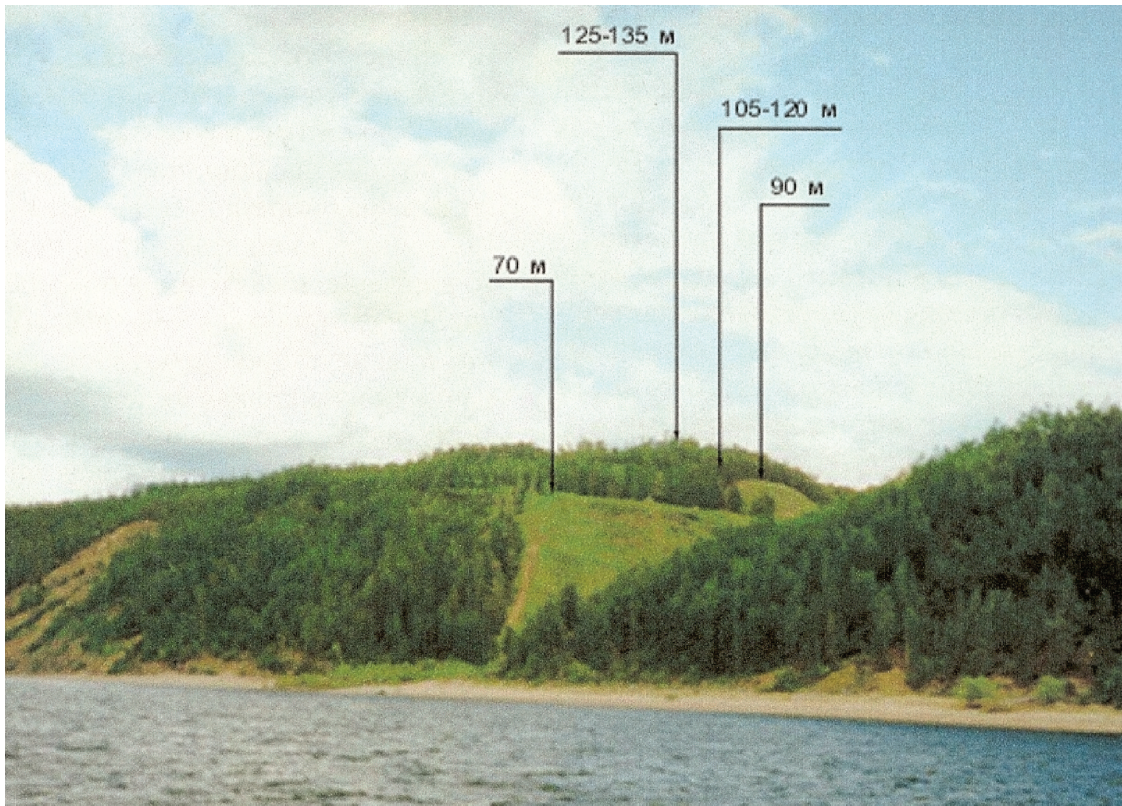


Figure 25. View from the Lena River of the area near the mouth of Diring-Yuryakh Creek. Arrows give the terrace elevations.



Figure 26. Diring Yuryakh site. Fragment of the eastern wall of excavation III. Culture-bearing Layer 5 superimposes red-colored sands of Layer 3 and frozen veins of Layer 4. Alluvial sands of Layer 6 cover it.

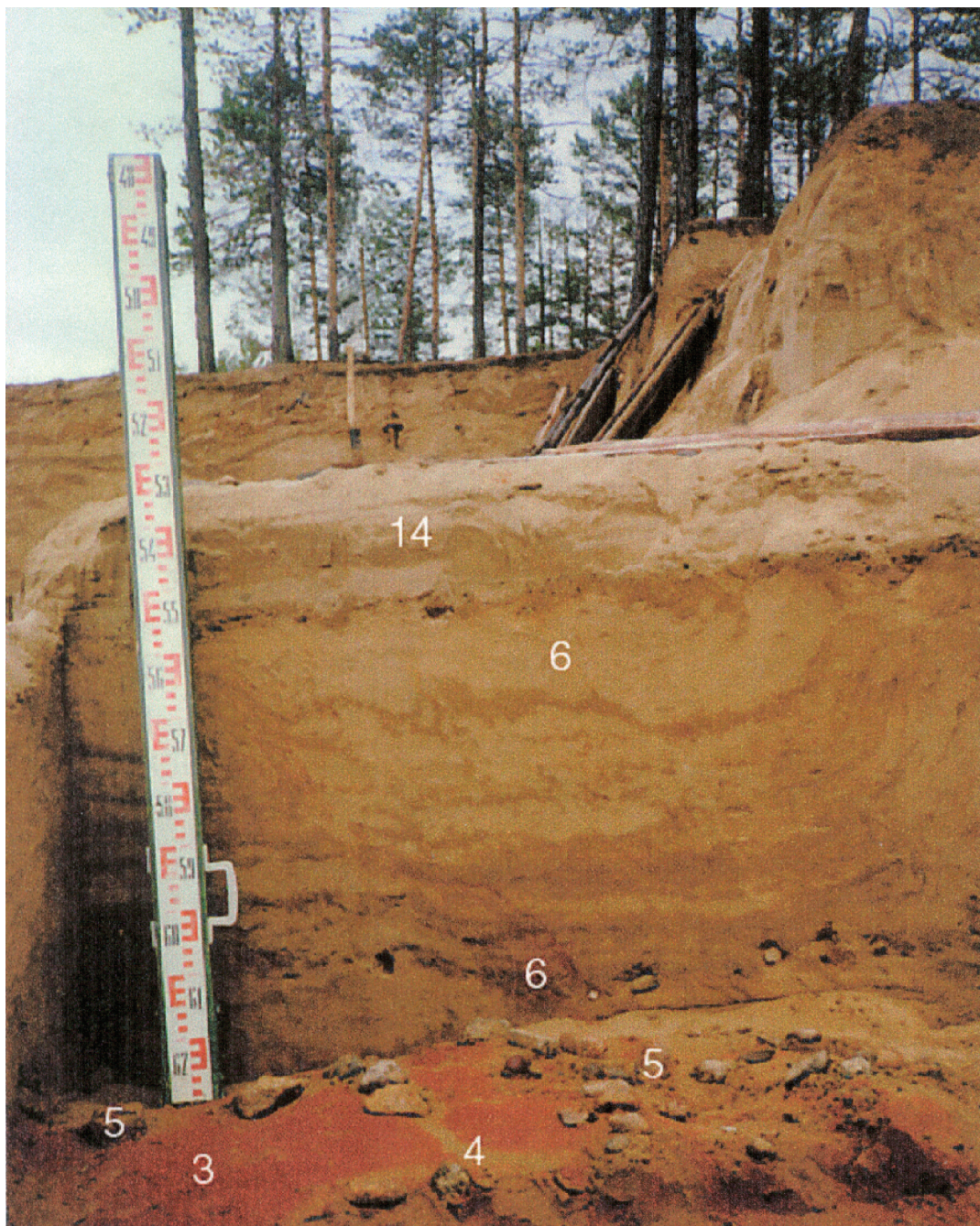


Figure 27. Diring Yuryakh site. Fragment of Cluster No. 43, located by the eastern wall of Excavation III, next to the external projection of the 125–135-metre intercylic Tabaginsk terrace. Culture-bearing layer (Layer 5) lies on Layers 3 and 4. Alluvial deposits of Layer 6 superimpose it with scouring. On this layer with scouring, which destroyed Layers 7–13, is superimposed Layer 14.

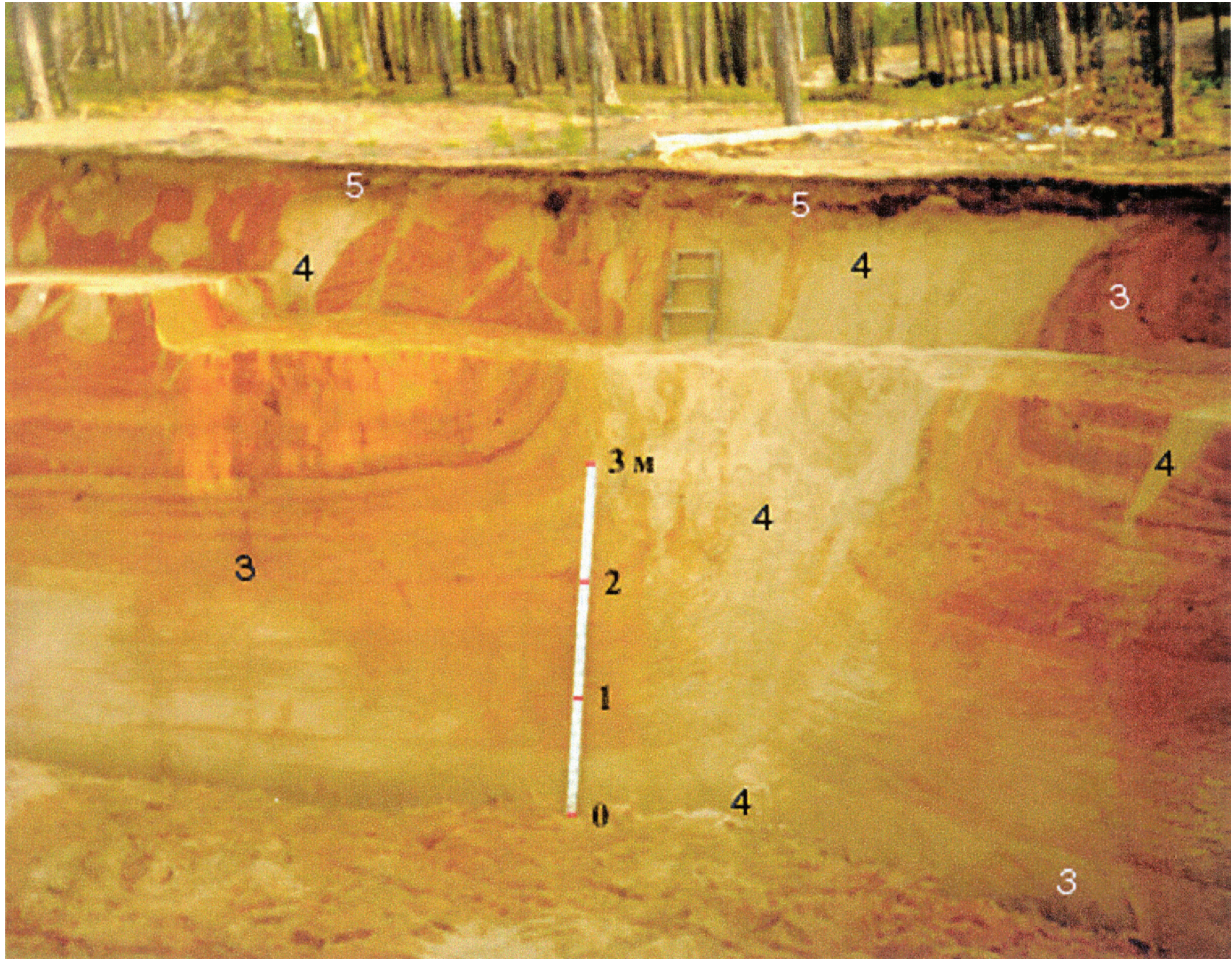


Figure 28. Diring Yuryakh site. South wall of Excavation III. Large and small frozen sandy veins (Layer 4), representing the cryogenic system of the polygonally veined sandy structures, epigenetically intruded into the fluvial red-colored sands of Layer 3. In this place (approximately 15–20 m west of the external projection of the 125–135-meter terrace) Layers 6–16, covering culture-bearing Layer 5, were scoured during the formation of the 105–120-meter terrace and subsequent surface erosion of Layers 14–16 and their colluvial redeposition on the 90-meter terrace.

PLATES

The Oldest Paleolithic Artifacts

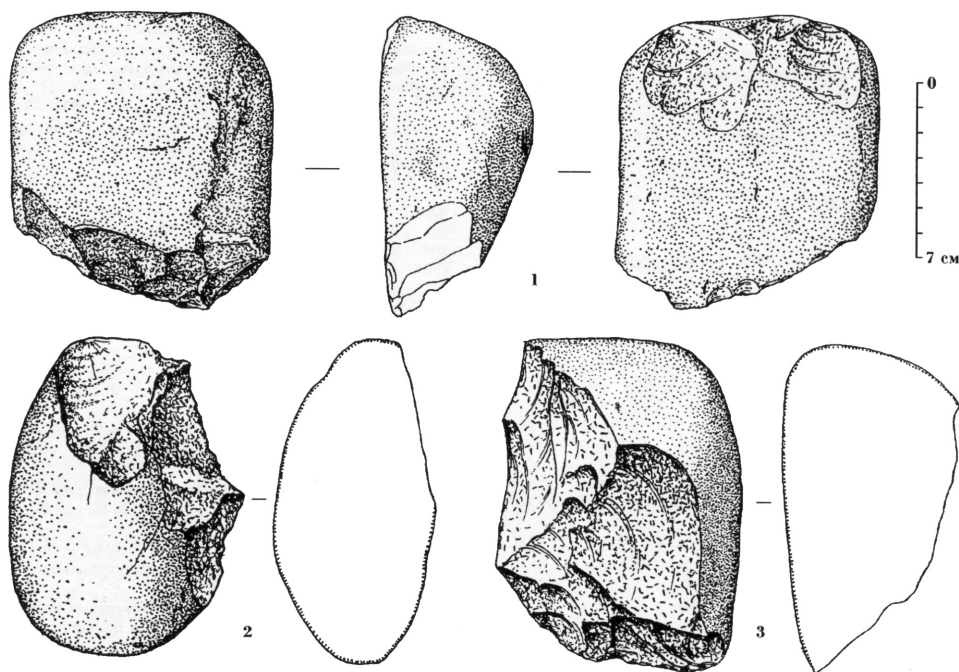


Plate 1. Diring culture of the Most Ancient Palaeolithic. Stone implements. Diring-Yuriakh Site — the Lena river. 1—assemblage 12; 2—assemblage 3; 3—assemblage 4. Quartzite.

