



THE SETTLEMENT OF PRIMITIVE MAN IN THE TERRITORY OF UZBEKISTAN: AN ARCHAEOLOGICAL AND GEOGRAPHICAL ANALYSIS OF THE STONE AGE

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This article analyzes the processes of early human settlement in the territory of Uzbekistan during the Stone Age (Paleolithic, Mesolithic, and Neolithic) based on archaeological and natural-geographical factors. Using archaeological sites in Ustyurt, the Lower Amu Darya, the Fergana Valley, and the Zarafshan Valley as examples, the article examines the formation and development of ethnic processes as well as their migration to neighboring territories. The geographical distribution of the Kaltaminor culture, the chronology of the Janbas-4 settlement, and the scholarly views of leading researchers (Ye. B. Bijanov, A. V. Vinogradov, S. P. Tolstov, N. U. Kholmatov, and F. Bryune) are comparatively analyzed.

Introduction

The study of the history of the Stone Age is considered one of the most important areas of archaeological research in Uzbekistan. By synthesizing the historical data documented in the scholarly literature published during the 20th and early 21st centuries, it is possible to shed light on the processes of early human settlement in the territory of Uzbekistan.

According to the historical evidence documented in archaeological literature, the settlement of early humans in the territory of Uzbekistan did not occur within a single chronological period. Studies published by researchers indicate that, during the historical period preceding the Neolithic, early human communities settled in particular territories, utilized available natural resources, and engaged in their initial forms of economic activity. These processes subsequently provided the basis for the emergence and development of ethnic communities and territories, as well as for migration to neighboring regions in response to historical circumstances. It should be emphasized that the geographical location, climatic conditions, and availability of natural



resources varied considerably from one territory to another. Nevertheless, the settled populations' everyday life, material and spiritual culture, and gradual transition from a dispersed primitive social system to clan-based organization contributed to the development and consolidation of society on the basis of kinship relations. Indeed, cultural traces of human communities that constituted the economic foundation of society in particular territories have been identified in the Tashkent oasis, the Fergana Valley, the Zarafshan Valley, and the Ustyurt region during the early Stone Age. According to researchers, this process took place approximately between 1.5 million and 100,000 years ago [1].

Literature Review

The scholarly literature on Stone Age settlements in the territory of Uzbekistan has a rich research history. The studies of Ye. B. Bijanov and A. V. Vinogradov devoted to Neolithic sites in Ustyurt and Khorezm [6][7][10][11][13][16], the materials of the Khorezm Archaeological and Ethnographic Expedition conducted under the direction of S. P. Tolstov [12][15], the works of N. U. Kholmatov concerning Mesolithic and Neolithic sites in the Lower Zarafshan region [17][23][24][25], as well as the analyses of the French archaeologist F. Bryune devoted to the Kaltaminor culture [18][19], constitute an important source base for the study of this subject. At the same time, the studies of Ya. G. Gulyamov, U. I. Islamov, and A. Askarov concerning the origins of irrigated agriculture in the Lower Zarafshan oasis [26] provide important information about the economic activities of primitive communities in the region.

Nevertheless, the existing literature has not yet sufficiently addressed a comprehensive comparative analysis of ethnic processes in different parts of the region—Ustyurt, the Lower Amu Darya, Fergana, and Zarafshan—within an integrated geographical framework. This research gap determines the relevance and significance of the present study.

Methodological Foundations

The study employs historical-comparative, chronological, and historical-geographical methods of analysis. The principal sources include publications of the Khorezm Archaeological and Ethnographic Expedition, archaeological excavation reports, and monographic works by researchers. The locations of archaeological settlements were examined in comparison with natural-geographical factors, including climate, hydrology, and relief. This approach made it possible to identify the geographical boundaries of ethnic processes and the factors underlying their expansion.

According to information recorded in the archaeological literature, approximately 1.5 million years ago, early humans began to utilize natural caves, open-type elevated areas, plains, springs, and other water sources. By exploiting the surrounding natural resources for their own needs, these locations continuously functioned as areas of human settlement and early ethnic development. As natural resource reserves decreased over the course of history, the need arose to undertake migration toward neighboring natural and economic regions. During the Early Stone Age, the natural conditions in the territory of Uzbekistan were characterized by warm and



dry summers and cold and humid winters. During the Acheulean stage of the Paleolithic, the banks and foothills of water bodies in mountainous and lowland areas served as the earliest settlement zones of human communities.

