

MINGACHEVIR FINDSPOTS OF THE PLEISTOCENE VERTEBRATE FAUNA AND PALAEOLITHIC SITES OF HOMINID: GEOSITE OF THE GLOBAL NATURAL-HISTORICAL HERITAGE (NORTH-WEST AZERBAIJAN)

Eybatov T.M.*¹, Zeynalov A.A.^{1,2}, Kangarli T.N.³, Rashidov T.M.³

^{*1}*Ministry of Science and Education of the Republic of Azerbaijan,
Museum of Natural History, Azerbaijan*

17, Lermontov Street, Baku, AZ1006: t_eybatov@mail.ru

²*Azerbaijan National Academy of Sciences,*

Institute of Archaeology and Anthropology, Azerbaijan

115, H.Javid Ave., Baku, AZ1073: azykh1960@gmail.com

³*Ministry of Science and Education of the Republic of Azerbaijan,
Institute of Geology and Geophysics, Azerbaijan*

119, H.Javid Ave., Baku, AZ1073: tofig.rashidov@gmail.com

Summary. The paper deals with results of study of the fossil vertebrates and the Lower Palaeolithic sites located in the West Azerbaijan. In Jeyranchol steppe and vicinity of Mingachevir reservoir the richest burials of vertebrates in combination with the Lower Palaeolithic sites of the Absheronian-Bakuvian time had been discovered. The sites of the fossil vertebral fauna such like Eldar, Gushguna and Bozdagh-Garaja, are rightfully evaluated as the unique geological monuments (geosites). The history of discovery and study of the described geosites and the Lower Palaeolithic sites is given as well. The detailed analysis of the fossil fauna made it possible to identify the Pleistocene mammalian species exclusive for the Caucasus. There are data regarding the paleogeographic environments of the Miocene-Pleistocene in the South Caucasus eastern part as well as the data regarding the geologic-geomorphological situation in the area of Lower Palaeolithic site Garaja. The possible time frames (Bakuvian time, 0.5-0.4 Ma) of the archaeological site forming are defined on the base of analysis of geologic setting and paleofauna remains. The analysis of archaeological materials is given. The integrated studies of the fossil fauna findspots and the Lower Palaeolithic archaeological sites had allowed reconstructing the paleogeographic conditions of habitat of the fossil fauna and early hominids during the Miocene-Pleistocene. As concluded from the studies, the surroundings of Mingachevir water reservoir represent the unique (over 100 km) "graveyard" of fossil vertebrates and the concentration of the Lower Palaeolithic archaeological sites.

Keywords: Mingachevir reservoir, geosite, vertebrate fauna, Azykh, Garaja, Guruchay culture

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Introduction

The territory of Azerbaijan, especially the western regions, is rich with findspots of the various types of the Miocene-Pleistocene vertebrates (the findspots Eldar, Gushguna, Bozdagh, Hojashen, Guzuguntapa, Palantoken, Kudbarekdagh, etc.). There are also Palaeolithic sites demonstrating all stages of the Early Stone Age since the Lower Palaeolithic Oldowan (Guruchay culture) to the Upper Palaeolithic (the caves Azykh, Taghlar, Gazma, Dashsalakhli and Damjili, as well as the open sites Gadirdere, Shishguzey, Gayali, the Jeyranchol group of sites, etc.) (Fig. 1).

In the region, the active palaeozoologic explorations of findspots containing the fossil remains of the vertebrates in the Miocene-Pleistocene coastal-marine and continental sedimentary series were carried out at different years (Burchak-Abramovich, 1950, 1952, 1954; Burchak-Abramovich and Akhundov, 1960; Hajiyeve, 1959, 1996, 1999; Jafarova, 1961; Dombrovsky, 1914; Dubrovo and Burchak-Abramovich, 1984; Lebedeva, 1971; Bogachov, 1933, 1938; Eybatov et al., 2019; Hajiyeve, 1959). As a result of these studies, the rich osteological material had been collected especially within Eldar, Bozdagh and Gushguna findspots. At the same time, it was de-

terminated that the region of study is the richest place in the Caucasus where the remains of the Pleistocene vertebrates of family *Elephantidae* (Bogachov, 1933, 1938; Eybatov et al., 2019; Novruzov et al., 2024). Besides it, in 1960 Burchak-Abramovich, N.I. and Akhundov, F.M. had discovered the giant camel in the Upper Absheronian sediments of Bozdagh (Burchak-Abramovich and Akhundov, 1960). That was the find of the most ancient giant camel on the territory of the former USSR.

At the same time, the searching and study of the Lower Palaeolithic archaeological sites were carried out by (Jafarov, 1999; Mansurov, 2020; Zeynalov, 2016; Huseynov, 2010). For several decades, the very early testimony of the South Caucasus settlement by early hominids was the cave Azykh in Azerbaijan. Here the lower layers VII-X contained the local culture Oldowan, defined as Guruchay culture of 1.2 Ma (Huseynov, 1979, 2010). The similar stone tools had been found in Dagestan (Amirkhanov 2013) and within Taman Peninsula in the North-West Caucasus (Kulakov, 2018). All these argue for settlement

of the Caucasus uplands and foothill parts by the early representatives of genus *Homo* about 2 Ma ago. Back at that time the Caucasus uplands and foothill parts could be included in the single zone of accessible land between the Absheronian basin of the Caspian Sea and the Gurian basin of the Black Sea (Derevianko, 2009, 2015).

Currently, there are enough evidences confirming the present hypothesis and transformed into the science fact. In particular, these are the Lower Palaeolithic archaeological sites in the South Caucasus in Azerbaijan and Georgia (Azykh and Dmanisi accordingly), in Dagestan (Aynikab 1, Mukhkay 1 and 2, Rubas 1) and on the Taman Peninsula (Bogatyri / Sinyaya Balka, Rodniki 1 and 2, Kermek, Tsimbal) (Huseynov, 2010; Nioradze and Nioradze, 2011; Derevianko et al., 2012; Amirkhanov, 2016; Щелинский и Kulakov, 2007; Kulakov et al., 2017; Shchelinsky et al., 2010). Judging by the finds in Dmanisi, the Oldowan industry bearers in the Caucasus were the *Homo ergaster-Homo erectus* (Vekua et al., 2011; Derevianko, 2009, 2015).



