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ARCHAEOLOGICAL INVESTIGATIONS AT THE MUGINSKY SITE IN 2021

Abstract. The paper provides the results of the archaeological exploration of the Muginsky site (Akushinsky district of the Republic of Dagestan) and paleobotanical analysis of the obtained material. As a result of the investigations carried out, various archeological materials, mainly ceramic ware, have been uncovered. The finds of a fragment of a stone mace head and a flint knife-shaped blade are of particular interest. In addition, a large number of animal bones, mainly of small cattle, were found. Exploration of the Muginsky site have provided new and important material for the cultural and historical characteristics of the culture of the central part of Mountainous Dagestan and the chronology of the site, allowed us to determine the two-layered nature of the site and date it to the final phase of the Eneolithic (Layer 4) and the Middle Bronze Age (Layer 3). The radiocarbon dating for Layer 3, with calibration (1770 ± 50 BC), attributes it between the 19th–18th centuries BC. Paleobotanical examination of finds from the cultural layer of the Muginsky site has revealed an atypical combination of barley and rye grains. The rye grains found are the earliest evidence of the presence of this cereal in the Eastern Caucasus, which raises the question of the time and ways of dissemination of this cultivated crop from the primary area. This subject requires further research and obtaining more extensive paleobotanical collections from cultural layers and the resource zone around sites. This will expand our understanding of the economic activities of the local population, such as the development of agriculture and the emergence of terraced agriculture.

Keywords: Eastern Caucasus; Mountainous Dagestan; Muginsky site; Eneolithic; Middle Bronze Age; paleobotanical examination.

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АРХЕОЛОГИЧЕСКИЕ ИССЛЕДОВАНИЯ НА МУГИНСКОМ ПОСЕЛЕНИИ В 2021 г.

Аннотация. Статья посвящена результатам разведочных археологических исследований на Мугинском поселении (Акушинский район Республики Дагестан) и палеоботанического анализа полученного материала. В результате проведенных работ обнаружен разнообразный вещественный материал, главным образом, керамика. Внимания заслуживают также находки обломка каменного навершия булавы и кремневой ножевидной пластины. Следует отметить находки большого количества костей животных, главным образом, мелкого рогатого скота. Исследования Мугинского поселения дали новый и важный материал для культурно-исторической характеристики культуры центральной части Горного Дагестана и хронологии памятника, позволили определить двуслойный характер поселения и датировать его заключительной фазой энеолита (слой 4) и эпохой средней бронзы (слой 3). Радиоуглеродная дата для слоя 3 с учетом калибровки (1770 ± 50 ВС) позволяет датировать слой 3 в пределах XIX–XVIII вв. до н.э. Палеоботанические исследования находок из культурного слоя Мугинского поселения выявили нетипичное совместное сочетание зерен ячменя и ржи. Обнаруженные зерновки ржи являются наиболее ранним свидетельством наличия этого злака на Восточном Кавказе, что ставит вопрос о времени и путях распространения этого культурного злака из первичного ареала. Эта тема требует дальнейшего исследования и получения более массовых палеоботанических коллекций из культурных слоев и ресурсной зоны вокруг поселений. Это позволит расширить наши представления о хозяйственной деятельности местного населения, в частности, таких как развитие земледелия и становление террасного земледелия.

Ключевые слова: Восточный Кавказ; Горный Дагестан; Мугинское поселение; энеолит; средний бронзовый век; палеоботанические исследования.

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In August-September 2021 the Mountain division of the Dagestan Archaeological Expedition of the Institute of History, Archeology and Ethnography of the Dagestan Federal Research Center of the Russian Academy of Sciences conducted an inventory of the archaeological heritage site "Muginsky Site", located in Mountainous Dagestan on the territory of the Akushinsky district. The aim of the work was to investigate the Muginsky site, previously attributed to the Bronze Age, as part of the implementation of the section of the planned research "History and culture of the peoples of Dagestan in written monuments and archaeological sites". Archaeological investigations were conducted in order to clarify the dating of the site, its historical and cultural attribution, to determine the thickness and nature of cultural layers, as well as to assess the current state of the object of cultural heritage and to establish the site's boundaries.

