

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 one, 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 underestimate 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 modern 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