Fig. 1. Location map of fossil vertebrate fauna findspots and Paleolithic archeological sites in Azerbaijan and nearby Oldovan Sites. Dash-line rectangle indicates the region of studies at Mingachevir Water Reservoir
Findspots: **El** – Eldar; **Bz** – Bozdagh; **Hj** – Hojashen; **Gsh** – Gushguna; **PI** – Palantoken; **Gr** – Garaja; **Shm** – Shamkir, **Kd** – Kudbarekdagh. Archeological sites: (1) – the cave Dashsalakhli and grotto Damjili, Gadirdere, Shishguzey, Gayali, (2) – the Jeyranchol group of sites, (3) – the grotto Zar, (4) – the caves Azykh and Taghlar, (5) – Garaja, (6) – the grotto Khorgaya and Jymjymakh, (7) – the cave Buzeir, (8) – the cave Gazma, (9) – Dmanisi, (10) – Oldowan sites of the Central Dagestan

At the beginning of the current century, the systematic paleozoologic and archaeological studies had been started alongshore of Mingachevir water reservoir. They allowed identifying the unique Bozdagh-Garaja findspot with rich finds of bone remains of various vertebrates as well as the richest collection of the Lower Palaeolithic industry identified within the relatively small area in the Pleistocene layers (Fig. 2).

Burials of the ancient vertebrates

Eldar findspot of the Upper Sarmatian vertebrates (Hipparion fauna) had been discovered in the 10th of the last century (Burchak-Abramovich, 1950; Derevianko, 2009; Derevyanko et al., 2012; Derevianko, 2015) in the right bank of Gabirri River (Iori River) on the slopes of Ellyar-Oyugu ridge. The findspot is distinguished by exceptional richness of finds of the fossil bones of the hipparion, chalicotheres, hyena, gazelle, proboscideans, seal, turtle and various aves (Dubrovo and Burchak-Abramovich, 1984). It had been established that the formation of typical Hipparion fauna in Azerbaijan falls on the cusp of the Middle and Upper Sarmatian. At that time, the major geological events had occurred in the Caucasus that changed the paleogeographic environment. Due to the regression of Black and Caspian seas, the Caucasus Island had connected to the Western Asian land via the formed Dzirul isthmus. The

Hipparion fauna had used that formed isthmus to enter the Caucasus. At the early stages of that invasion (the Middle Sarmatian beginning), when the anchitheres coexisted with the early hipparions, transitional complex of mammals was formed. Gradually, the replacement of other genera took place with formation of core of the new theriocomplex. It is testified by the mammalian bones' findspots in Iran and especially Turkey where one can trace how entirely Anchitherium fauna transits into mixed one, and later is replaced with Hipparion fauna within the Paratethys sediments of the different age.

Bozdagh-Garaja findspot of the mammals from the Absheronian and Bakuvian sediments of the Pleistocene. The paleozoologic studies were carried out by the employees of the Natural-Historical Museum of Azerbaijan National Academy of Sciences. In the course of some field expeditions they had identified the numerous remains of the proboscideans, deer, horses, bulls and rhinoceros in the Lower Pleistocene layers eroded by the shoal waters of the reservoir.

Gushguna findspot of the Upper Pliocene-Pleistocene mammals is corresponded to the sediments of Akchagilian (marine facies) and Abshe-ronian (continental facies) regiostages in Kura and Gabirri interfluvium. That transitional (from Hipparion to Equidae) fauna was characterized by the coexistence of hipparion (tridactyl horses) and a primitive monodactyl horses – *Equus stenonis*.



Fig. 2. Location of Bozdagh and Garaja findspots, and bay #5 alongshore of Mingachevir water reservoir (GoogleEarth image)

Among the other species of vertebral fauna the eggshells of ostriches, beaver-trogontherium, flat-fronted (*Elephas planifrons*) and southern elephants (*Archidiskodon meridionalis*), the Etruscan bears (*Ursus etruscus*), gazelles, ancient camels of *Paracamelus* genus, some species of rhinoceros, including *Elasmotherium* deserve mention. The skull belonging to a new genus and species of bulls (*Adjiderebos* gen. nov., *Adjiderebos cantabiles* sp. nov.), found in Gushguna findspot, also represents a special interest (Burchak-Abramovich, 1954).

Shamkir findspot of the Upper Pliocene – Pleistocene mammals. In 2012-2013 in the area of Shamkir water reservoir the fragments of lower jaw of *E. stenonis* and the molar (Pm⁴) of the *A. meridionalis* had been discovered.

In 2000, the remains of three skulls, the southern elephant skeleton, and the fragments of deer antlers had been discovered in the Absheronian sediments (Pleistocene) of the northern foothill of Bozdagh Ridge. Next year it was possible to unearth nearly complete skull of the southern elephant without the lower jaw (Fig. 3). It had been determined that the found skull belonged to the adult specimen of the southern elephant with the second molar tooth of the upper jaw (molar M²) and started replacement for the third molar tooth of the upper jaw (M³). The molar measurements had showed that they belong to the late form the *A. meridionalis* with signs of the steppe mammoth (*Mammuthus trogontherii*), i.e. the find belongs to a transitional form of proboscideans.



Fig. 3. Skull of the *Archidiskodon meridionalis*

Since 2012, along the northern slopes of Bozdagh and Garaja ridges, there had been discovered a great accumulation of the fossil remains of large mammals (proboscideans, deers, horses and rhinoceros). In 2015 at the beach of

bay #5 (see Fig. 2) (sediments of Bakuvian re-giostage of the northern slope of Garaja Ridge) a big fragment of the elephant skull with molar teeth had been excavated. The skull of Rhinoceros *Diceros merki* without the lower jaw had been found and unearthed from the sandstone 80 m north of the elephants' skull. Besides it, the various materials had been collected on bone remains of the postcranial skeleton of the rhinoceros, bull, horse, noble deer and fragments of plates of teeth of the southern elephant.

M² morals of the elephant have narrow crown and well distinguished medial sinuses (Fig. 4). These sings (as well as other teeth properties – frequency of plates, length of a plate, enamel thickness) allow considering the finds as of the forest elephant *Palaeoloxodon antiquus* (first indicated in the territory of Azerbaijan).