According to publications of the Khorezm Expedition, the annual precipitation in the Lower Amu Darya region was approximately 80 mm [2]. According to geographical research, the territory of Uzbekistan consists of mountainous and lowland areas [3]. The territory of our country is generally favorable for agricultural activities, with the Syr Darya forming its eastern boundary and the Amu Darya defining its western boundary [4]. The settlement of early humans in the region did not occur within a single historical period, but rather varied according to geographical characteristics and natural conditions.

For example, Ustyurt, located in the northwestern part of the region, is geomorphologically divided into southern, central, and northern areas, each possessing distinctive characteristics. Although its surface consists of elevations, ravines, and extensive plains, the results of Ye. B. Bijanov's extensive archaeological investigations indicate that materials recovered from the dried-up areas surrounding the Shakpakhta Basin (1, 2, 3, and 4), as well as from the Yesen 2 and 3, Qoraquduq, and Churuk settlements, date to the Early Stone Age [5]. Primitive hunters transformed the area around the Shakpakhta Basin into an early settlement zone approximately one million years ago. This process continued on the plains of Ustyurt around 500,000 years ago, while from approximately 500,000 to 12,000 years ago the region was covered by glacial formations. Therefore, the hunters inhabiting the Qoraquduq and Churuk settlements may have hunted primarily cold-resistant wild animals for food. A fauna adapted to open and exposed environmental conditions developed, and ethnic processes continued across the geographical area, including Beleuli, Aydabol, Churuk, Marka, Gay, Oqtaylik, Jatoy, and Kaskajal [6].

Due to the availability of water resources in the Aydabol area, more than thirty clan communities maintained ethnic relations during the 8th–7th millennia BCE [7]. Following the end of the glacial period, people settled within Ustyurt. At the same time, populations inhabiting the mountainous areas of Uzbekistan during the Early Stone Age utilized natural and economic zones as settlement areas serving the interests of hunter communities. Such ethnic interactions among Early Stone Age hunters have not been archaeologically documented in the Lower Amu Darya Basin. During the Middle Stone Age, ethnic processes continued in the territories mentioned above.

According to researchers, archaeological excavations conducted in the Tashkent oasis, along the Ohangaron River, on the right bank of the Jarsoy area, revealed an open site connected to the foothills of a spring that continuously flowed along the stream. Materials recovered from layers 1–22 belong to the Early Stone Age, indicating that ethnic processes began in this area and continued until the Neolithic period [8]. Likewise, stone tools associated with the material and spiritual culture of Kulbuloq clan communities were discovered in the Fergana Valley, in the village of Chashma in the Haydarkon area of the Sokh River, located within the Alay mountain



range. These materials were recovered from the cultural layer of the Selungur cave site, situated at an elevation of approximately 200 meters, and date to the Early Stone Age [9].

The location of the Fergana Valley between mountain ranges and the permanent availability of natural resources enabled the descendants of the Selungur hunter-gatherers to maintain their ethnic interactions during the Neolithic period. According to the results of archaeological investigations, hunter-gatherers inhabiting the Vakhsh and Ijond settlements in the northern part of the Zarafshan Valley produced stone tools from quartzite and flint at the Uch-Tut workshop. By utilizing natural resources, they continued their ethnic interactions into the Chalcolithic period. The Zarafshan Mountains form part of the high mountain system and possess permanent snow and ice reserves.

The Ustyurt and Lower Amu Darya regions are distinguished by several specific features of their geographical environment. The first characteristic is the openness of the Ustyurt territory on all four sides. The second is the presence of several environmental differences and transformations in the Lower Amu Darya compared with Ustyurt: the geographical landscape is influenced by the Sultan Uvays Mountains; the region is situated between the Karakum and Kyzylkum deserts; the movement of the Amu Darya divided the lowland into right- and left-bank areas; on its course toward the Aral Sea, the Oqchadarya tributary on the right bank and the Daryoliq and Dovdon tributaries on the left bank contributed to hydrological changes across the plain. These conditions created a humid and fertile environment that enabled populations to settle and maintain continuous ethnic interactions.

Despite favorable natural resources and ecological conditions, the Khorezm plain was inhabited by primitive hunters considerably later than the Ustyurt and northern Zarafshan regions, particularly during the Würm glacial period. According to data recorded in publications of the Khorezm Expedition, the area adjoining the foothills of the Sultan Uvays Mountains was inhabited by early humans approximately 40,000–12,000 years ago. During the Mesolithic period (the 4th millennium BCE), populations settled around the Yonboshqala elevation in the Kyzylkum desert environment and constructed the Janbas-4 settlement with wooden posts using locally available building materials. Ethnic interactions subsequently developed on this basis [10].