As a result of the work, an inventory of the object of archeological heritage "Muginsky Site" was carried out, the chronology of the site was clarified, its stratigraphy was determined, necessary documentation was compiled, an instrumental layout with defined boundaries of the site's territory was made, etc.

The Muginsky site was discovered by the local historian M.I. Isakov in the late 1950s. He published the information about his discovery in 1966 in the work "Archaeological sites of Dagestan". In it, the author gives a brief review of the Muginsky site, notes that the site is located on a terraced plot bounded from the south by a steep slope, and from the north – by a river. On the site's surface, he collected several pieces of hand-made pottery and a large number of flint blades. The site was generally attributed to the Bronze Age [1, p. 63, No. 805]. Later, information about the site without changes and revisions was included in the book of A.I. Abakarov and O.M. Davudov "Archaeological map of Dagestan" [2, p. 203, No. 1088]. R.G. Magomedov in his monograph "Ginchin culture. Mountains of Dagestan and Chechnya in the Middle Bronze Age" attributes the Muginsky site on the basis of available exploration materials to the complex of sites of the Ginchin culture of the Middle Bronze Age. The lack of reconnaissance and a cursory analysis of the surface finds of the site did not allow the author to properly conclude about the relative and absolute chronology. However, the available information allowed him to attribute it to the late phase of the development of the Ginchin culture [3, pp. 18, 38, 166, 170]. By the Decree of the Government of the Republic of Dagestan No. 117 dated July 24, 1996, the Muginsky site was included in the list of historical and cultural sites subject to state protection. There has been no archaeological field research of the site.

The results of archaeological investigations

The site is located in the southeastern part of Inner-mountain (Limestone) Dagestan, south of the village of Mugi, Akushinsky district. Geologically, the site is located on the northwestern pericline of the Deibuksky anticline, near the transition further to the northwest to the Ayilitimakhinskay anticline. A narrow anticline with an amplitude of >100 m and a length of circa 2 km formed between large anticlines. The Muginsky site adjoins the axial part and the south-western slope of this fold. The rocks as a whole on the site sink to the northwest at an angle of 5–10°. Anticlinal folds are expressed in relief

by ridges extending for several tens of kilometers due to the development of massive armoring limestones of the Upper Jurassic – Lower Cretaceous of gray-yellow color, with a thickness of more than 400 m.

The Muginsky site is located (Fig. 1, 2) on top of a mountain spur and its south-western slope in an area called "GyargyanchIila khyab" (from Dargin – "The valley of boulders"). The site measures 70×70 m. The locals call it "Utsmi gIerila burhIi" (from Dargin – "The place that belongs to the Utsmi"). The site is situated on the left side of the valley of the Shinkvalikotta River. The river valley is a narrow canyon with vertical sides up to 70 m deep. The rocky spur on which the site is located is bounded from the south-west by an erosion valley with wide outcrops of rock at the bottom and separate terraced areas. The elevation of the spur over the erosion valley ranges from 20 m in the east to 50 m in the west. The surface of the spur within the site is covered with clusters of stones and fine silt, to the east outside the site the spur is an open rocky ground (Fig. 1). The rocky spur facing southwest is complicated by rocky outcrops and large limestone fractions. In some areas of the spur, the remains of terrace ledges rising 15 m above the bottom of the erosion valley have been recorded. The top of the spur is flat, up to 20 m wide, with foundation pits of possible dwellings and household buildings, as well as a mound-shaped stone embankment (Fig. 1, 2).

In total, 17 of such pits have been identified on the territory of the site, mainly on the top of a rocky ridge, which can be interpreted as the remains of dwellings or buildings for household purposes. Due to the lack of clear boundaries of pit-like structures, visually observed walls, masonry, their recording was carried out through continuous numbering without measurements (the exact dimensions of dwellings can be obtained only during archaeological excavations), marked on the topographic plan (Fig. 1, 2). Pits 1–17 are located on the territory of the site in clusters, almost in parallel rows oriented to the NW-SE (up to 4 rows of depressions), have oval and oval-sub-rectangular outlines, with an average size of around 4×3 m (Fig. 1, 2). On the territory of the site, on top of the rocky ridge, in addition to the pits from possible household-economic structures, a mound-shaped stone embankment has been found. It is located on the southeastern periphery of the site, built of crushed limestone, the surface is lightly covered with sod. The embankment has a rounded shape, with a diameter along the NW-SE line of 9 m, and along the SW-NE line of 7 m; the height of the embankment is around 1.2 m (Fig. 1). In the center of the embankment there is a plundered pit of a round shape, measuring 1.7×1.8 m, with a depth of up to max. 40 cm. It was not possible to establish the nature and purpose of this embankment; this requires further research (excavations).