Fig. 4. Isolated upper tooth of *Palaeoloxodon antiquus* from the site Garaja

When studying the incomplete skull of rhinoceros, the morphological and morphometric characteristics of the teeth had allowed approximately classifying it as *Stephanorhinus* cf. *hundsheimensis* (Fig. 5).

In 2017-2019, on the northern slopes of the Bozdagh ridge, the following fossils had been found in Absheronian sediments: (1) – incomplete skull of a southern elephant *A. meridionalis meridionalis* with teeth transition from M¹ to M² (Fig. 6); (2) – isolated mammoth teeth; (3) – complete skull of rhinoceros with lower jaw (Fig. 7); (4) – separate fragments of *Equus* sp., *Cervidae* gen ind.

It had been found that according to feature complex of various teeth change dp⁴, M¹, M², M³, the teeth of the Late Pliocene elephants from Bozdagh are similar to those of typical

Archidiskodon meridionalis meridionalis, specific to the Late Villafranchian age of the Europe and the West Siberia.



Fig. 5. Rhinoceros *Stephanorhinus hundsheimensis* from the Bakuvian sediments of Garaja site: **A** place of finding; **B** teeth of the left quadrant of the upper jaw; **C** upper jaw fragment

Slightly northward, next to the mammoth skull, a fragment of antler belonging to *Praemegaceros* (the ancestor of extinct giant deer) had been found (Fig. 7).

The carried out studies had shown that Rhinoceros *Diceros merki* from Bozdagh (*Stephanorhinus hundsheimensis*) (Fig. 8) is the type-

form for the Late Villafranchian Early Galerian of the Western Europe (analogues of Taman faunistic complex). Currently the stratigraphic distribution of this taxon in the Eastern Europe is unclear due to a fragmentary nature of earlier-defined finds of the Early Pleistocene rhinoceros within the present territory.



Fig. 6. The fragment of skull of the *Archidiskodon meridionalis meridionalis* (Bozdagh site)



Fig. 7. The antler of the ancestor giant deer *Praemegaceros verticornis*

In 2021, within Garaja area, the rich material on large mammals (elephants, rhinoceros, horses, bulls and possibly buffaloes, noble and giant deer (Fig. 9), a large fragment of the forest elephant's skull (Fig. 10), as well as very large fragment of tusk of more than 2 m long, also typical for the forest elephant, had been discovered and collected (Fig. 11). Besides it, a skull fragment of a large bovid had been excavated (Fig. 12). After restoration it had happened to be the buffalo (*Bubalus* sp.), very similar to modern Asian buffaloes. Also, numerous bone fragments of bulls (*Bos* sp.) were excavated there for the first time (Figs 13, 14).

Finally, in the summer of 2022, a distal fragment of a giant deer's metapodium had been discovered in Garaja place on a flooded beach. It was the very first discovery of such kind within Mingachevir habitat area.

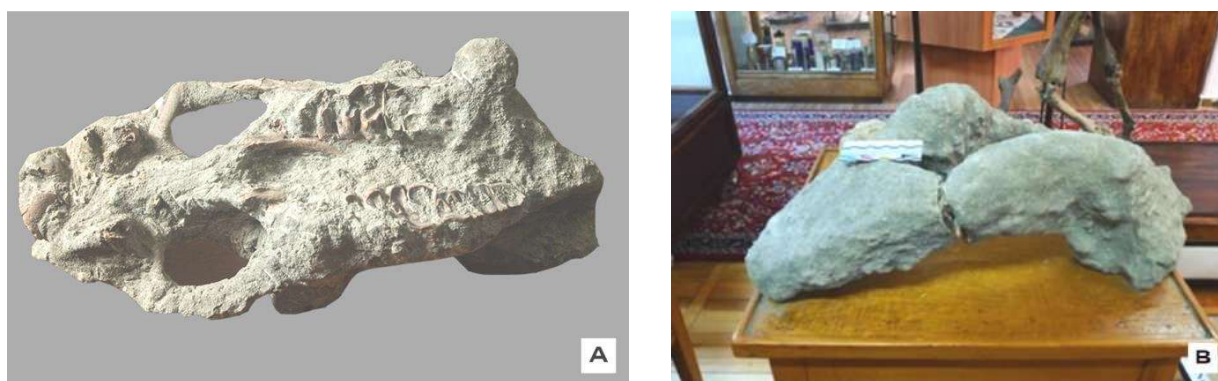


Fig. 8. Rhinoceros from Bozdagh site (*Stephanorhinus kirchbergensis*): **A** skull with upper jaw; **B** lower jaw



Fig. 9. **A** – The fragment of elephant teeth; **B** – deer antlers and **C** – knee joint (fragments)

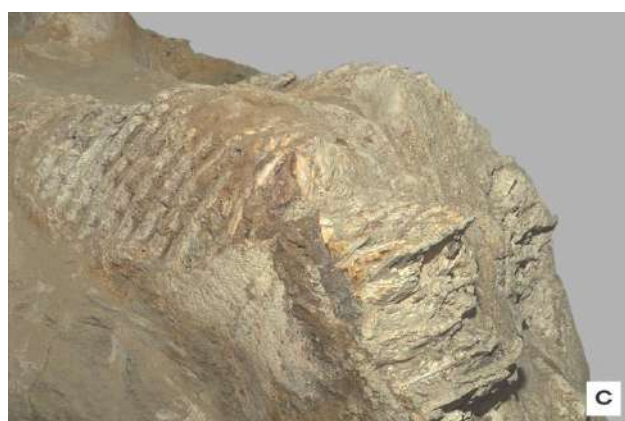


Fig. 10. Large fragment of skull with teeth *Elephas antiquus*: **A** The process of excavation of the forest elephant's skull; **B** skull side-view; **C** dental surface top-view



Fig. 11. The forest elephant's tusk (*Paleoloxodon antiquus*)



Fig. 12. Excavation of a bull skull's fragment (field expedition of 2018)

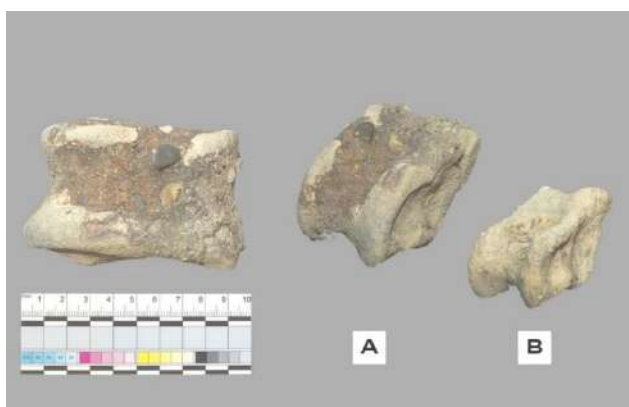


Fig. 13. **A** Astragali of large bulls (*Bos* sp.); **B** possibly the buffalo (*Bubalus* sp.)