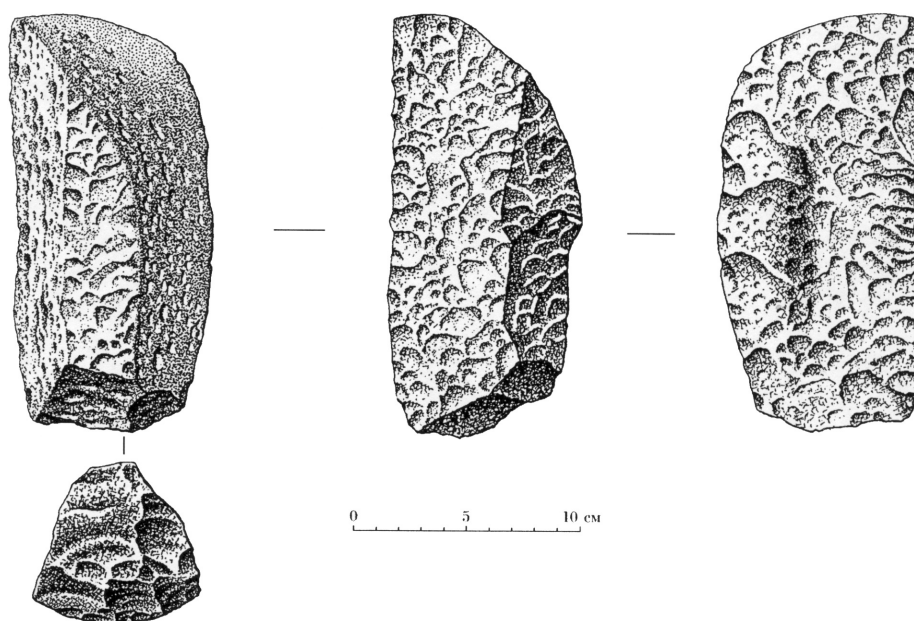


Plate 2. Diring culture of the Most Ancient Palaeolithic. Stone implements. Diring-Yuriakh Site. Assemblage 21. Quartzite.

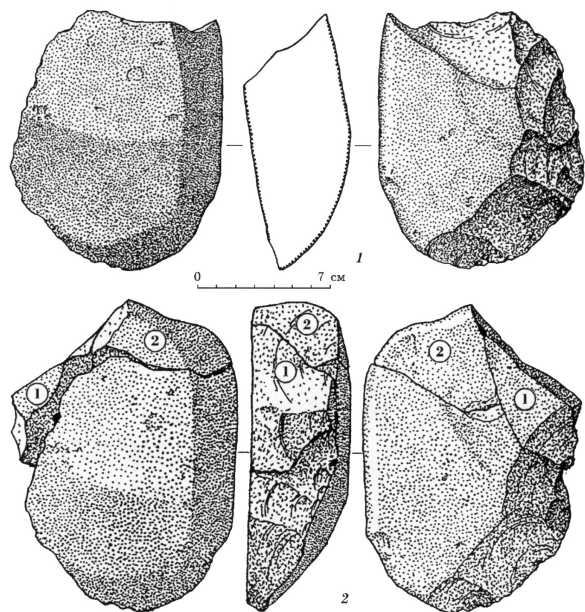


Plate 3. Diring culture of the Most Ancient Palaeolithic. Stone implements. Diring-Yuriakh Site. Assemblage 14. Quartzite.

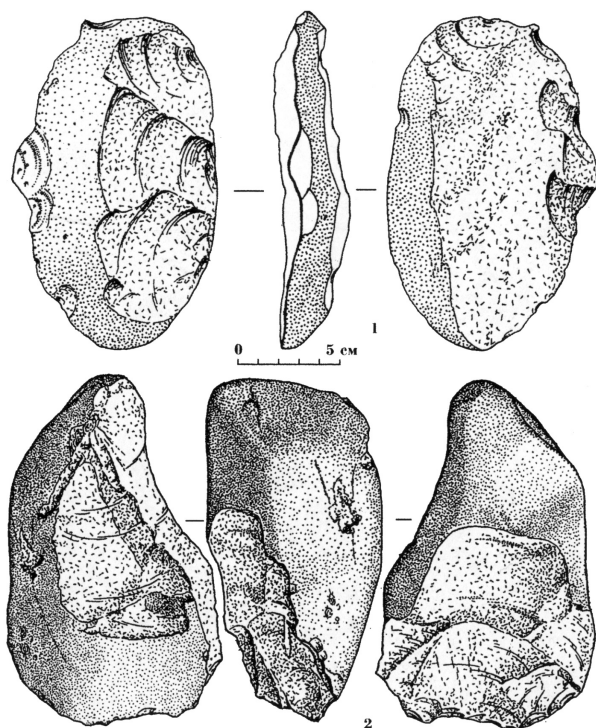


Plate 4. Diring culture of the Most Ancient Palaeolithic. Stone implements. Diring-Yuriakh Site. 1—assemblage 4; 2—assemblage 14. Quartzite.

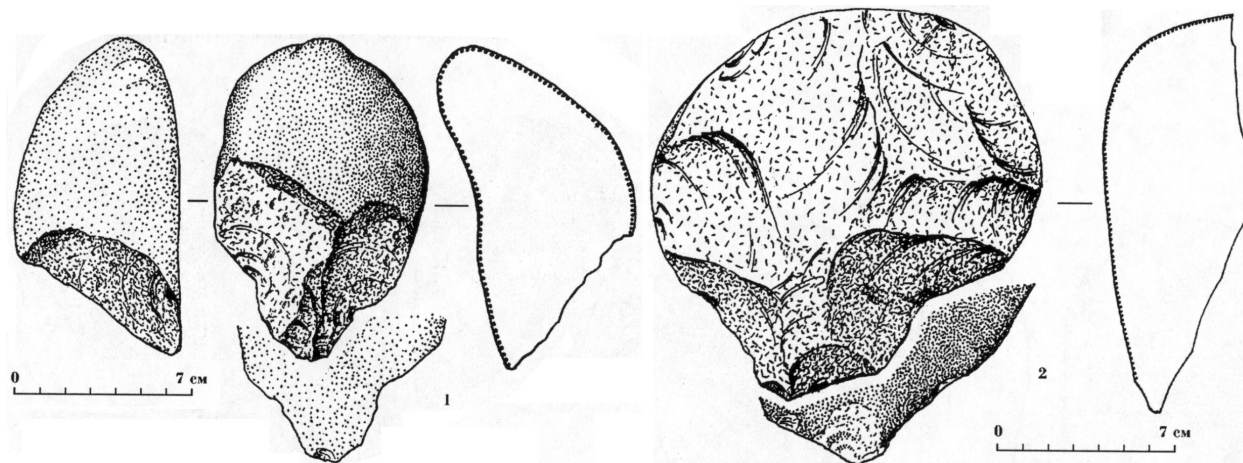


Plate 5. Diring culture of the Most Ancient Palaeolithic. Stone implements. Diring-Yuriakh Site. 1—assemblage 3; 2— assemblage 14. Quartzite.

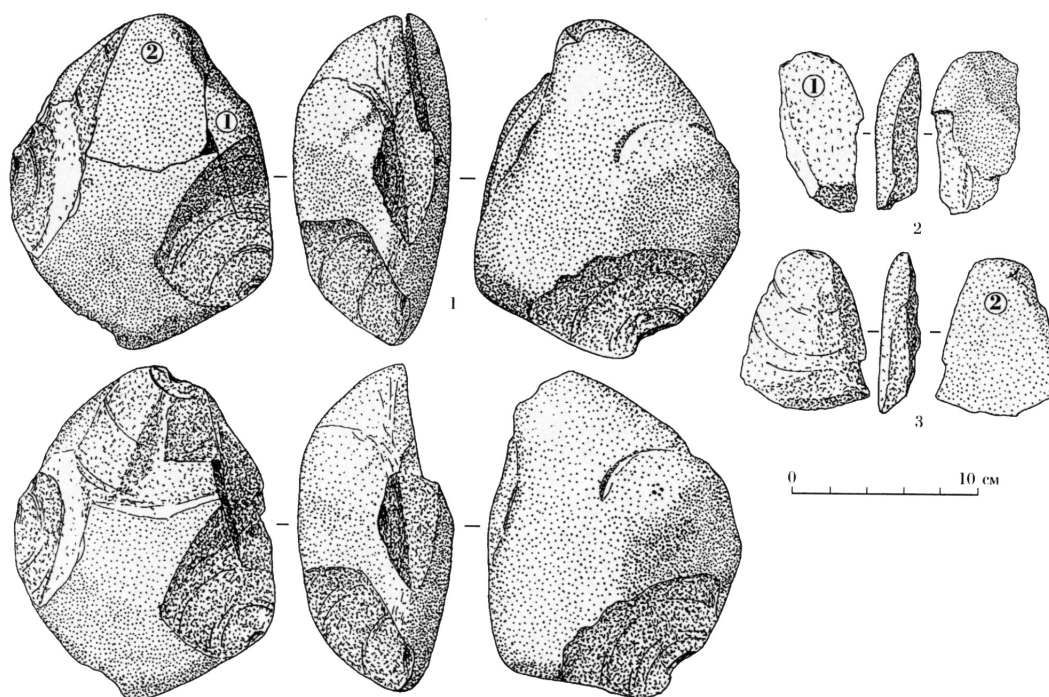


Plate 6. Diring culture of the Most Ancient Palaeolithic. Stone implements. Diring-Yuriakh Site. Quartzite. Assemblage 15.

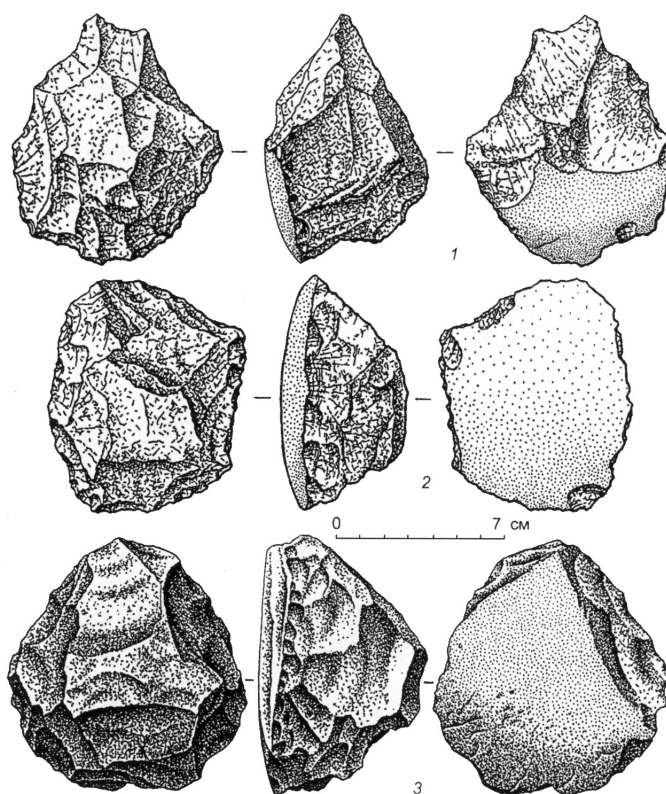


Plate 7. Alalaisk culture of the Most Ancient Palaeolithic. Stone implements. 1, 2—environs of the Olekminsk town, surface finds—the Lena river; 3—Diring-Yuriakh Site. Porphyrite (1), quartzite (2, 3).

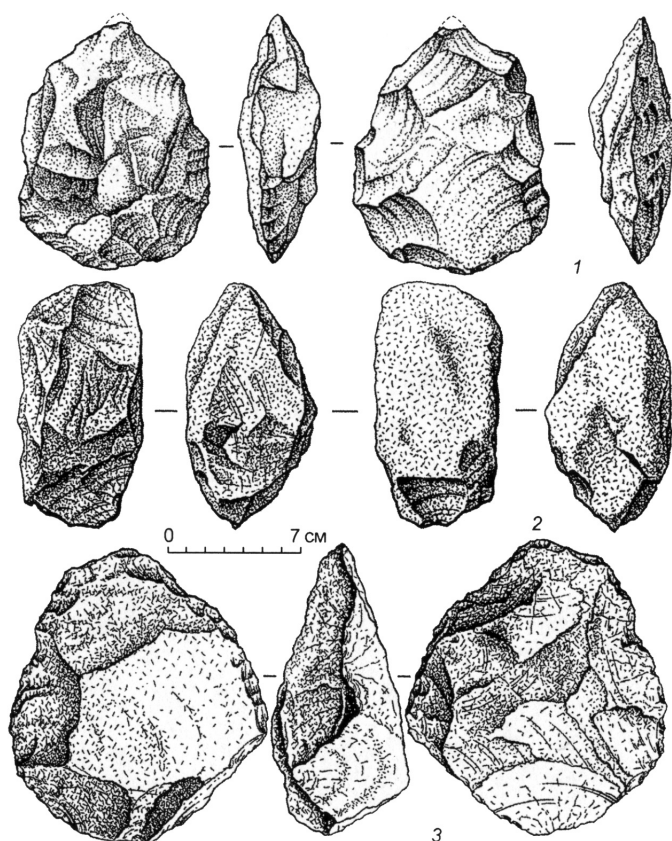


Plate 8. Alalaisk culture of the Most Ancient Palaeolithic. Stone implements from the different Sites: 1—Kyranda, the Lena river; 2—Berdinka, the Lena river; 3—environs of the Olekminsk town. Surface finds. Quartzite.