In order to determine the stratigraphy and chronology of the site, as well as to collect archaeological material, Trench 1 was dug in the southwestern part of the site on a preserved fragment of a terrace in the lower part of the spur on the slope of the southwestern exposure at a distance of 15 m from the bottom of the erosion valley and 25 m from the top of the mountain spur (Fig. 3). The prospecting trench measuring 2×1 m, oriented with a long axis along the N-S line, was dug for preliminary determination of stratigraphy, the nature of cultural deposits, obtaining material to clarify the chronology and historical and cultural attribution of the site. The ground surface, where the trench

was dug, has a strong slope towards the south and west: the difference is 25–54 cm. The reference point was fixed in the elevated northeast corner of the trench. GPS coordinates of the trench: N42°17'02.9777, E47°26'12.2567. In the south-eastern corner of the trench, a heap of stones was uncovered at the level of the clearing of Layer 2. It was decided to preserve this heap, while the rest of the trench was excavated to bedrock.

Stratigraphy of Trench 1 (Fig. 3, 4):

– Layer 1 – humous loam of brown color (sod layer), with a maximum thickness of 10 cm. Flint, fragments of pottery and animal bones were found in the layer;

– Layer 2 – gray loam, poorly compacted, with limestone fragments, and finds of animal bones, flint and pottery fragments. The thickness of the layer is 20–70 cm. The transition is blurry, uneven;

– Layer 3 – loose loam, of gray-ash color, powdery with individual inclusions of small stones. The thickness of the layer is 17–35 cm. Flint, fragments of ceramics and animal bones were found in the layer. The lower border of the layer is uneven;

– Layer 4 – loam, compacted, with numerous small (up to 5 cm) limestone fragments, light-gray in color with a brown tint. The thickness of the layer is 35–50 cm, the transition is gradual, the border is smooth. Flint, fragments of pottery and animal bones were found in the layer;

– Layer 5 – loam, compacted, with a large number of small fragments of limestone, the buried (fossil) soil is of chestnut-gray color. The thickness of the layer is 18–30 cm. No artifacts were found;

– the subsoil is a loam, structureless, compacted, with numerous small and middle-sized limestone fragments, yellow in color, uncovered down to 25 cm.

During the excavations, an assemblage of archaeological finds was collected, including fragments of pottery, stone products, and bones. Individual finds are represented by the following artifacts:

– a phalanx of a small cattle with a through hole, one of the sides of which is polished, -0.47 m deep from ±0, Layer 2 (Fig. 5, *1*);

– a phalanx of a small cattle animal with a through hole, -1.19 m deep from ±0, Layer 3 (Fig. 5, *2*);

– a fragment of a polished, spherical mace head with a flattened base made of river pebble, -1.24 m deep from ±0, Layer 3 (Fig. 5, *3*);

– nucleus, -1.27 m deep from ±0, Layer 4 (Fig. 6, *1*);

– knife-shaped blade with one-sided retouching along one edge, -1.46 m deep from ±0, Layer 4 (Fig. 6, *2*).

In addition to the listed finds, a relatively large assemblage of ceramic ware has been collected, the description and characteristics of which are given below for each stratigraphic layer.

Layer 1 contained 10 fragments of pottery, including fragments of the rim of a light-brown pot strongly bent outward with a polished outer surface (Fig. 7, *2*).

Layer 2 contained 11 fragments of pottery, one of which was coated with liquid clay on the surface. The layer also contained:

– a fragment of a brown bowl's rim with a horizontal surface polish (Fig. 7, *4*);

– a fragment of the rim of a smoothed bowl of dark gray color; traces of coating have been preserved on the surface below the rim (Fig. 8, *2*);

– a fragment of the rim of a miniature pot of brown firing with a gray fracture (Fig. 8, *4*);

– a fragment of the bottom part of a flat-bottomed vessel of gray color with a hand-smoothed surface (fig. 8, *10*);

– a fragment of the wall of a brown vessel with a relief ornament in the form of an arched raised band (Fig. 8, *9*).