Also a lot of tree remains had been found in Bozdagh and Garaja.

Along with the abundance of animal bone remains, the territory of Mingachevir habitat area is characterized by a great number of various species of the Pleistocene flora as the petrified trunks of large and small trees and shrubs.

This testifies to existence in a given period of the wild animals' habitat of the region as semi-open landscapes of the forest-steppe type characterized with predominantly steppe areas alternating with tree and shrubby vegetation.



Fig. 14. Fragments of horns and lower jaw of the bos (*Bos* sp.)

Palaeolithic findspots

Since 2012, along with the paleozoologic studies, the archaeological excavations were carried out by employees of the Institute of Archaeology, Ethnography and Anthropology of Azerbaijan National Academy of Sciences at the Mingachevir geosite. In the same year, the Lower Palaeolithic site Garaja had been discovered (Zeynalov et al., 2013). It locates in the south cost of Mingachevir water reservoir, at Bozdagh Ridge piedmont, south-eastward of Garaja Mountain and 30 m above the sea level (see Fig. 1).

In the time following, some more sites had been discovered around the periphery of reservoir. Sometimes the distance between each of the discovered sites was some kilometres. Most probably, all these sites define the habitat area of *Homo erectus*, with the main site based in Garaja, where more than 450 closely located artefacts had been found. Without any doubt, such similar habitat areas of the primitive man existed on the banks of Kura River, which are now hidden under the waters of Mingachevir water reservoir, built in the 1950s.

At Garaja main site, two levels of palaeolithic finds had been localized at different stages of the continental deposits, subsequently overlapped by the marine sediments of the ancient Caspian Sea (Fig. 15, 16).



Fig. 15. The site Garaja. Two levels of the highest concentration of archaeological and paleontological material: (1) lower continental sediments: the ancient level of the artefacts, (2) upper continental sediments: the upper level of the artefacts. The colour dots mark the most valuable finds (for reference see Fig. 2)

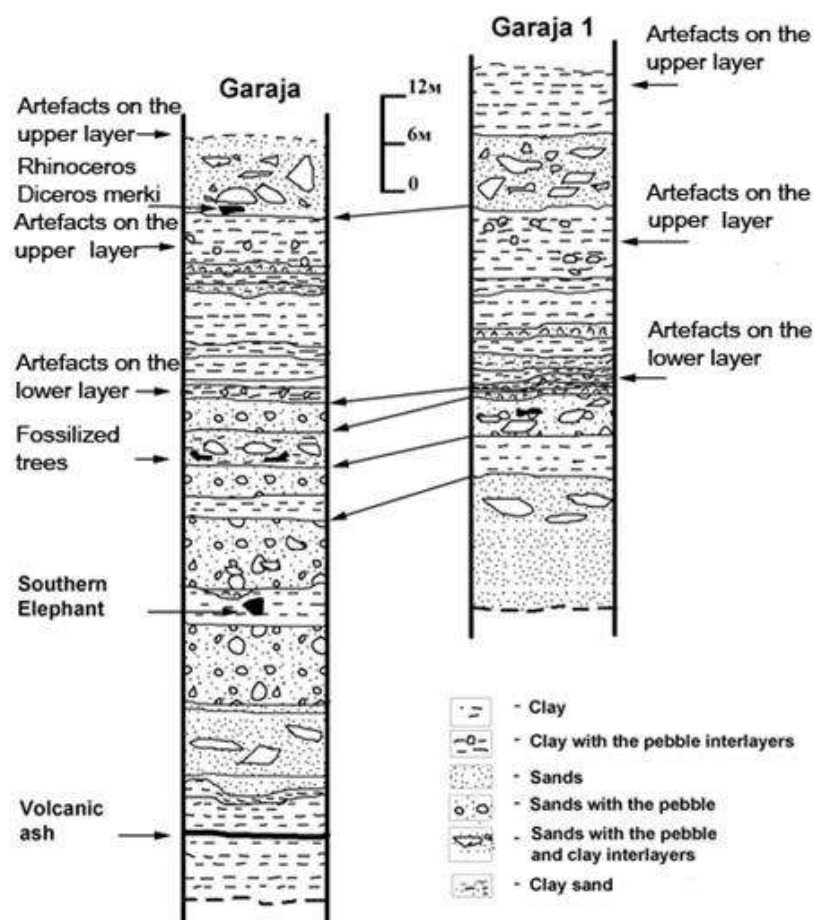


Fig. 16. The site Garaja. The sediments stratigraphy

At the piedmont, approximately 100-120 meters from the water's edge there is the lower series of the marine sediments. In the upper part of this series there is a thick bed of pink volcanic ash. Above it there is a series of continental sediments of 34-35 meters thickness. The lower level of finds is corresponded to this series.

To determine the age of sediments enclosing the rock artefacts from the site Garaja the absolute dating had been performed using the luminescent method. The absolute date obtained for the first time for the Bakuvian sediments, show that the early settlement of the site territory took place approximately 445-460 kyr and connected with the carriers of the middle acheulian industries. This is the second half of the Marine Isotope Stage 12 and the late Bakuvian transgression of the Caspian Sea when there existed the forested multi-arm delta of proto-Kura River and the forest-steppe landscapes prevailed in the interfluvial area. The second stage falls to the interval of 380-370 kyr and related with the late acheulian industries.