Thus, during the period when the Pleistocene glaciation prevailed, the climatic conditions of the Khorezm plain, particularly around the Sultan Uvays Mountains, enabled the Burli hunters to maintain their way of life. The Burli-3 settlement served as an early settlement zone in the area adjoining the foothills of the Sultan Uvays Mountains during the Late Stone Age and, as a result of historical circumstances, became a point of migration toward neighboring territories. Its chronological date is estimated at approximately 40,000–12,000 years ago. According to researchers, during the Mesolithic and Early Neolithic periods (the 6th–first half of the 5th millennia BCE), the foothills of the Sultan Uvays Mountains served as a settlement area for hunter-gatherers, while tools were produced from quartzite and flint at the Burli workshop [11].



The northern part of the Khorezm oasis is open on all four sides and lacks high mountain ranges. It is not significantly influenced by river movements, while its water resources consist primarily of rainfall, snowmelt, and groundwater. The geomorphological landscape of the northern region is dominated by the Sultan Uvays Mountains. Unlike the Zarafshan Mountains, however, these mountains are not covered by permanent snow. The thickness of snow remaining during winter generally does not exceed 5–10 cm; under the influence of solar radiation, it melts and flows toward the plain, filling depressions with water. For this reason, it is difficult to identify clear interpretations concerning the ethnogenesis and ethnic history of the population of the Burli-3 settlement in the publications of the Khorezm Expedition.

First, the precise region from which the Burli-3 hunters originated has not been established. Second, the potential of the Sultan Uvays Mountains has received insufficient attention from researchers. In addition, the paleogeography, paleoecology, and anthropogenic landscape of the area in which the Burli-3 settlement was located have not yet been adequately resolved. The question of where its inhabitants subsequently migrated, as well as the factors influencing such migration, also remains open.

The archaeological materials recovered from the residential structures of the Janbas-4 settlement characterize the geographical environment of the Kyzylkum and are generally dated to the 4th–3rd millennia BCE [12]. A. V. Vinogradov proposed the following chronology for the ethnogenesis and ethnic history of the clan communities of Janbas-4 during the Neolithic period in the Oqchadarya Basin:

1. **Early group** – Janbas-4 (lower layer), Janbas-31, Qavat-5, and Kunyak-1;
2. **Middle group** – Qavat-7, Janbas-32, Tojikazgan-6a, Qurgoshin G-D, Dingildje-6, and Kirk-kiz-1 (upper layer);
3. **Late group** – Tojikazgan-6, Janbas-4, Tojikazgan-8, Janbas-II, Dingeldje-6, Tojikazgan-2, 3, 10, and 14, Qurali, and Baraktam [13].

The researcher divided Neolithic residential sites into groups and proposed the following chronological framework: 1) the Early period – the second half of the 4th millennium BCE; 2) the Middle period – the first half of the 3rd millennium BCE; and 3) the Late period – the second half of the 3rd millennium and the 2nd millennium BCE [14]. However, it is difficult to fully agree with the researcher's attribution of the lower layer of the Janbas-4 settlement to the Early period. Regarding the archaeological materials recovered during the excavations, the interpretation of S. P. Tolstov can be supported [15]. Nevertheless, the author does not analyze the geographical dimension of the ethnic interactions associated with the settlement.

In his second monograph, the author divided the ethnogenesis and ethnic history of the clan communities associated with the Janbas-4 settlement in the Oqchadarya Basin into three chronological periods: 1) the Early period – Janbas-4, Qavat-5, and Kunyak-1; 2) the Middle period – Qavat-7, Janbas-32, and Tojikazgan-6a; 3) the Late period – Janbas-5, 12, and Tojikazgan-2, 3, 6, and 10 [16]. In his earlier work, the researcher emphasized that the Janbas,



Qavat, Ma'mur, Qurgoshin, and Tojikazgan settlements in the Oqchadarya region, together with the settlements in the northern areas, should be considered as integrated groups. The historical data presented in his second monograph, however, cover not only the Oqchadarya region but also Neolithic clan-community settlements in the Sarykamysch area, Uzboy, Tuyamuyin, the Lower Zarafshan Valley, and the lower basin of the Syr Darya.