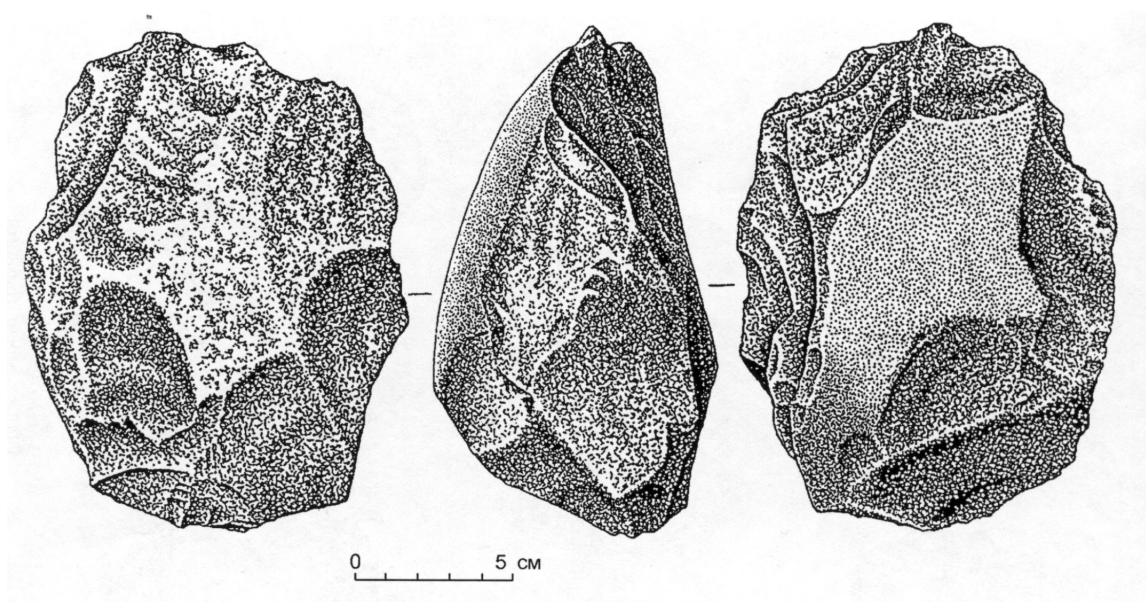


Plate 9. Alalaisk culture of the Most Ancient Palaeolithic. Stone implement. Ust'-Mil' III Site—the Aldan river. Surface find. Diabase.

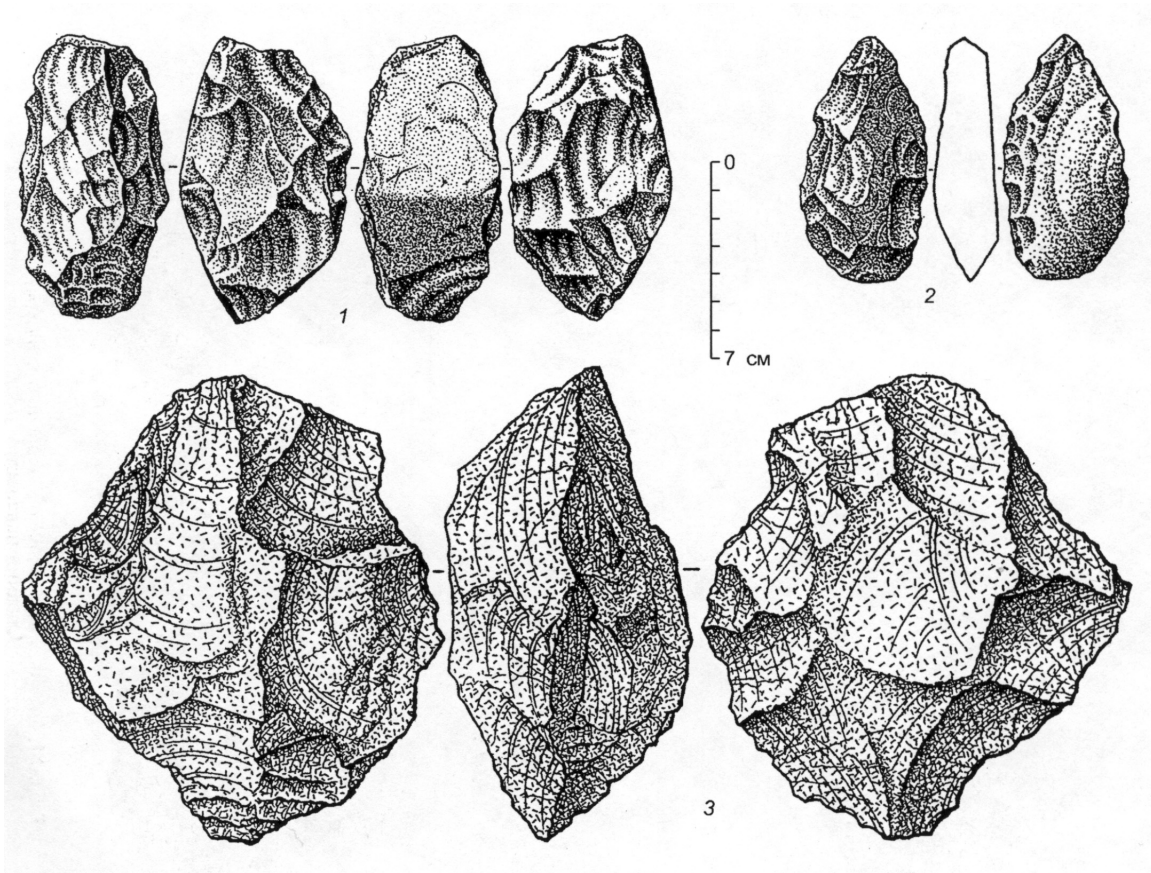


Plate 10. Alalaisk culture of the Most Ancient Palaeolithic. Stone implements. Environs of the Olekminsk town. Surface finds. Quartzite.

Middle Paleolithic Artifacts

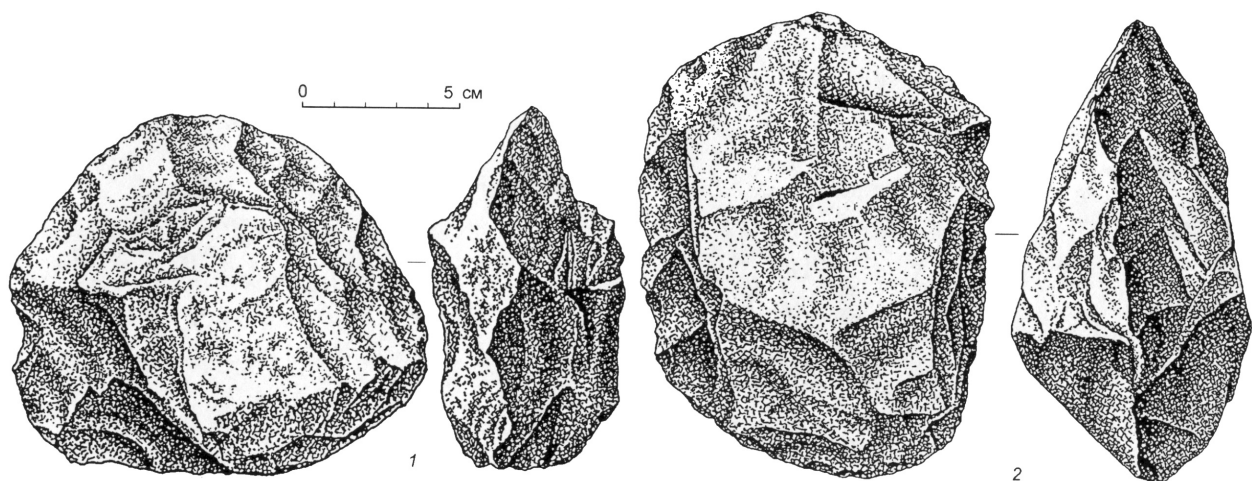


Plate 11. Kyzylsyrsrk (protodiuktai) culture of the Middle Palaeolithic. Stone implements. Mungharyma I Site—the Viliui river. Surface finds. Quartzite.

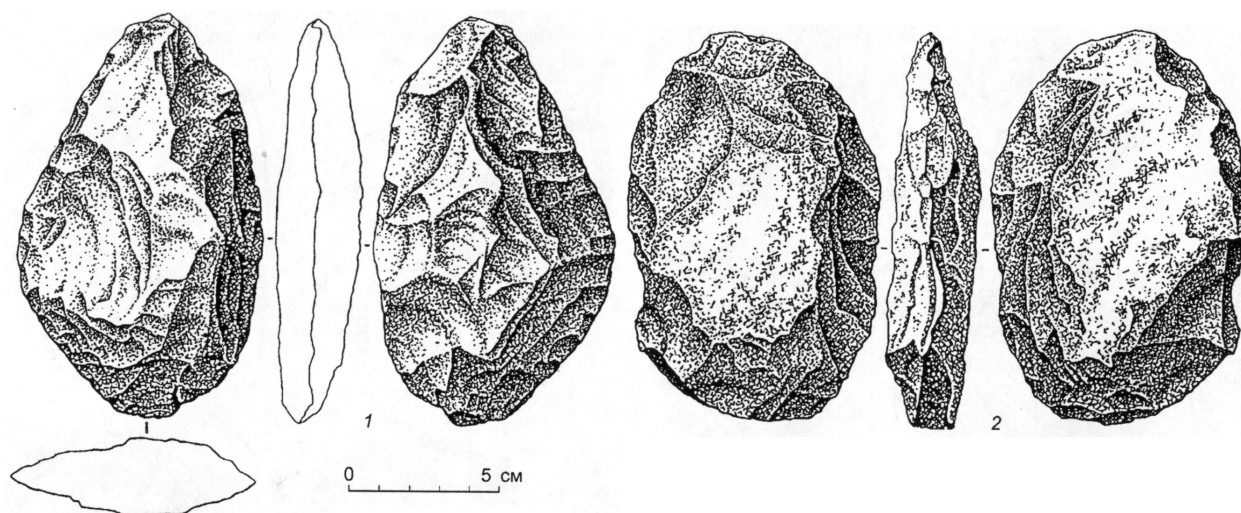


Plate 12. Kyzylsyrsk (protodiuktai) culture of the Middle Palaeolithic. Stone implements. Mungharyma I Site; 1—layer I, 2—layer II. Quartzite.

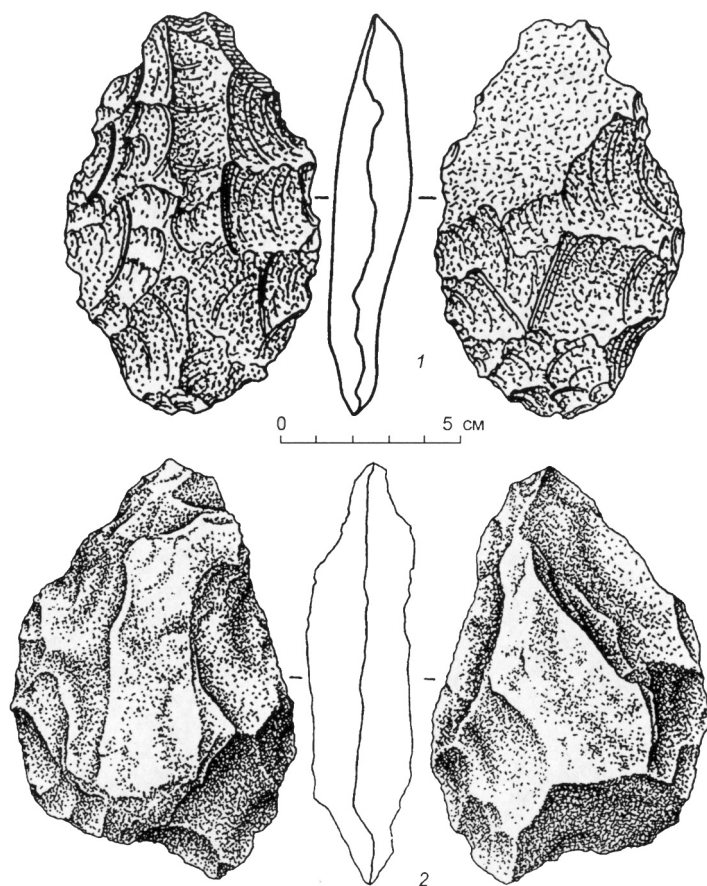


Plate 13. Kyzylsyrsk (protodiuktai) culture of the Middle Palaeolithic. Stone implements. 1—Kyzyl-Syr VIII Site—the Peledui river, left tributary of the Lena river, surface find; 2—Mungharyma I Site, layer III. Quartzite.