The collection of the lower level of finds is mainly consisted of the hand axes and choppers. Alongside these finds a unique tool had been found – the cleaver. The tool is made on a large chip of the oval pebble of the fine-grained banded rock of the brownish-grey colour (21.0 x 9.9 x 3.9-cm in size) (Fig. 17). The dorsal surface of the chip is completely covered with a cortical surface of pebbles. The distal edge of the chip – the cleaver blade – represents a natural sharp edge formed by the joint of dorsal and ventral surfaces. This distal edge

remained unprocessed and has only small voids – utilization (?). The proximal edge of the chip on dorsal carries the remnants of impact surface prepared by large and medium chips to remove the chip-blank itself. Subsequently, the same impact surface had been used to refine of the impact hillock of a chip by small chips and different-sized multirow retouch. The lateral edges of the chip on the ventral surface had been carefully processed to give them straight, subparallel outline. Depending on the edges morphology, they were subjected to different treatment processes. Apparently, the ancient master aimed to gain maximally from success enough pebble chip under minimal costs for tool processing. The right edge of the chip is more straight, less processed and carefully retouched. At that time more massive left edge was almost all overwhelmed with large and small chips and retouched, but still, the master had to put two chips on a dorsal pebble surface for their straightening.

For the first time ever for the Acheulian culture in the Caucasus the tool of that kind with probable African roots had been found within Garaja findspot (Kulakov and Zeynalov, 2014). The chronological position of this tool is not yet clear, but its presence once again shows the multi-time and complex structure of Acheulian culture in the Caucasus. It seems that Caucasus during Acheulian, alike the south of France and Spain, represented one of zones of contacts and crossroads on the way of settlement to the North Eurasia of the Acheulian and earlier industries different in time and genesis.

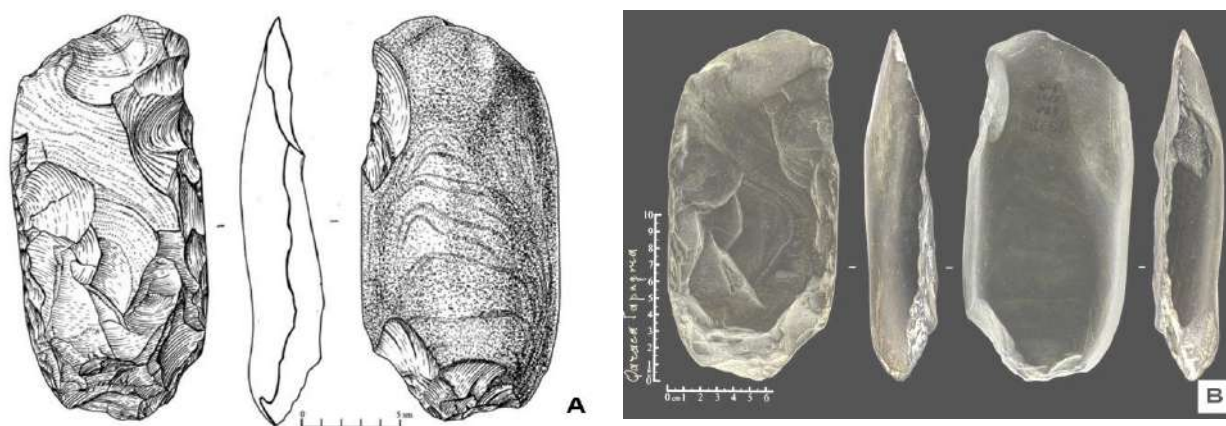


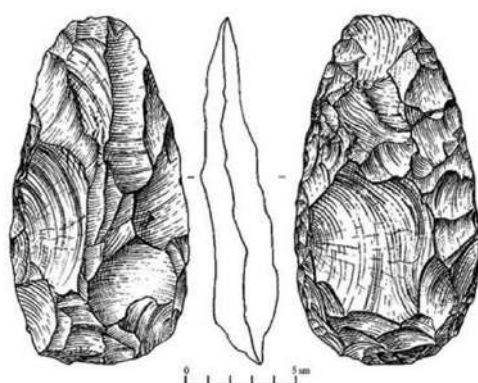
Fig. 17. Flake cleaver: **A** – graphic drawing; **B** – photo image

The earlier described upper jaw of the southern elephant (*Archidiskodon meridionalis*) with teeth had been also found in the lower continental series. Besides is, the series is rich with numerous ferruginized petrified remains trunks to 0.7 m across and up to 3-4 m in length. Up the section, there is a series of marine sediments with thickness of approximately 17 m. It is alternated by the next 40 m continental series of complicated structure. This series is mainly represented by the grey sand sequence with single interlayers of pebbles and rare tree remains. The character of their bedding indicates that they belong to stages of territory evolution and they are separated from each other by some strong erosion processes. The upper level of the finds with a gap of 15-20 meters is corresponded to this series (Idrisov et al., 2016).

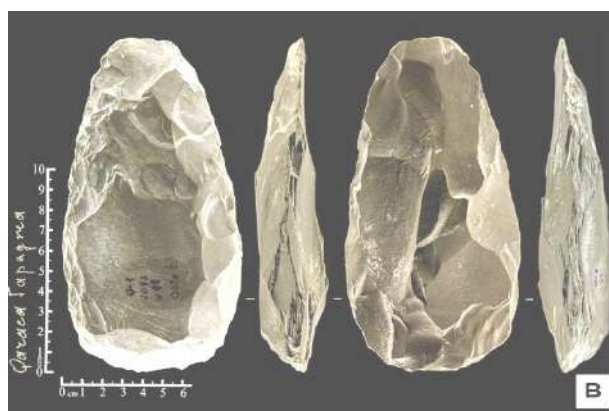
In the upper level, along with choppers and beautifully designed hand axes (Figs 18, 19), the La Quina-type scraper on a large lithic flake had

been found. On the same level, alongside with ferruginized trees, the bones of red deer, bull and the skull of Rhinoceros *Diceros merki* (see above) had been found as well.

The category of roughly-cutting tools is the richest one in collection of the lower and middle levels. Here, along with the subcategory of various choppers, there is a special subcategory of tools provisionally called “hammer-stones”. As a rule, those tools had been made from round-shaped fine-grained pebbles divided nearly into two halves. The treated edge, obtained in that manner, was carefully processing by chips and retouch all-round. The natural nodular surface had preserved at the heel that provided comfortable handy gripe. The working surface of the tool, set off against the heel, had been formed by large and small chips and retouch all-round the tool. The work edge of the tool has the utilization retouch traces nearly around the entire periphery (Fig. 20).