The monograph develops a chronology of the material and spiritual culture of Neolithic clan communities in the territory between the Amu Darya and Syr Darya rivers. According to this chronology, Neolithic settlements in Central Asia are divided into the following stages: Stage 2 (the Janbas stage) – Janbas-4, Tolstov settlement, Lyavlyakan-26, Darbazaqir I and II, Ayakagitma 11, 47, and 90 (5th millennium BCE); Stage 3 (the Lower stage) – the end of the 3rd millennium to the beginning of the 2nd millennium BCE. According to N. U. Kholmatov, however, the chronology of the Neolithic period ended between the end of the 5th millennium and the first half of the 4th millennium BCE [17].

During the course of historical development, the increase in the population of the Janbas-4 settlement, estimated by S. P. Tolstov to have grown from approximately 100–120 to 130–150 people, created a number of problems. These included shortages of tools and means of labor, depletion of natural resources due to the continuous exploitation of the organic resources of the early water bodies, and interruptions in the flow of the Oqchadarya tributary caused by fluctuations in the water level of the Amu Darya. The hunters and gatherers of the Janbas-4 settlement gradually occupied the Lower Amu Darya region, the Sarykamysch area, Uzboy, Tuyamuyin, and the eastern Syr Darya plain over a period of approximately four millennia according to the following chronological framework:

1. **First historical period** – the end of the period 40,000–12,000 years ago: the foothills of the Sultan Uvays Mountains and the Burli-3 settlement;
2. **Second historical period** – the beginning to the first quarter of the 4th millennium BCE: Janbas-4, Janbas-5, Janbas-11, and the Tolstov settlement;
3. **Third historical period** – the first half of the 4th millennium BCE: Baraktam-10, Saksovul, Tumek-Kichidjik, Qushqala, Sultan Sanjar, and Qarriqizil.

During the second half of the 4th millennium and the first part of the 3rd millennium BCE, corresponding to the Chalcolithic period, new descendants of the Neolithic clan communities continued ethnic interactions in the territories on both the right and left banks of the Amu Darya.

Because the material and spiritual culture of the clan communities that utilized the organic resources of water bodies in the environments of Ustyurt, the Lower and Middle Amu Darya, and the Kyzylkum Desert shared a number of common characteristics, this broader cultural phenomenon is referred to in the scholarly literature by the general term **Kaltaminor culture**. In this sense, the economic and cultural traditions developed in the Lower Amu Darya, Ustyurt, Lower Zarafshan, and Kyzylkum regions during the period of the primitive communal system in



Uzbekistan have been incorporated into the archaeological literature under the ethnodemographic designation of the Kaltaminor culture.

The geomorphology of the area surrounding the Janbasqala elevation developed in accordance with the environmental conditions of the Kyzylkum Desert, while the adjoining Zarafshan Valley was shaped in relation to the Bukhara–Qarako'l region. Thus, Shurakhan, the part of the Aral Sea adjoining the Lower Zarafshan Valley, and the interior of the Kyzylkum formed a common geographical landscape. However, because these areas differed hydrologically, early hunters did not settle in them during the same chronological period. For example, as a result of hydrological changes in the geographical environment of the Lower Amu Darya Basin, the settlement patterns in Shurakhan and the southern areas of the Aral Sea differed fundamentally from one another.

According to the works of researchers of the Khorezm Expedition, as well as studies conducted during the years of independence, our ancestors were densely settled in the area between Shurakhan and the Sultan Uvays Mountains, while frequent changes in the location of their settlements were associated with flooding of the Amu Darya. During the Late Neolithic period, the western part of the Sarykamysk area around the Quysisoy elevation was sparsely populated [20]. Of the 43 graves identified at the Quysisoy elevation, materials recovered from 23 excavated graves indicate that ethnic processes were taking place in this area during that period [21]. In the Tuyamuyin area on the left bank of the Amu Darya, Neolithic communities were densely concentrated within a limited territory, although archaeological information concerning their burial sites has not been documented. In the southern Aral Sea region and on the plain of the Lower Syr Darya Basin, hunters and gatherers were dispersed over a wide area [22].

According to historical data, information concerning dwellings discovered by Mesolithic hunters and gatherers in the Lower Zarafshan Valley, particularly between the Mahondarya and Daryosoy channels of the Zarafshan River, remains insufficient [23]. Materials recovered from settlements No. 11, 23, 27, and 41 along the Chorbaqti stream in the Gazli–Bukhara area of the southwestern Kyzylkum and along the Amu Darya indicate that ethnic processes were taking place in this region during the Mesolithic period [24]. At the Uchashi-131 settlement along the Daryosoy channel, the continuous availability of water enabled Mesolithic hunters and gatherers to conduct their daily economic activities. At the same time, the Darbazaqir-1 settlement, characterized by wooden posts, was constructed on elevations along the Mahondarya channel, allowing the inhabitants to continue their traditional economic practices.