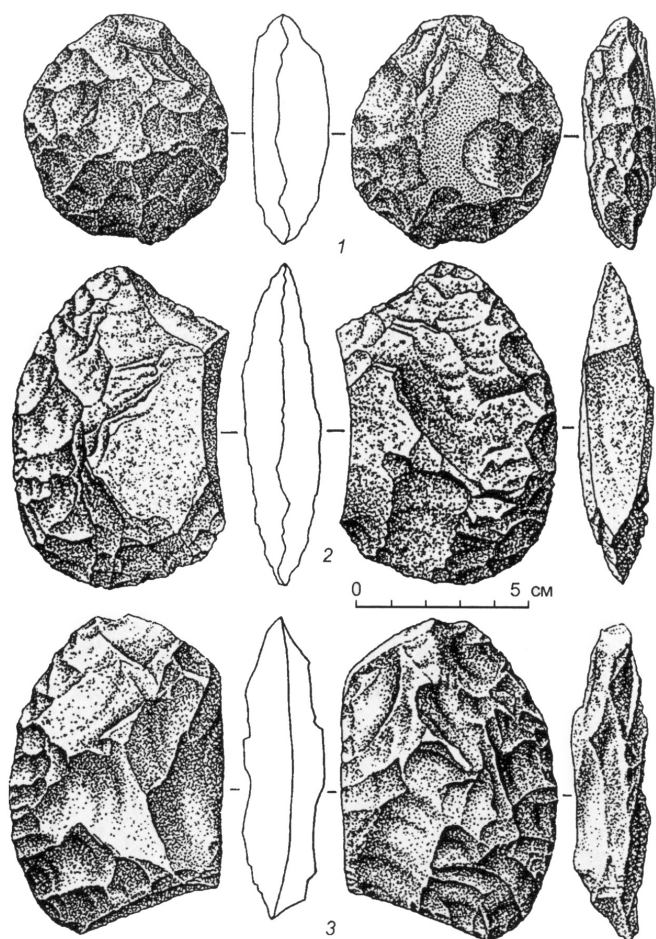


Plate 14. Kyzylsyrsk (protodiuktai) culture of the Middle Palaeolithic. Stone implements. Mungharyma I Site: 1; 3—surface finds; 2—layer. Quartzite.

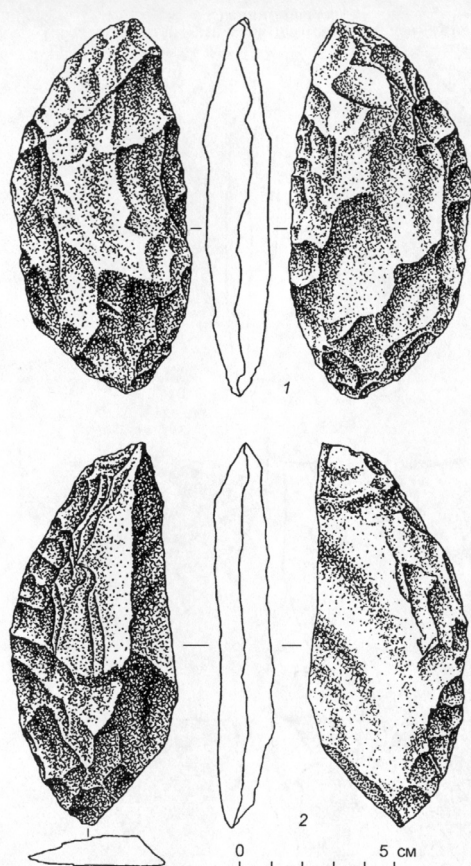


Plate 15. Kyzylsyrsk (protodiuktai) culture of the Middle Palaeolithic. Stone implements. Mungharyma I Site: 2—depth 40 cm; 1—surface find. Quartzite.

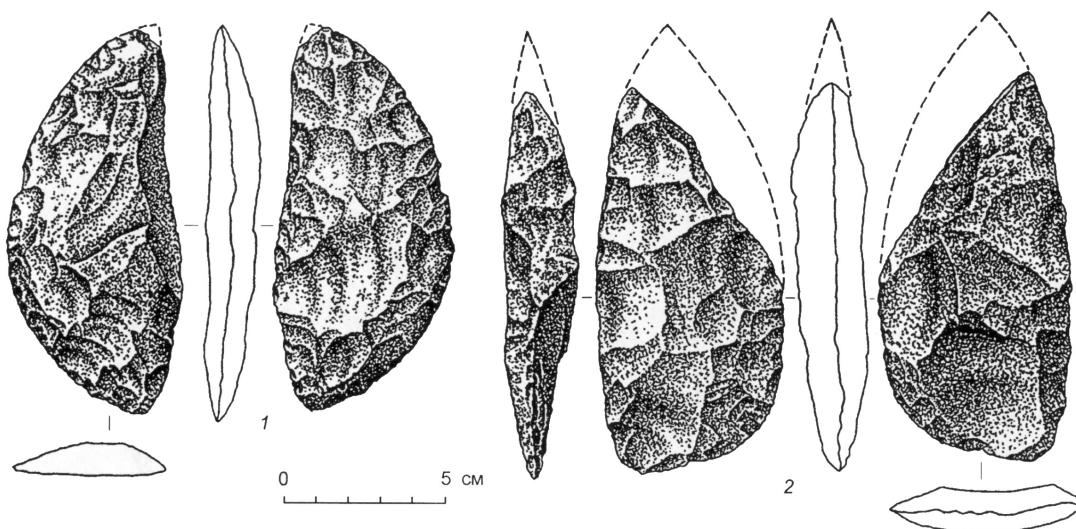


Plate. 16. Kyzylsyrsk (protodiuktai) culture of the Middle Palaeolithic. Stone implements. Mungharyma I Site, 1—layer I; 2—surface find. Quartzite.

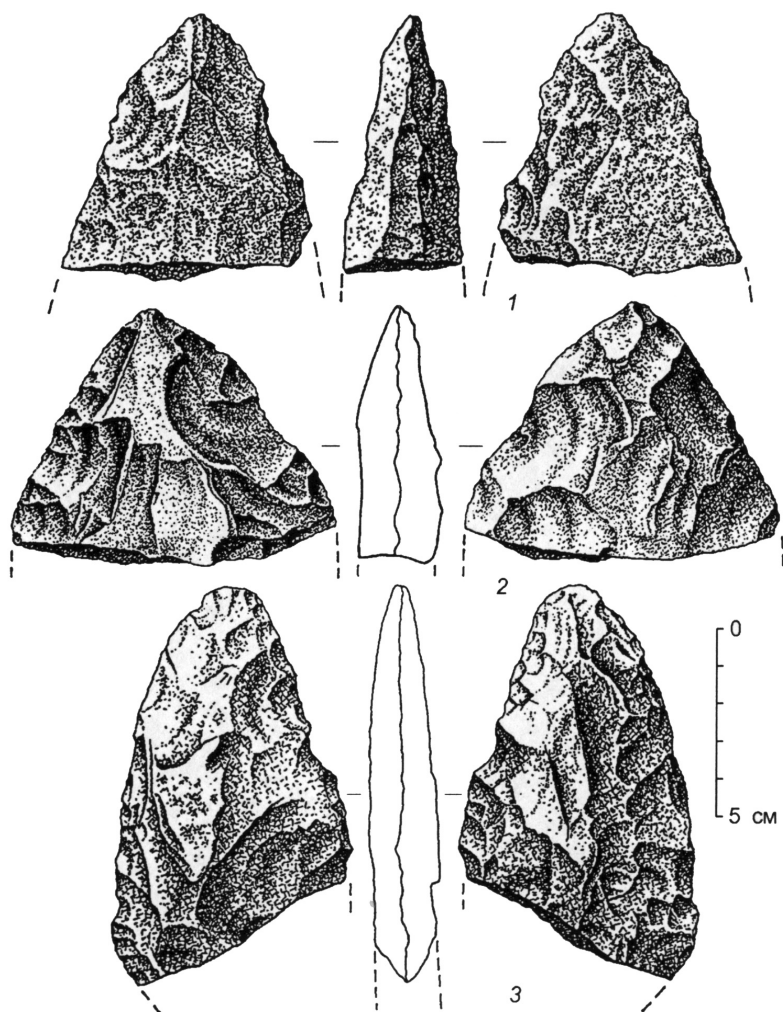


Plate 17. Kyzylsyrsk (protodiuktai) culture of the Middle Palaeolithic. Stone implements. Mungharyma I Site: 1, 3—surface finds; 2—layer, Quartzite.

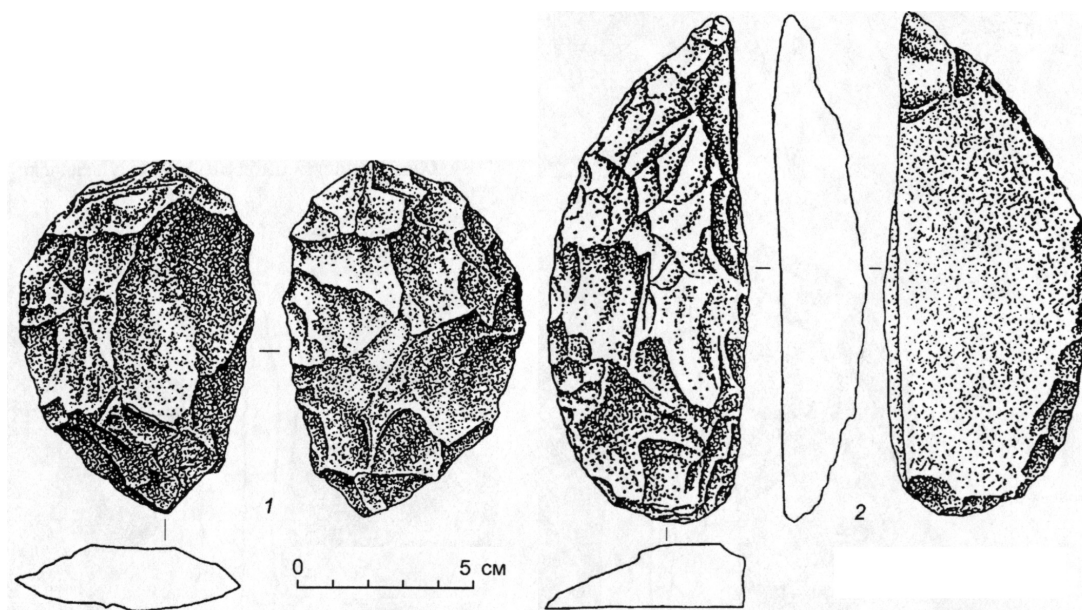


Plate. 18. Kyzylsyrsk (protodiuktai) culture of the Middle Palaeolithic. Stone implements. Mungharyma I Site: 1—layer II; 2—surface finds. Quartzite.

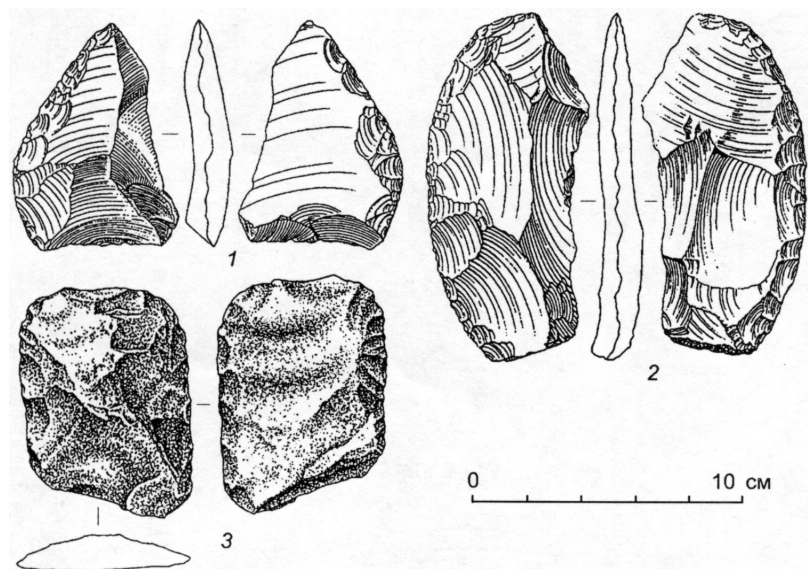


Plate 19. Kyzylsyrs (protodiuktai) culture of the Middle Palaeolithic. Stone implements. Mungharyma I Site. Surface finds. Flint (1, 2), quartzite (3).