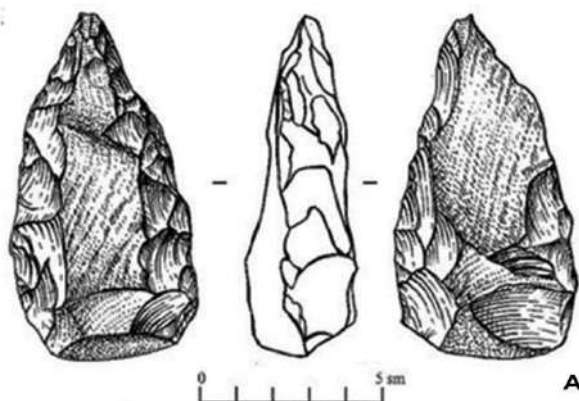


A

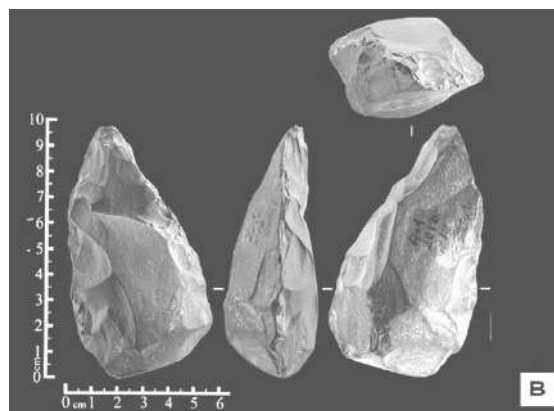


B

Fig. 18. Hand axes from the site Garaja: **A** graphic drawing; **B** photo image



A



B

Fig. 19. Hand axes from the site Garaja: **A** graphic drawing; **B** photo image

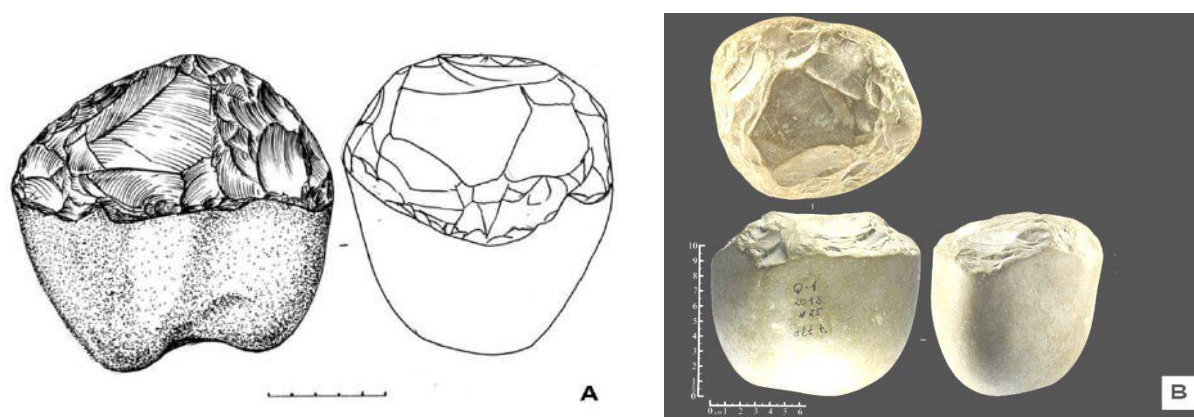


Fig. 20. Truncated pebbles from the site Garaja: **A** graphic drawing; **B** photo image

Among the choppers of Garaja industry, there are very large double-sides choppers made of very big pebble and weighing more than 3 kg. For the first time such kind of tool had been discovered in the lower layers of the cave Azykh in Garabagh. They provided a basis for separating a new archeological culture – Guruchay. The large two-handed choppers up to 4,0-4,5 kg just were one of the criterion to separate a new culture. Huseynov M.M. had called those two-handed choppers as “gigantolithes”. He was first who introduced into scholarly discourse the phrase “Guruchay culture” and the term “two-handed chopper-gigantolith” (Huseynov, 1979). Decades later, the mentioned culture founding form of “Guruchay culture” had been found not only in Garaja (Zeynalov, 2018), 300 km north of the cave Azykh but within the Lower Paleolithic man sites in the Central Dagestan (Amirkhanov, 2013), Taman peninsula (Kulakov, 2018), far beyond Azykh (Zeynalov and Zeynalova, 2018).

Currently, approximately 10 artefacts of such kind have been found on the shore of Mingachevir water reservoir. Some of these tools had been discovered at Garaja site directly. One of the tools

had been made of large pebble 18,5x12,0x12,0-cm in size. The working edge, overlapping the lateral face, had been decorated by the large chips on the upper part of the tool (Fig. 21).

Some more tools had been found 5-6 km west of Garaja, at “Bozdag-1” archaeological site of findings. The chopper-gigantolith had been made by the same method as the previous one and of the same weight – over 3 kg. The tool is 18,0x18,0x8,0 cm in size. The chopper is double-sided. The working edge is decorated with large chips, resulting in a zigzag cutting edge. The natural crust had preserved over the rest surface of the tool.

One more two-handed chopper-gigantolith somewhat differs from two previous both in decoration technique and by weight. The double-sided chopper had been made using the large pebble (24,5x1,09x8,0 cm in size) of the subtriangular shape of dark grey colour. The tool weight is over 4 kg and very rounded. The working edge is decorated by large chips all-round taking 2/3 of the pebble. The natural crust had preserved on end-face and both sides of the pebble not touched by decoration (Fig. 22).