Because water supply in the Zarafshan River remained relatively stable during the Neolithic and Chalcolithic periods, the so-called "Great Lakes" of the Oqchadarya Basin became particularly important. Due to the stable water supply of the channels of the Zarafshan River, N. U. Kholmatov documented more than 700 settlements dating to the Neolithic period [25]. Thus,



the Lower Zarafshan Valley was characterized by a relatively high population density during the Neolithic period and demonstrated a distinctive ethno-geographical pattern.

The Mahondarya Archaeological Group, working under the direction of Ya. G. Gulyamov, conducted a scientific analysis of materials recovered from the Darbazaqir 1 and 2 settlements around the Large and Small Tuzkon Lakes, which reflect the geographical environment of the Kyzylkum Desert. The researchers established that the inhabitants reproduced economic traditions similar to those of the population of Janbas-4. As a result of flooding by the Zarafshan River, depressions between the undulating sand formations of the Kyzylkum were transformed into water bodies. The flora and fauna along their shores served as important economic resources and supported the ethnic processes of hunter-gatherer communities [26]

Conclusion

The analysis conducted in this study makes it possible to formulate the following conclusions. The territory of Uzbekistan was formed as a result of recurrent geological processes, while its western and eastern boundaries were defined by the courses of the Amu Darya and Syr Darya rivers toward the Aral Sea. The eastern plain of the Aral Sea region between the Syr Darya and Amu Darya rivers is represented by the Khorezm plain. During the period of approximately 4–3.5 million years ago, the Zaunguz, Karakum, and Kyzylkum regions constituted plains. During the Quaternary period, from approximately 500,000 to 12,000 years ago, particularly during the Würm stage of the Pleistocene, glaciation covered the region while preserving the geological forms of the Sultan Uvays and Janbasqala elevations.

During the period of 40,000–12,000 years ago, under the humid climatic conditions of the Pleistocene glacial period, the hunter-gatherers of the Burli-3 settlement, who utilized the natural resources at the foothills of the Sultan Uvays Mountains, initiated the earliest ethnic processes in northern Khorezm and subsequently served as a base for migration toward neighboring territories. The historical roots of the ethnic processes of primitive hunters, gatherers, and pottery-making specialists who settled at the Janbas-4 site in the Oqchadarya Basin have not been fully elucidated in the works of researchers of the Khorezm Expedition. In view of the increasing population of hunter-gatherers at the Churuk-12 settlement in Ustyurt, it may be assumed that Early Neolithic clan communities settled in this area at the beginning of the 5th millennium BCE.

At the beginning and end of the 5th millennium BCE, the clan communities of the Janbas-4 settlement occupied the eastern and southwestern areas around Janbasqala. During the first half of the 4th–3rd millennia BCE, their descendants expanded into Northern Oqchadarya, the Sarykamysch area, Uzboy, and Tuyamuyin, thereby broadening the geographical scope of ethnic processes. This process continued during the Chalcolithic period.

In conclusion, the geographical distribution of Stone Age settlements in the territory of Uzbekistan was not accidental but developed in close connection with natural and climatic conditions, water availability, and the distribution of natural resources. A comparative analysis



of ethnic processes in Ustyurt, the Lower Amu Darya, Fergana, and Zarafshan valleys demonstrates that the migration of primitive communities in the region was continuously influenced by shortages of natural resources and hydrological changes. Further in-depth investigation of these issues remains one of the important objectives of future archaeological and historical-geographical research.