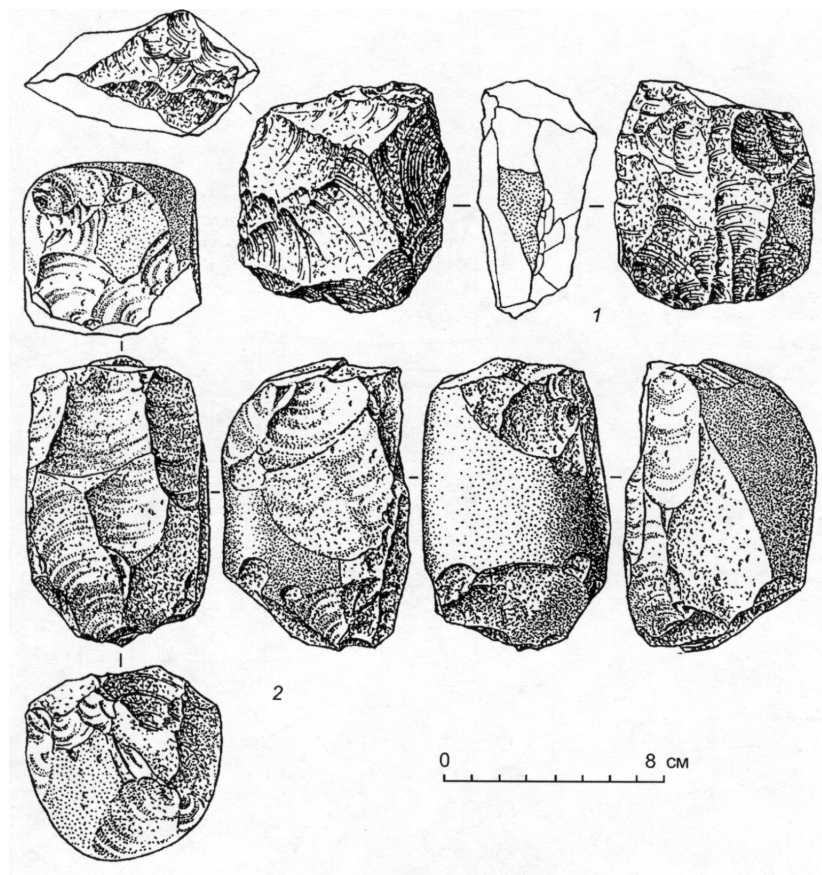


Plate 20. Chirkuosk culture of the Middle Palaeolithic or initial stage of Late Palaeolithic (?). Stone implements. Environs of the Olekminsk town. Surface finds. Quartzite.

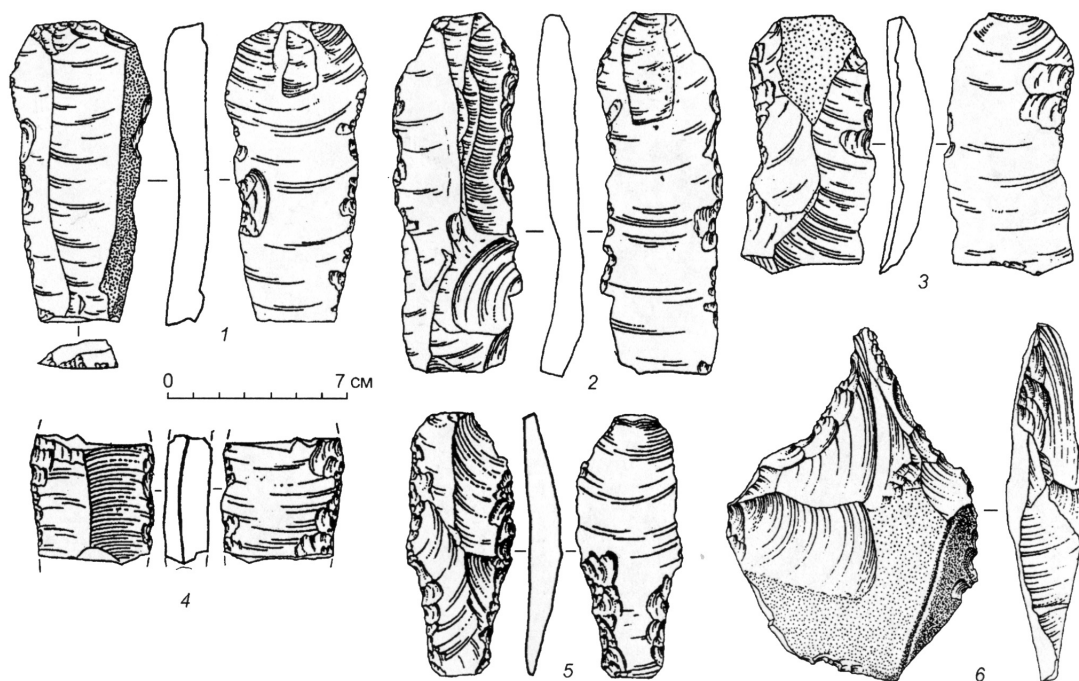


Plate 21. Chirkuosk culture of the Middle Palaeolithic or initial stage of Late Palaeolithic (?). Stone implements. 1, 3, 5—Ust'-Chirkuo I Site, the Viliui river, layer III; 2, 6—Ust'-Chirkuo II Site, surface finds, the Viliui river layer; 4—Ust'-Chirkuo I Site, layer II. Flinty slate.

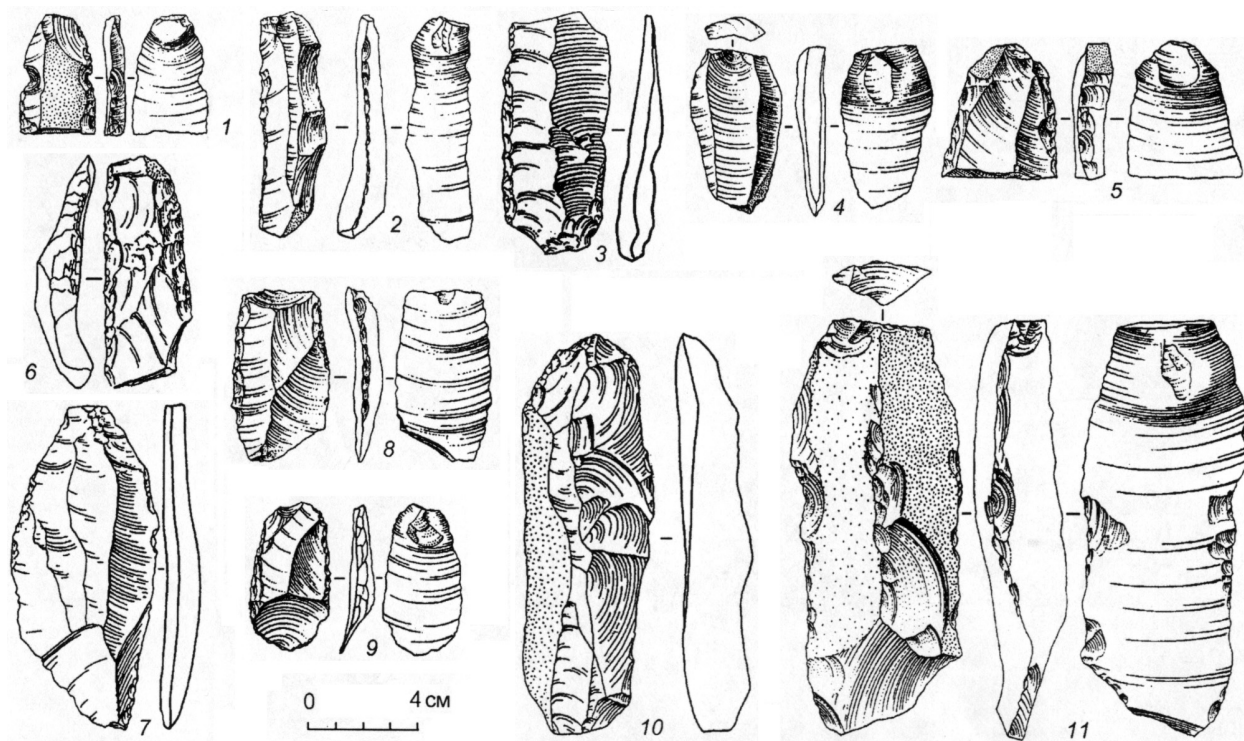


Plate 22. Chirkuosk culture of the Middle Palaeolithic or initial stage of Late Palaeolithic (?). Stone implements. 1—Ust'-Chirkuo I Site, layer IIB; 2, 4, 5, 9—layer II; 3, 10—layer I; 6-8, 11—layer III. Flinty slate.

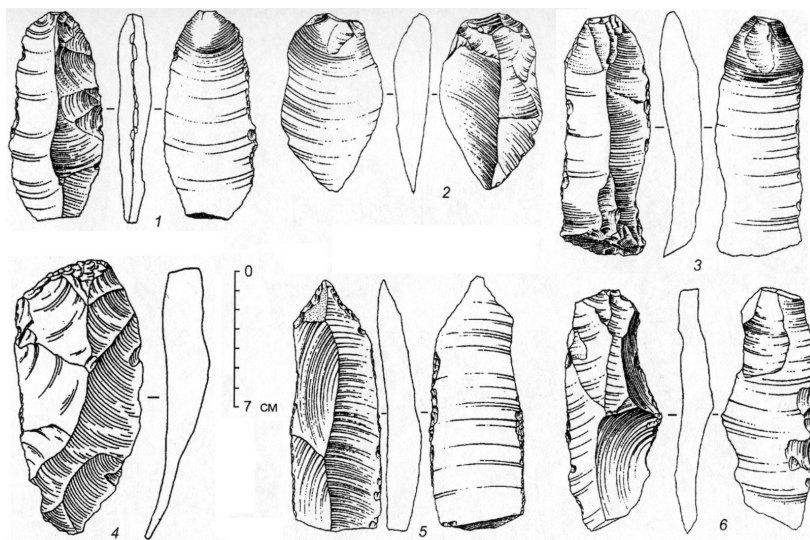


Plate 23. Chirkuosk culture of the Middle Palaeolithic or initial stage of Late Palaeolithic(?). Stone implements. 1,6 – Ust'-Chirkuo I Site surface finds, 2 – layer II, 3 – 5 — layer III. Flinty slate.

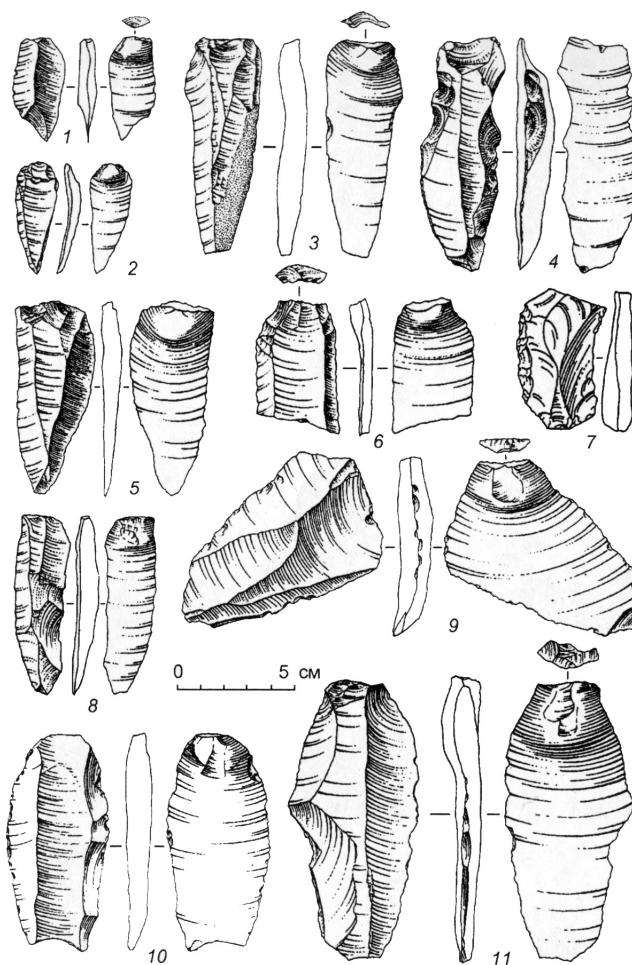


Plate 24. Chirkuosk culture of the Middle Palaeolithic or initial stage of Late Palaeolithic (?). Stone implements. 1—Ust'-Chirkuo I Site, layer III; 2, 4—layer II; 3, 5, 6, 9–11—surface finds; 7—Ust'-Chirkuo II Site, 8—Ust'-Chirkuo I Site, layer I. Flint (1, 7, 8), flinty slate (2–6, 9–11).

Late Paleolithic Artifacts

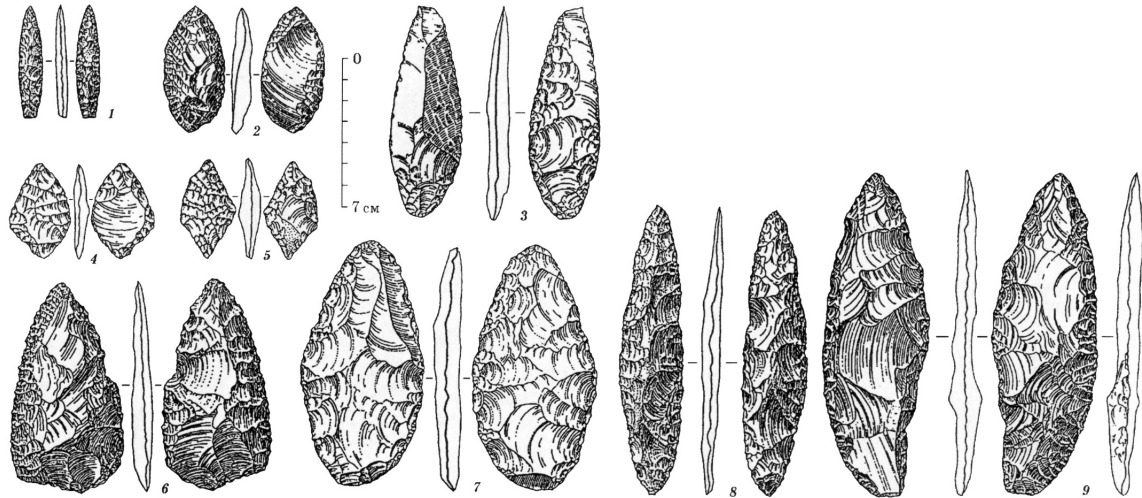


Plate 25. Diuktai culture of the Late Palaeolithic. Stone implements from the different Sites: 1, 2, 6—Diuktai cave, the Aldan river, layer VIIa; 3, 7—Tumulur, the Aldan river, layer III; 4—Ber-elekh, surface finds, the Indigirka river; 5—Sumnagin II, the Aldan river; 8—Diuktai cave, layer VIIB; 9—Verkhnetroitskaia, the Aldan river; Flint (1, 2, 4–6, 8, 9), flinty slate (3, 7).