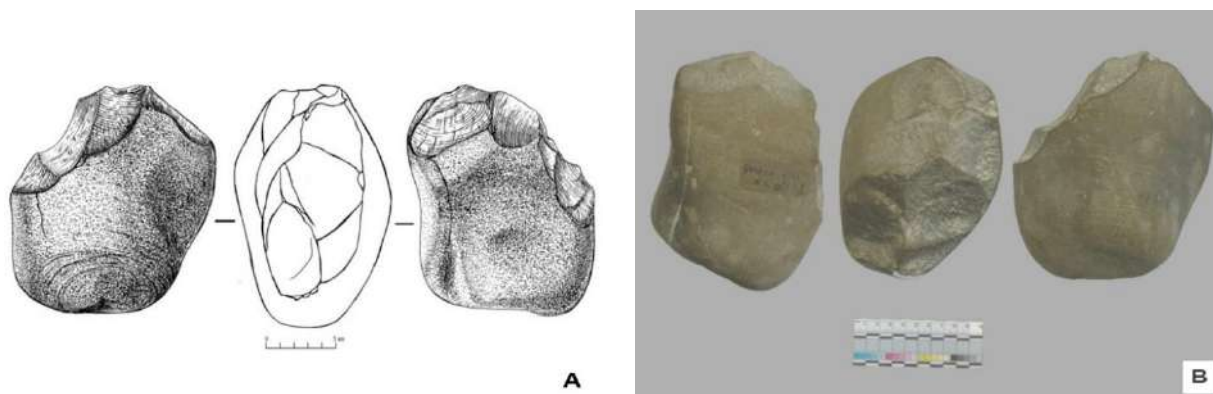


Fig. 21. Two-handed chopper-gigantolith from the site Garaja: **A** graphic drawing; **B** photo image

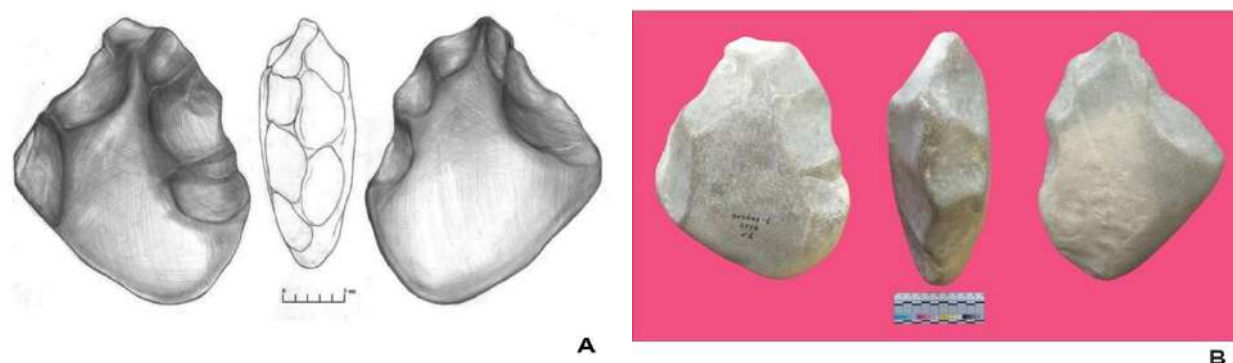


Fig. 22. Two-handed chopper-gigantolith from the site Bozdagh-1: **A** graphic drawing; **B** photo image

Some of the new-discovered choppers-gigantoliths do not meet all criteria of gigantoliths from the cave Azykh. In particular, there are differences in the raw materials and the working edge finishing. At the same time, all the artefacts had been made using the large pebbles. Their utilisation proposes the usage of both hands not only in the context of tool's weight but also its decoration when a vast surface keeps a smooth crusty face for easy handy gripe.

The discovery of new Lower Paleolithic sites in Azerbaijan, as well as in other regions of the Caucasus, says for the multi-vector routes of migration of the ancient populations of hominids to the Caucasus and Fore-Caucasus during the Lower Pleistocene. One of these routes was transition via the cave Azykh, Garaja on Kura River coast and further north to Dagestan group of the Lower Paleolithic sites.

Conclusion

Results of the multi-year research show that within the eastern part of the South Caucasus the paleogeographic environments of the Miocene-Pleistocene stage differed significantly from the modern ones. The found bone remains of the vertebrates as well as the abundance of remains of trunks of big and small trees and shrubs testify the domination of the semi-open landscapes of the forest-steppe type predominantly steppe areas, alternating with tree and shrubby vegetation.

As a result of the carried out research it has been established that the area of Mingachevir water reservoir is the globally unique (over 100 km) cemetery of the vertebrate fossils. Besides it, this is the only place within the Caucasus where the remains of three species of the Pleistocene mammals of *Elephantidae* had been found.

The discovery of the Early Paleolithic sites in the Caucasus, including the recent ones in Azerbaijan, argues for the multi-vector migration routes of the ancient populations of hominids. The collected scientific content allows suggesting that after entering the Caucasus approximately 2 Ma the early hominids moved northward in two ways at the least archaeological material suggests that, having penetrated into the Caucasus about 2 million years ago, the oldest hominids migrated further northwards in two directions, at least. One way was directly towards Azykh and then due north via Garaja and then towards Dagestan group of the Lower Paleolithic sites. Another one migration ran to Dmanisi and also further north. It must be kept in mind that in Lower Pleistocene the Greater Caucasus range was forming and the steppe, forest-steppe and savanna landscapes prevailed in region.

The exclusive material based on the latest research outcomes had been firstly reported at the Conference "Ponto-Caspian Stratigraphy and Geochronology" (Tehran, Iran) and aroused great interest among the event participants. Considering the uniqueness of findspots of the Upper Miocene-Pleistocene vertebrate fauna in area of Mingachevir water reservoir and their eligibility for UNESCO and ProGeo, it is advisable to address the matter of granting region the status of the global geopark.

Declarations

The authors declare that they have neither financial nor non-financial interests. The authors declare that they have no conflict of interest. No Human Participants and / or Animals had been involved into the research.