References

1. History of Uzbekistan. Tashkent: Uzbekistan, 2023. p. 20.
2. Andrianov, B. V. Ancient Irrigation Systems of the Aral Sea Region (in Connection with the History of the Emergence and Development of Irrigated Agriculture). Moscow: Nauka, 1960, pp. 16–17.
3. Baratov, P. Physical Geography of Uzbekistan. Tashkent, 1996, pp. 157–178.
4. Baratov, P., Mamatqulov, M., & Rafiqov, A. Physical Geography of Central Asia. Tashkent: O'qituvchi, 2002, p. 162, Tables I–II.
5. Stone Age Sites in the Shapkaphta Depression. In: Archaeology of the Aral Sea Region. Tashkent: Fan, 1984, No. 2, pp. 8–21.
6. Bijanov, Ye. B., & Vinogradov, A. V. Neolithic Sites of the Karakalpak Branch of the Academy of Sciences of the Kazakh SSR. Nukus, 1965, No. 3, pp. 63–69; Bijanov, Ye. B. New Data on the Neolithic of Southwestern Ustyurt. Bulletin of the Karakalpak Branch of the Academy of Sciences of the Uzbek SSR. Nukus, 1980, pp. 70–75.
7. Bijanov, Ye. B. Discovery of a Mesolithic Site in Southeastern Ustyurt. Bulletin of the Karakalpak Branch of the Academy of Sciences of the Uzbek SSR. Nukus, 1985, No. 3, pp. 61–65.
8. Kabirov, J., & Sagdullayev, A. Archaeology of Central Asia. Tashkent: O'qituvchi, 1990, pp. 18–19, 26–31, 49–81; Ibragimov, R. Z. Archaeology of Central Asia. Tashkent, 2020, pp. 22–23; History of Uzbekistan. Tashkent: Uzbekistan, 2023, Vol. II, p. 24.
9. Islamov, I. I., & Krakhmal, K. A. Palaeoecology and Traces of Ancient Humans in Central Asia. Tashkent, 1985, pp. 25–26; History of Uzbekistan. Tashkent: Uzbekistan, 2023, Vol. III, pp. 21–24.
10. Vinogradova, Ye. A. The First Paleolithic Finds at Sultan Uvaysdag. In: The Aral Sea Region in Antiquity and the Middle Ages. Moscow: IVL RAS; Nauka, 1998, pp. 74–77.
11. Vinogradova, Ye. A., & Bijanov, Ye. B. The First Paleolithic Finds from Southeastern Ustyurt. Archaeological Discoveries (AO), 1977. Moscow: Nauka, 1978, pp. 527–528.
12. Tolstov, S. P. Works of the Khorezm Archaeological and Ethnographic Expedition in 1949–1953. In: Proceedings of the Khorezm Archaeological and Ethnographic Expedition (TrXAEE). Moscow: Nauka, 1958, Vol. II, pp. 66–67.
13. Vinogradov, A. V. Neolithic Sites of Khorezm. Moscow: Nauka, 1968, Issue 8, p. 143.



14. Vinogradov, A. V. The Aforementioned Work. p. 152.
15. Tolstov, S. P. Along the Ancient Deltas of the Oxus and Jaxartes. Moscow: IVL RAS; Nauka, 1962, p. 30.
16. Vinogradov, A. V. Ancient Hunters and Fishermen of the Central Asian Interfluvium. In: Proceedings of the Khorezm Archaeological and Ethnographic Expedition (TrXAEE). Moscow: Nauka, 1981, Vol. XIII, p. 78.
17. Kholmatov, N. U. Material Culture of Neolithic Clan Communities of Uzbekistan. Tashkent: Fan, 2008.
18. Brune, F. On a New Study of the Neolithic Keltiminar Culture (Uzbekistan). In: Archaeology and History of Central Asia in the Works of French Scholars. Samarkand, 2004, Vol. I, pp. 43–47.
19. Brune, F. The Aforementioned Work. p. 47.
20. Vaynberg, B. I. Sites of the Kuyusay Culture. In: Nomads on the Borders of Khorezm. Moscow: Nauka, 1979, p. 27.
21. Itina, M. A. Sites of the Neolithic and Bronze Ages. In: Antiquities of Southern Khorezm. Proceedings of the Khorezm Archaeological and Ethnographic Expedition (TrXAEE). Moscow: Nauka, 1991, Vol. XVI, pp. 66–72.
22. Problems of the Formation and Ethnic Geography of Historical and Cultural Regions in Central Asia. Tashkent: Universitet, 2020, p. 227.
23. Kholmatov, N. U. The Mesolithic and Neolithic of the Lower Zarafshan. Tashkent: Fan, 2007, p. 28.
24. Kholmatov, N. U. New Neolithic Sites on the Ancient Channels of the Zarafshan. In: New Discoveries in the Aral Sea Region. Moscow: Nauka, 1991, pp. 3–25.
25. Kholmatov, N. U. The Mesolithic and Neolithic of the Lower Zarafshan. Tashkent: Fan, 2007, p. 44.
26. Gulyamov, Ya. G., Islamov, U. I., & Askarov, A. Primitive Culture and the Emergence of Irrigated Agriculture in the Lower Zarafshan Region. Tashkent: Fan, 1966, pp. 21–117.