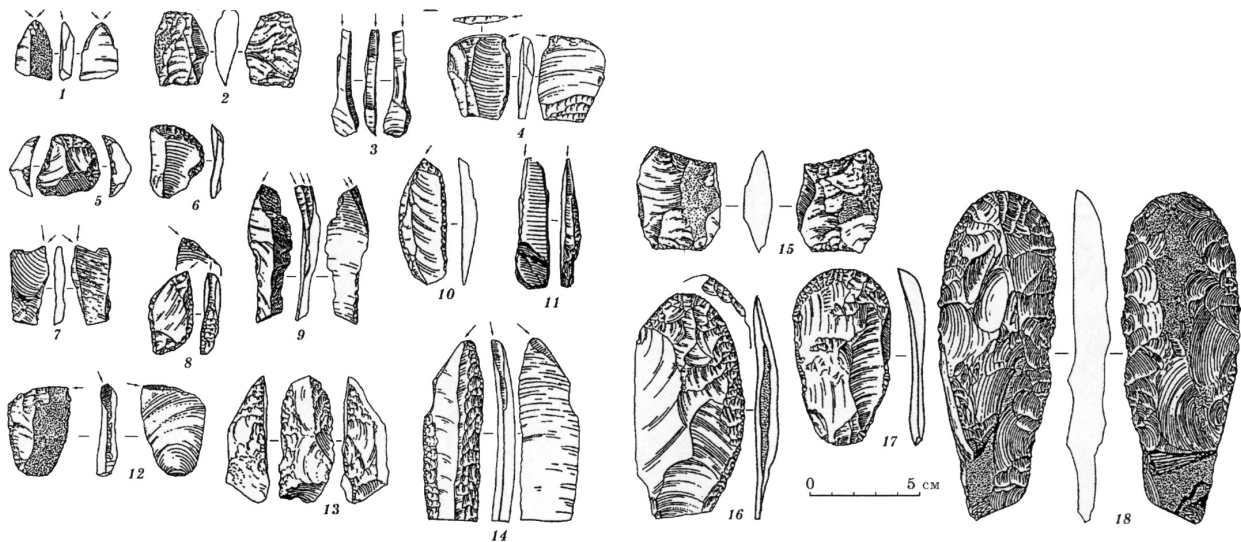


Plate 26. Diuktai culture of the Late Palaeolithic. Stone implements from the different Sites: 1—Verkhnetroitskaia; 2, 15—Ulakhan-Botuobuia III, the Viliui river; 3, 6, 7—Ezhantsy, the Aldan river; 4—Sumnagin II; 5—Ikhine I, layer II, the Aldan river; 8—Ust'-Mil' II, surface find; 9, 11—Diuktai cave, layer VIII; 10—Yubileinaia, the Lena river; 12, 16–18—Verkhnetroitskaia, surface finds; 13—Kiunkiu II, I, the Amga river, basin of the Aldan river; 14—Avdeikha, layer III low. Flint (1, 2, 4, 5, 7–18), hornfels (3, 6).

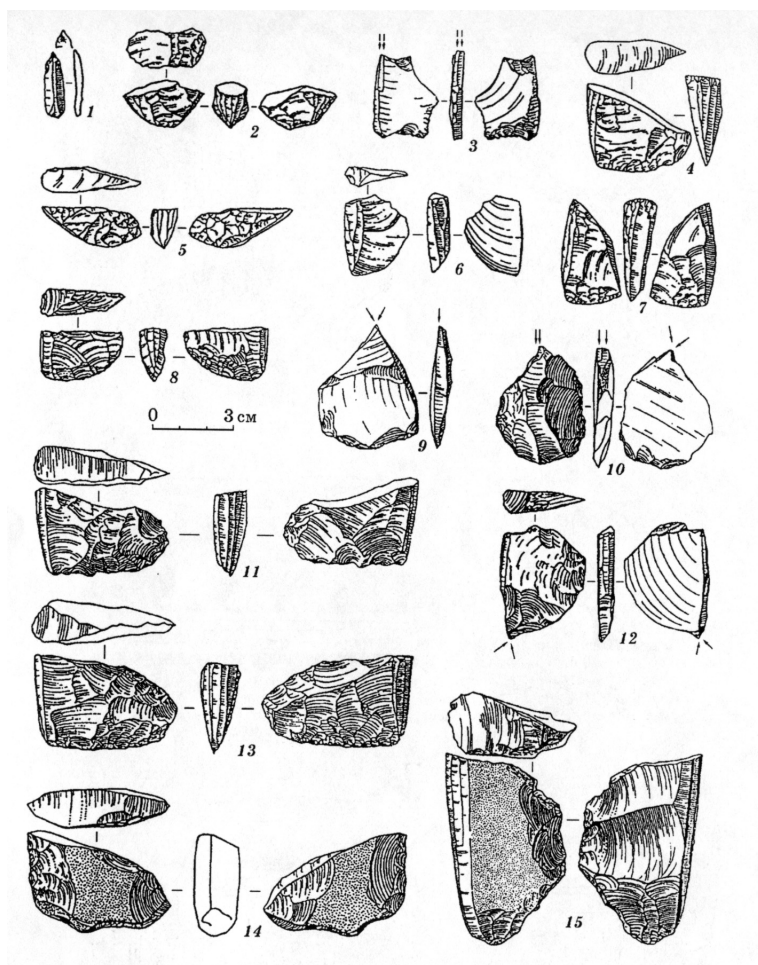


Plate 27. Diuktai culture of the Late Palaeolithic. Stone implements from the different Sites: 1, 6, 9, 10, 12—Ezhantsy; 2—Tumulur; 3—Berelekh; 4, 13—Verkhnetroitskaia, surface finds; 5—Yubileinaia; 7—Ust'-Mil' II, surface find; 8—Diring-Yuriakh; 11—Ikhine I, layer II; 14—Diuktai cave, layer VIIa; 15—layer VIIb. Flint (1-8, 11, 13-15), hornfels (9, 10, 12).

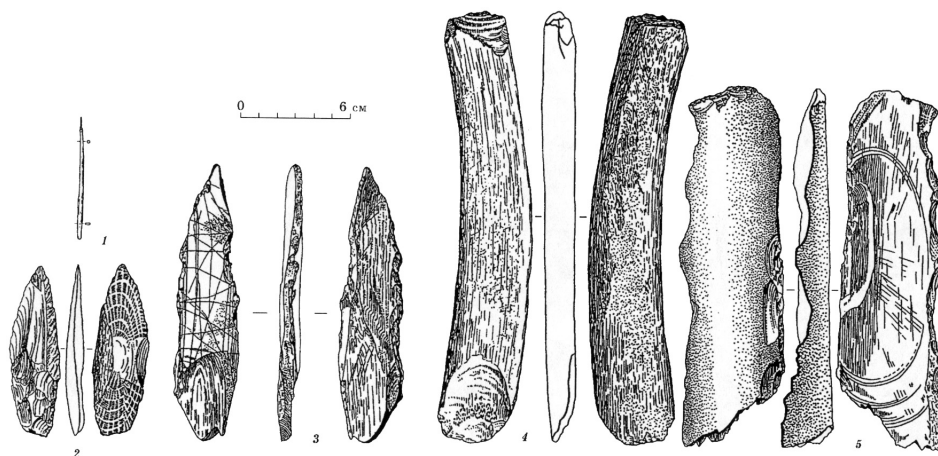


Plate 28. Diuktai culture of the Late Palaeolith. Bone implements (1, 4) and implements on the mammoth tusk (2, 3, 5) from the different Sites: 1—Verkhnetroitskaia; 2—Diuktai cave, layer VIII; 3-5—Berelekh, surface finds.

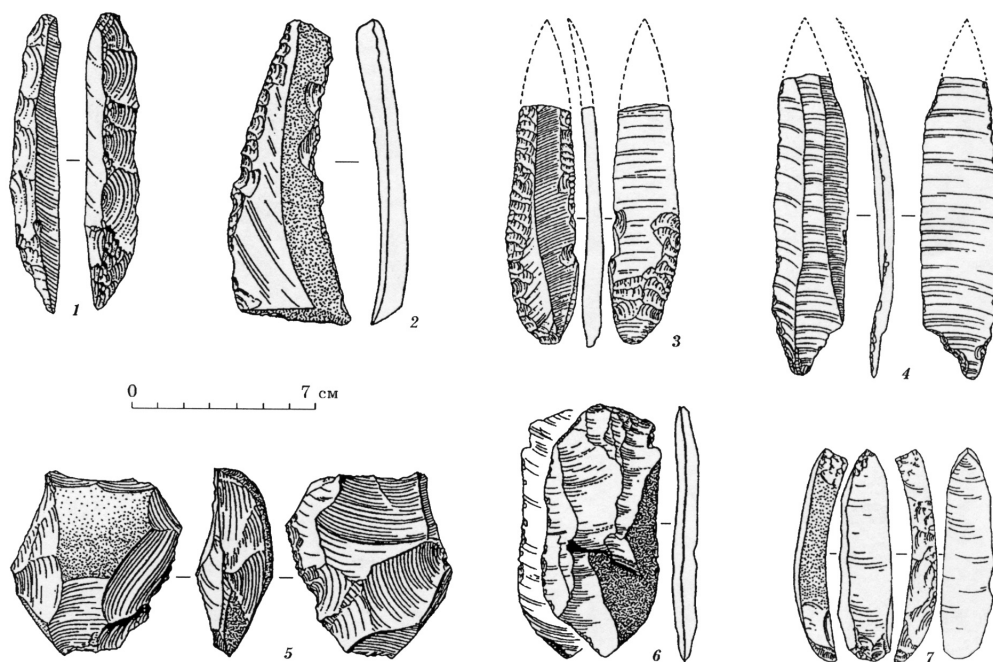


Plate 29. Diuktai culture of the Late Palaeolithic. Stone implements from the different Sites: 1—Diuktai cave, layer VII₆; 2—Verkhnetroitskaia, surface find; 3—Kukhtui III, surface find, North-East of the Okhotsk sea coast; 4—Ust'-Diuktai I, the Aldan river; 5—Ezhantsy; 6—Berelekh; 7—Nizhnetroitskaia, surface find, the Aldan river; Flint (2–4, 6, 7), flinty slate (1), hornfels (5).

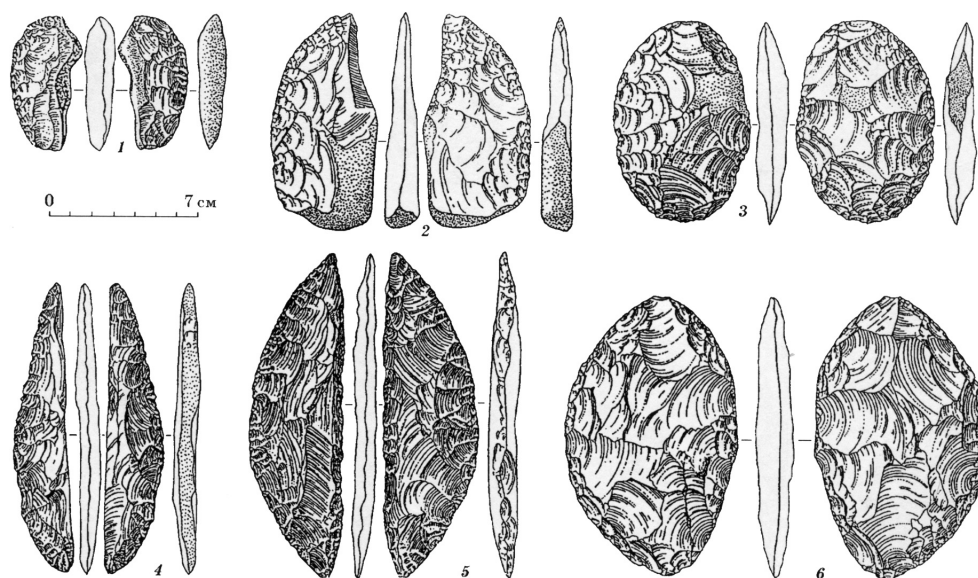


Plate 30. Diuktai culture of the Late Palaeolith. Stone implements from the different Sites: 1—Diuktai cave, layer VIII; 2—Ust'-Mil' II, surface find; 3—Diuktai cave, layer VIIa, 4, 5—Verkhnetroitskaia, surface finds; 6—Avdeikha, layer IVB, the Vitim river. Flint.