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МИНГЯЧЕВИРСКИЕ МЕСТОНАХОЖДЕНИЯ ПЛЕЙСТОЦЕНОВОЙ ПОЗВОНОЧНОЙ ФАУНЫ И ПАЛЕОЛИТИЧЕСКИХ СТОЯНОК ГОМИНИДОВ КАК ГЕОСАЙТ МИРОВОГО ПРИРОДНО-ИСТОРИЧЕСКОГО НАСЛЕДИЯ (СЕВЕРО-ЗАПАДНЫЙ АЗЕРБАЙДЖАН)

Эйбатов Т.М.*¹, Зейналов А.А.^{1,2}, Кенгерли Т.Н.³, Рашидов Т.М.³

^{*1}Министерство науки и образования Азербайджанской Республики,

Естественно-исторический музей, Азербайджан

AZ1006, Баку, ул. Лермонтова, 17: t_eybatov@mail.ru

²Национальная Академия Наук Азербайджана,

Институт археологии и антропологии, Азербайджан

AZ1073, Баку, просп. Г.Джавида, 115: azykh1960@gmail.com

³Министерство науки и образования Азербайджанской Республики,

Институт геологии и геофизики, Азербайджан

AZ1073, Баку, просп. Г.Джавида, 119: tofig.rashidov@gmail.com

Резюме. Статья посвящена результатам исследования ископаемых позвоночных и раннепалеолитических местонахождений, расположенных на западе Азербайджана. В Джейранчельской степи и в окрестностях Мингячевирского водохранилища обнаружены богатейшие захоронения позвоночных в сочетании с раннепалеолитическими местонахождениями абшерон-бакинского времени. Такие местонахождения ископаемой позвоночной фауны как Эльдарское, Гушгунинское, Боздаг-Гараджинское, по праву оценены как уникальные геологические памятники (геосайты). Описывается история открытия и исследования описываемых геосайтов и раннепалеолитических местонахождений. Детальный анализ ископаемой фауны позволил выявить эксклюзивные для Кавказа виды плейстоценовых млекопитающих. Приводятся данные по палеогеографическим условиям миоцен-плейстоценового периода в восточной части Южного Кавказа, а также данные о геолого-геоморфологической ситуации в районе раннепалеолитического памятника Гараджа. На основе анализа геологической ситуации и остатков палеофауны определяются возможные временные рамки формирования памятника (бакинское время, 0,8-0,4 млн. л.н.). Проводится анализ археологических материалов. Комплексные исследования местонахождений ископаемой фауны и раннепалеолитических памятников позволили реконструировать палеогеографические условия обитания ископаемой фауны и ранних гоминидов в миоцен-плейстоценовый период. В результате проведенных исследований установлено, что окрестности Мингячевирского водохранилища являются уникальным по протяженности (более 100 км) кладбищем древних позвоночных ископаемых и сосредоточением раннепалеолитических памятников.

Ключевые слова: Мингячевирское водохранилище, геосайт, позвоночная фауна, Азых, Гараджа, культура Гуручай

DÜNYA TƏBİƏT-TARİXİ İRS GEOSAYTI – PLEYSTOSEN ONURĞALILAR FAUNASININ VƏ HOMİİDLƏRİN PALEOLİT DÜŞƏRGƏLƏRİNİN MİNGƏÇEVİR MƏNTƏQƏLƏRİ (ŞİMAL-QƏRBİ AZƏRBAYCAN)

Eybatov T.M.*¹, Zeynalov A.Ə.^{1,2}, Kəngərli T.N.³, Rəşidov T.M.³

^{*1}Azərbaycan Respublikası Elm və Təhsil Nazirliyi, Təbiət Tarixi Muzeyi, Azərbaycan

AZ1006, Bakı, Lermontov küçəsi, 17: t_eybatov@mail.ru

²Azərbaycan Milli Elmlər Akademiyası, Arxeologiya və Antropologiya İnstitutu, Azərbaycan

AZ1073, Bakı, H.Cavid pr., 115: azykh1960@gmail.com

³Azərbaycan Respublikası Elm və Təhsil Nazirliyi,

Geologiya və Geofizika İnstitutu, Azərbaycan

AZ1073, Bakı, H.Cavid pr., 119: tofig.rashidov@gmail.com

Xülasə. Məqalə Azərbaycan Respublikasının qərbində yerləşən onurğalı heyvan qalıqlarının və Erkən Paleolit düşərgələrinin tədqiqat nəticələrinə həsr olunmuşdur. Ceyrançöl düzündə və Mingəçevir su anbarının ətrafında Abşeron-Bakı dövrünə aid Erkən Paleolit düşərgələri ilə yanaşı olaraq çox zəngin onurğalı qalıqları aşkar edilmişdir. Eldar, Quşquna və Bözdağ-Qaraca kimi onurğalı fauna qalıqlarının tapıldığı məntəqələr haqlı olaraq nadir geoloji abidələr (geosaytlar) kimi qiymətləndirilir. Məqalədə yuxarıda təsvir edilən geosaytların və erkən paleolit düşərgələrinin kəşfi və tədqiqat tarixi işıqlandırılır. Qazıntı faunasının ətraflı təhlili Qafqaz üçün eksklüziv olan Pleystosen məməlilər növlərinin müəyyən edilməsinə imkan vermişdir. Məqalədə Cənubi Qafqazın şərq hissəsində Miosen-Pleystosen dövrünün paleoqəografi şəraiti, eləcə də Erkən Paleolit yaşlı Qaraca abidəsinin yerləşdiyi ərazinin geoloji-geomorfoloji mühiti haqqında məlumat verilir. Geoloji vəziyyətin və paleofauna qalıqlarının təhlili əsasında abidənin formalaşması üçün mümkün zaman çərçivəsi müəyyən edilir (Bakı dövrü, 0,8-0,4 milyon il əvvəl). Əlavə olaraq, arxeoloji materialların təhlili aparılmışdır. Qədim fauna qalıqlarının yerləşdiyi məntəqələrin və Erkən Paleolit abidələrinin kompleks tədqiqatı Miosen-Pleystosen dövründə fosil faunasının və erkən hominidlərin məskunlaşma şəraitini rekonstruksiya etməyə imkan vermişdir. Aparılmış tədqiqatlar nəticəsində müəyyən edilmişdir ki, Mingəçevir su anbarının ətrafı 100 km-dən artıq məsafəyə uzanan qədim onurğalı qalıqlarının unikal qəbiristanlığı və Erkən Paleolit dövrü abidələrinin cəmləşdiyi bir məkandır.

Açar sözlər: Mingəçevir su anbarı, geosayt, onurğa faunası, Azix, Qaraca, Quruçay mədəniyyəti