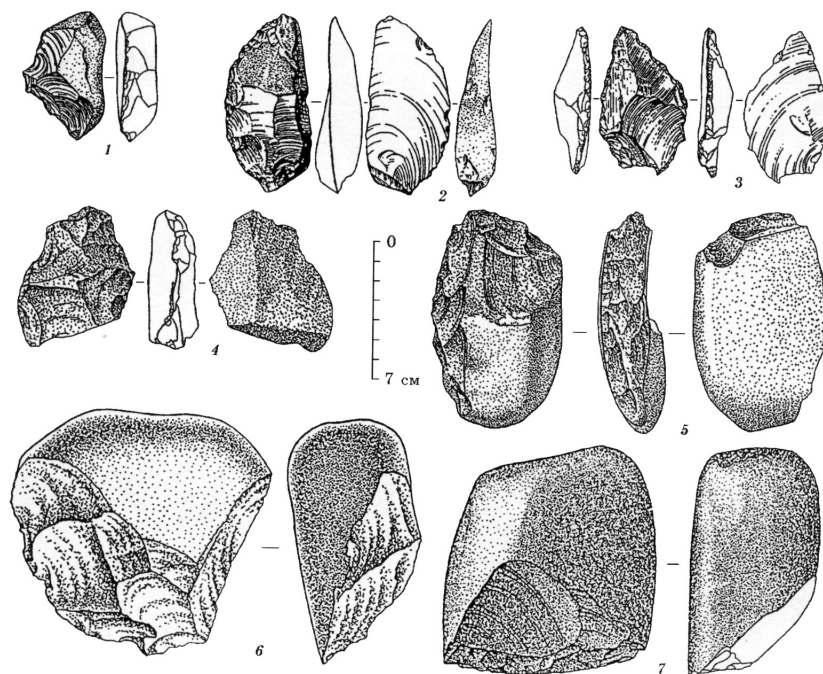


Plate 31. Diuktai culture of the Late Palaeolithic. Stone implements from the different Sites: 1—Ezhantsy; 2—Diuktai cave, layer VIII; 3, 7—Verkhnetroitskaia, surface finds; 4—Ikhine II, the Aldan river, layer Ia; 5—Ikhine II, layer IIr; 6—Avdeikha, layer III. Flinty slate (2); hornfels (1); jasper (3), argillite (4), diabase (5, 7); quartzite (6).

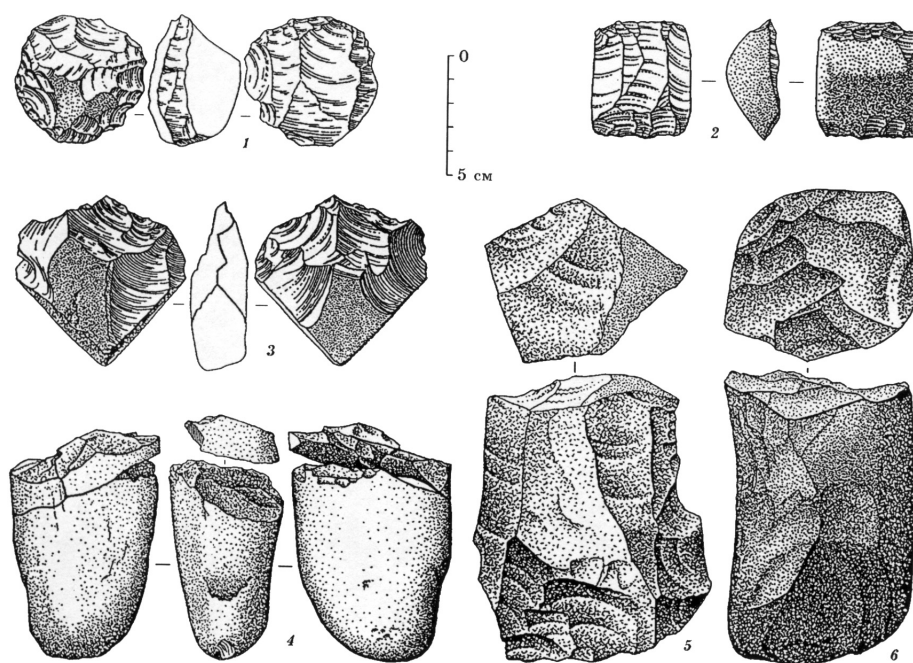


Plate 32. Diuktai culture of the Late Palaeolithic. Stone implements from the different Sites: 1, 2, 5—Verkhnetroitskaia, surface finds; 3—Diuktai cave, layer VIII; 4, 6—Ezhantsy. Flint (1–3), diabase (4–6).

Latest Paleolithic Artifacts

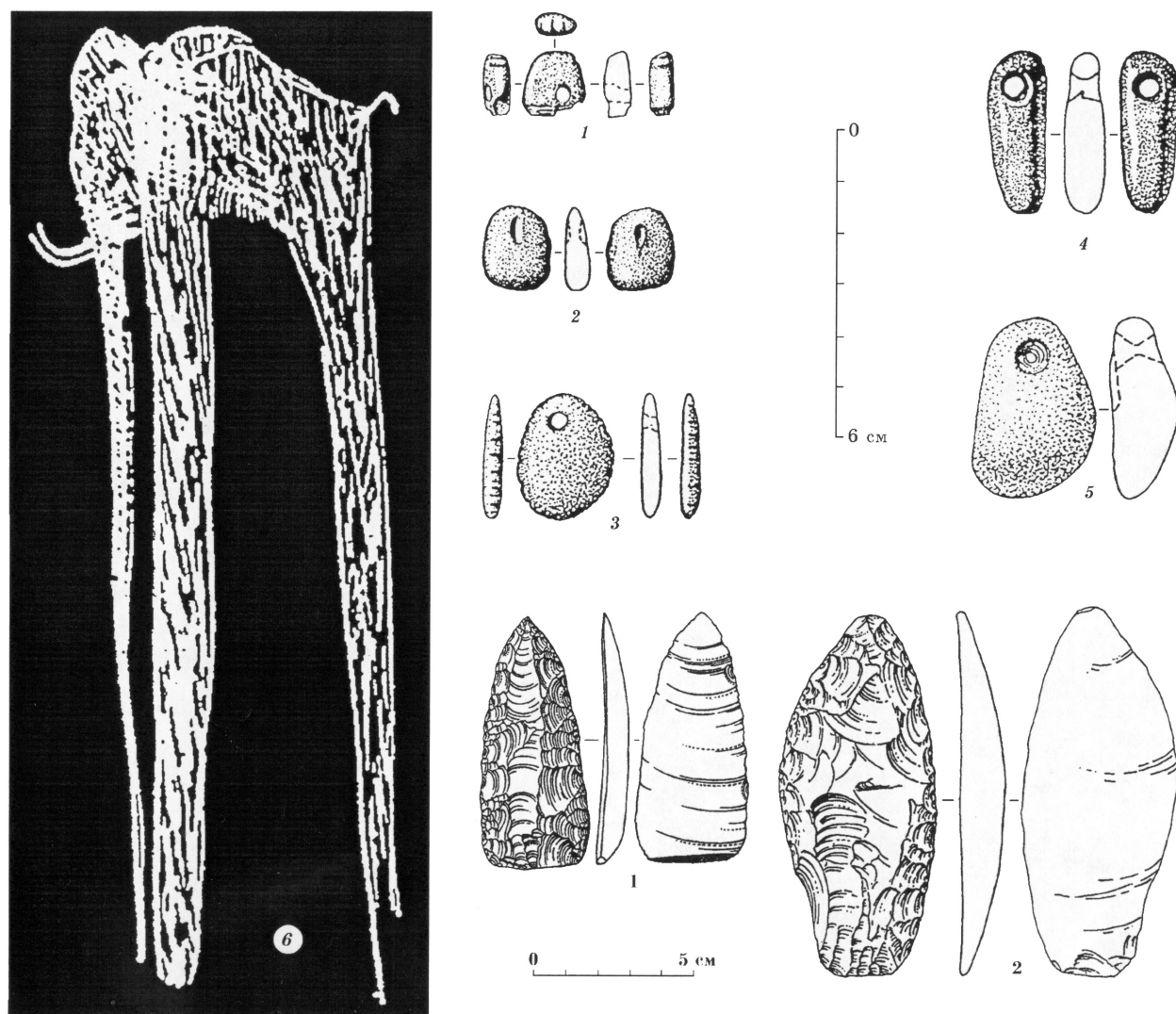


Plate 33. Diuktai culture of the Late Palaeolithic. Stone implements (1–5) and engraved drawing on the mammoth tusk (8) from the different Sites: 1, 2, 4, 5—Berelekh Site; 3, 8—Berelekh Site, surface finds; 6—Enn'ie, the Aldan river; 7—Allaikha, the Indigirka river. Pyrophyllite (1), grey aleurite with veins of white quartzite (2, 3), white calcite (4), bright green jadeite (5), flint (6, 7).

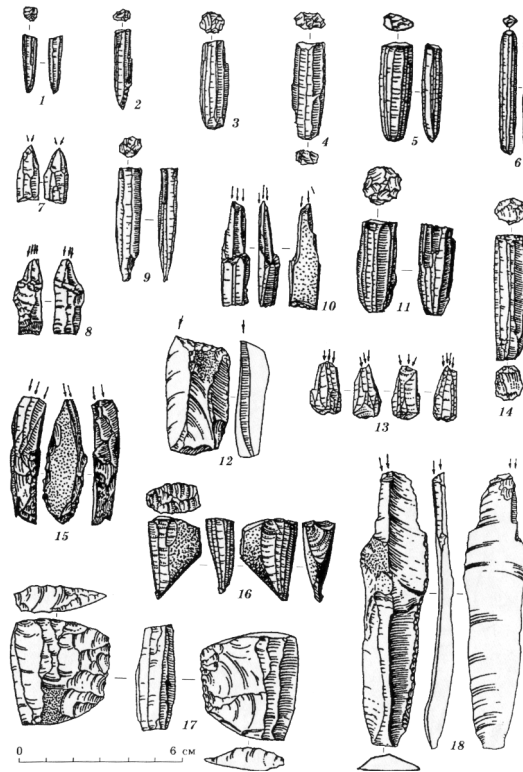


Plate 34. Sumnagin culture of the Latest Palaeolithic. Stone implements from the different Sites: 1—Bel'kachi I, the Aldan river, layer XI; 2–4—Bel'kachi I, layer X; 5, 6, 15—Ust'-Timpton I, the Aldan river, layer IV; 7, 8—Ust'-Chirkuo I, layer III; 9—Bel'kachi I, layer XII; 10—Ust'-Timpton I, layer IVБ; 11—Bel'kachi I, layer IX; 12—Sumnagin I, the Aldan river, layer XXIV; 13, 16, 17—Ust'-Timpton I, layer IVЖ; 14—Ust'-Timpton I, layer V; 18—Amka, layer II, the Ul'ia river, North-East of the Okhotsk sea coast. Flint (1–6, 8–18), flinty slate (7).

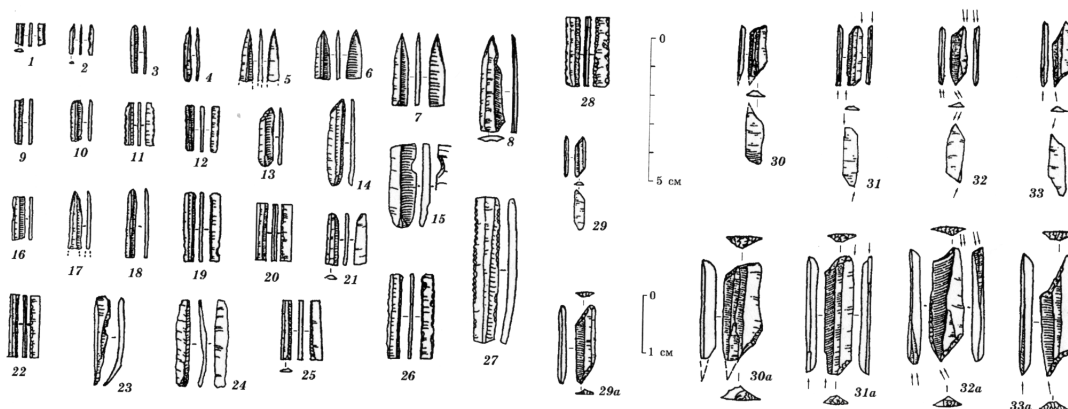


Plate 35. Sumnagin culture of the Latest Palaeolithic. Stone implements from the different Sites: 1, 9, 25—Bel'kachi I, layer XVI; 2, 6, 12–14, 30, 30a, 33, 33a—Bel'kachi I, layer XI; 3, 10, 11, 15, 16—Bel'kachi I, layer X; 4—Bel'kachi I, layer XIX; 5, 32, 32a—Ust'-Timpton I, layer IVБ; 7, 19, 26, 28—Bel'kachi I, layer IX; 8—Ust'-Timpton I, layer V low; 17—Ust'-Timpton I, layer IVБ; 18—Bel'kachi I, layer XIV; 20, 22—Bel'kachi I, layer XII; 21, 23, 24—Bel'kachi I, layer XX; 27—Ust'-Timpton I, layer IVГ; 29, 29a—Ust'-Timpton I, layer IVА; 31, 31a—Ust'-Timpton I, layer IV. Flint.

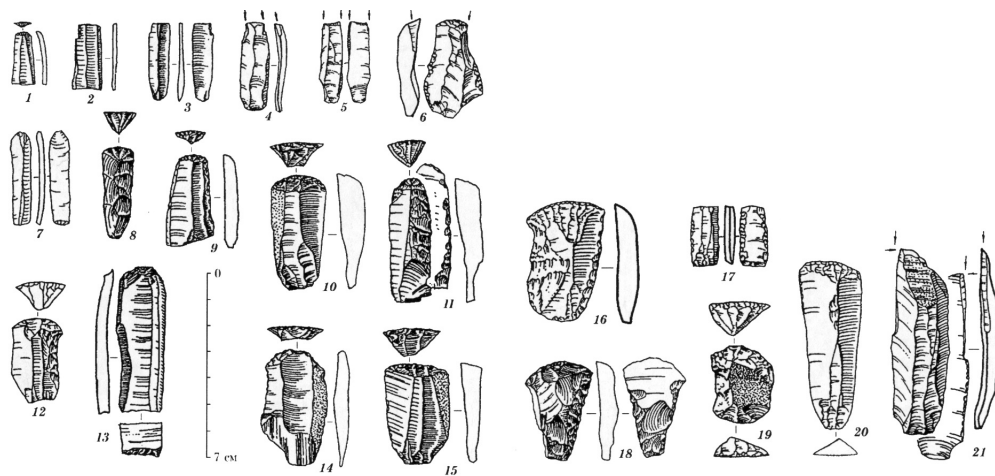


Plate 36. Sumnagin culture of the Latest Palaeolithic. Stone implements from the different Sites: 1, 8, 9, 14—Bel'kachi I, layer XI; 2, 4—Bel'kachi I, layer IX; 3–10—Bel'kachi I, layer XIV; 5—Ust'-Timpton I, layer IVБ; 6, 12, 16, 17, 20—Ust'-Timpton I, layer IV; 7—Ust'-Timpton I, layer IVД; 11—Bel'kachi I, layer VIII; 13—Bel'kachi I, layer XVIII; 15—Bel'kachi I, layer XIX; 18—Bel'kachi I, layer X; 19—Bol'shaia Severnaia, layer, the Vitim river; 21—Amka, layer II. Flint.

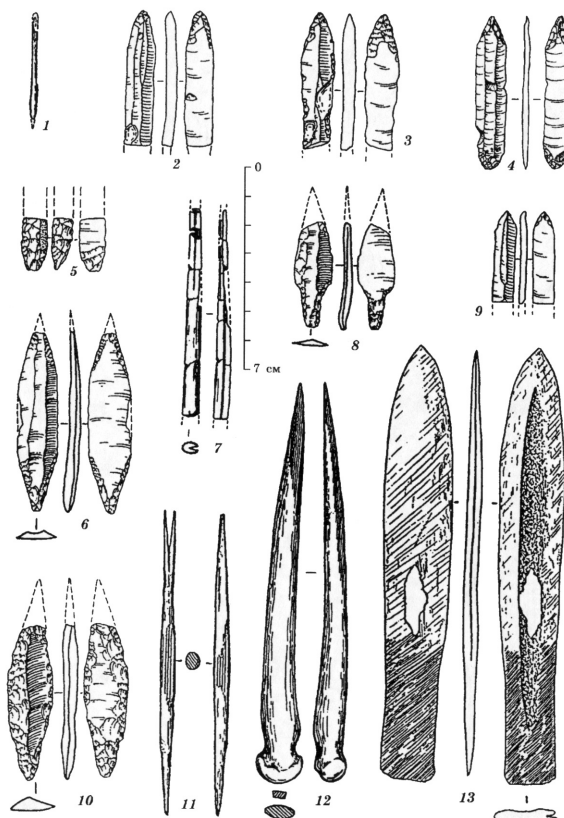


Plate 37. Sumnagin culture of the Latest Palaeolithic. Stone and bone (1, 7, 11–13) implements from the different Sites: 1, 11—Bel'kachi I, layer XVI; 2, 3, 10—Ust'-Chirkuo I, layer III; 4—Chiul'biu, the Uchur river, right tributary of the Aldan river; 5—Ust'-Timpton I, layer IVЖ; 6, 8—Tuoi-Khaia I, the Viliui river; 7, 12—Bel'kachi I, layer XX; 9—Ust'-Timpton I, layer IV; 13—Bel'kachi I, layer XIV. Flint (4, 5, 9), flinty slate (2, 3, 6, 8, 10).

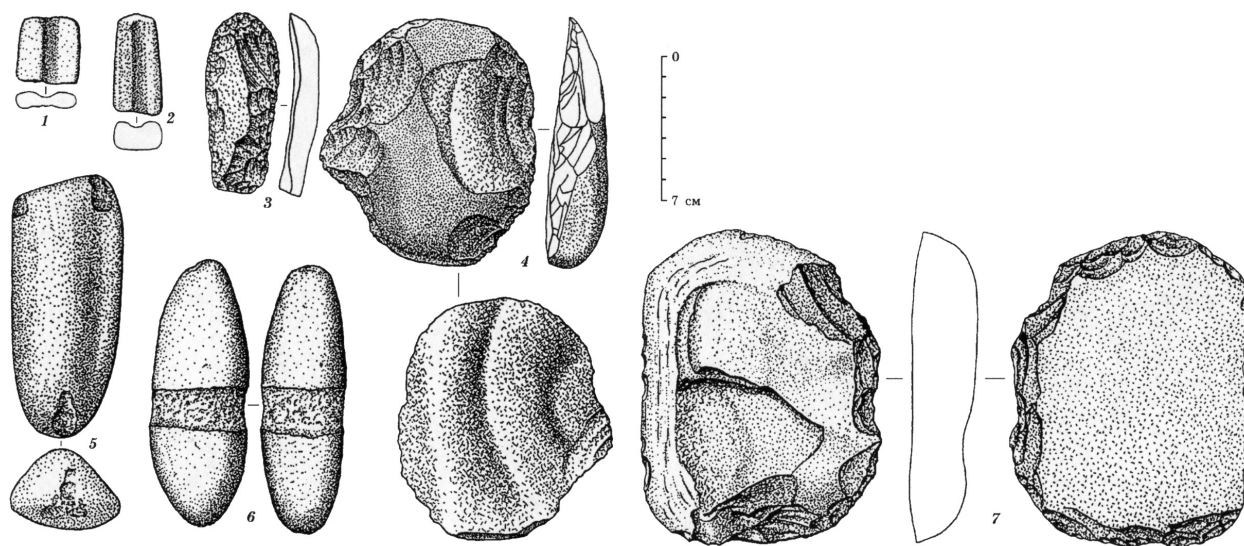


Plate 38. Sumnagin culture of the Latest Palaeolith. Stone implements from the different Sites: 1–3—Bel’kachi I, layer XI; 4—Bel’kachi I, layer XX; 5—Bel’kachi I, layer IX; 6—Ust’-Chirkuo I, layer IV; 7—Bel’kachi I, layer X. Diabase (3, 4), quartzite (5–7), sandstone (1, 2).

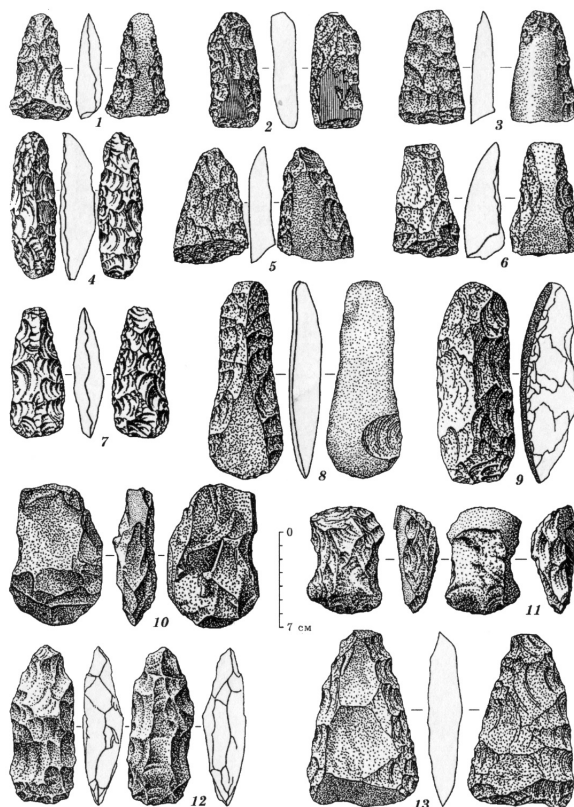


Plate 39. Sumnagin culture of the Latest Palaeolithic. Stone implements from the different Sites: 1—Bel’kachi I, surface find; 2, 7, 8—Ust’-Trompton I, layer IV; 3, 5, 13—Ust’-Trompton I, layer IVe; 4, 6—Ust’-Trompton I, layer IVb; 9—Verkhnetroitskaia, surface find; 10—Bel’kachi I, layer IX; 11—Diring-Yuriakh, assemblage 44; 12—Bel’kachi I, layer XII. Flinty slate (4), diabase (1–3, 5–10, 12, 13), quartzite (11).

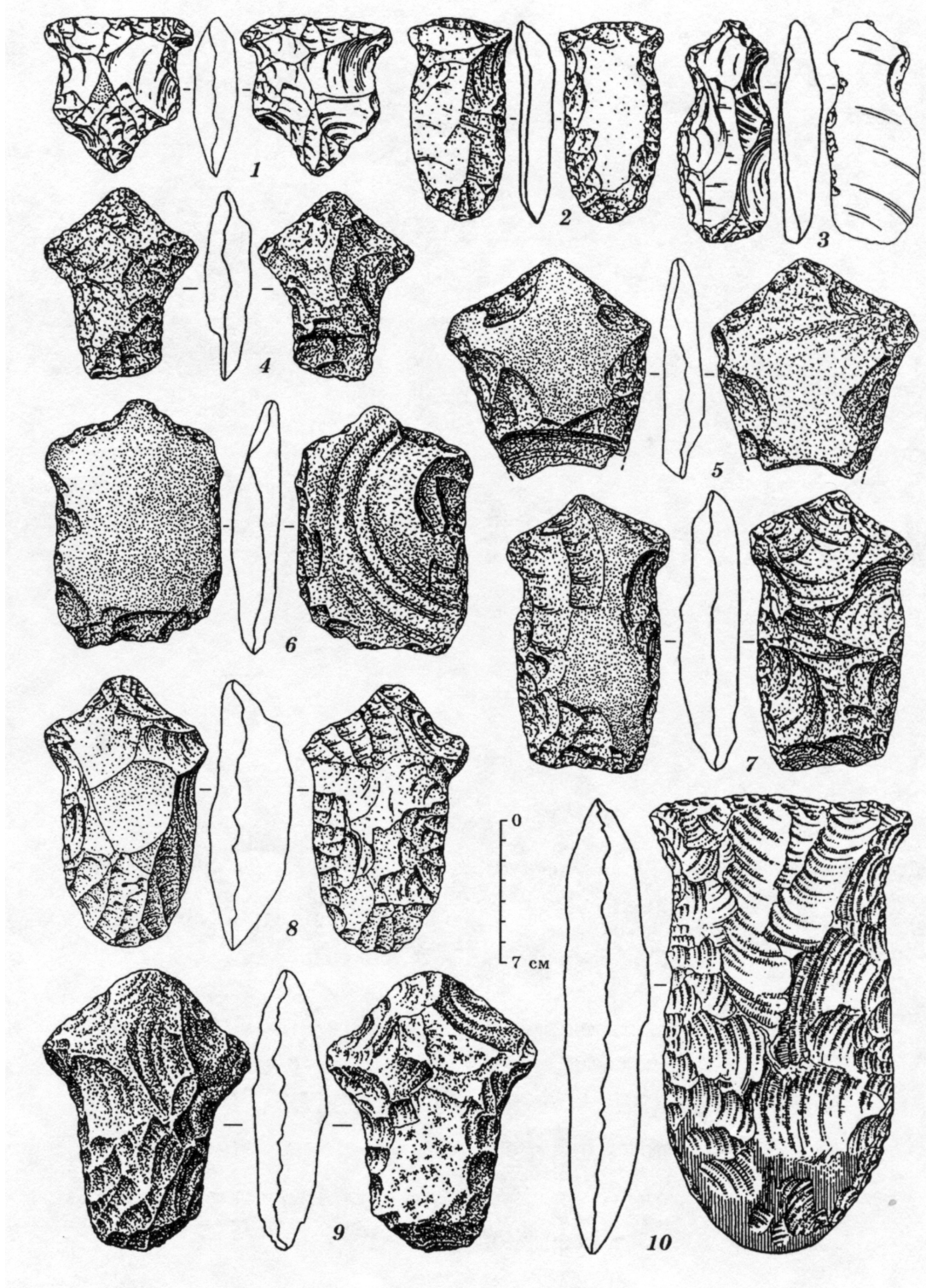


Plate 40. Sumnagin culture of the Latest Palaeolithic. Stone implements from the different Sites: 1-3, 8—Ust'-Chirkuo I, layer III; 4—Ust'-Trompton I, layer IVa (4), 5, 6—Ust'-Trompton I, layer IVb; 7—Ust'-Trompton I, layer IVb; 9—Bilir I, layer V, the Aldan river; 10—Malyi Patom, layer III, the Lena river. Flinty slate (1-3, 8, 10), diabase (4-7, 9).