41 fragments of pottery were revealed in Layer 3, two of which have an outer surface coated with liquid clay. The layer also contained the following fragments of pottery:

– a fragment of the rim of a smoothed pot of brown color, the rim is strongly bent outward (Fig. 7, *8*);

– a fragment of a massive brown ribbon handle (fig. 8, *11*).

58 fragments of pottery were found in Layer 4, including:

– a fragment of the rim of a black-burnished pot with a slightly bent and refined rim (Fig. 8, *3*);

– a fragment of a smoothed brown pot with a slightly bent and refined rim (Fig. 7, *7*);

– fragments of the wall of a polished vessel of brown color with a streak of dark brown paint (fig. 8, *5, 6*);

– a fragment of a ribbon polished brown handle, rectangular in cross-section (Fig. 8, *8*);

– a fragment of the rim of a high-quality polished vessel with a high neck, with an outer surface of terracotta color and a dark-gray inner surface (Fig. 7, *1*);

– a fragment of the rim of a dark-gray smoothed pot with a strongly bent rim (Fig. 7, *6*);

– a fragment of the rim of a brown smoothed pot with a slightly bent rim (Fig. 7, *7*);

– the upper part of the side of the frying pan with a straight undivided rim, under which a number of through holes run, the surface is roughly smoothed, brown in color (Fig. 8, *1*).

During the clearing of the cultural layer, a total of 120 fragments of vessels were revealed. All ceramic ware are hand-molded. Only 4 fragments of ware are decorated. They are decorated with: incised ornament in the form of a horizontal row of through holes (Fig. 8, *1*); relief – in the form of a raised arc-shaped band (Fig. 8, *9*); depressed – in the form of impressions of parallel rows of bast mat formed during the technological process of molding the vessel (Fig. 8, *7*) and painted ornament in the form of dark brown streaks of paint (fig. 8, *5–6*). The surface of almost all fragments is polished or well smoothed. Three fragments of walls with a surface coated with liquid clay are noteworthy (Layers 2 and 3). Pottery with a coated surface in this case serves as a certain chronological indicator. It is recorded in almost all sites of Mountainous Dagestan [3, p. 77], and dates between the end of the Early Bronze Age – the beginning of the Middle Bronze Age, circa the middle of the III millennium BC [3, p. 78]. The coating with liquid clay was applied to the body of the vessel and separated from the polished or smoothed neck, as a rule, with a relief band.

Another large category of finds in the trench, in addition to ceramic ware, is osteological

material. A total of 79 fragments were found in the cultural layer. The osteological material was sent for further analysis.

To study the specifics of agriculture and the spectrum of cultivated crops, a test study of the composition of carbonized macroremains in the cultural layer of the Muginsky site from Trench 1 was conducted. Soil samples with a volume of 10 liters each were taken from the trench wall. In order to extract plant macroremains, the method of water flotation was applied [4, p. 259–262], using a sieve of 0.5 mm/cell. As a result, charred remains of plants preserved in the soil were revealed – seeds of rye and six-row barley, as well as ruderal weeds (Chenopodium, representatives of the Polygonaceae and Cruciferae families), and meadow grasses, a piece of burnt organic matter (presumably the residue of burnt food) (Table 1). Layer 4 turned out to be almost empty, containing only isolated fragments of wild cereals.

Table 1. Results of paleobotanical research of plant macroremains from the cultural layer of the Muginsky site

The composition of the cultivated crops of the Muginsky site is atypical for Mountainous Dagestan: no traces of wheat has been found here, and the barley and rye mentioned earlier have never been found together on archaeological sites of Dagestan. Common barley (*Hordeum vulgare* L.) is known from the cultural layers of the IV–III millennium BC, mainly from the valley of the Kura River [5, p. 79, Fig. 15]. In Dagestan, there are known finds of mostly hulless barley on the sites of the middle-end of the III–II millennium BC (Gilyar, Galgalatli-1, Verkhnegunib), but in all cases together with different varieties of

wheat. The find of rye grains is quite rare for the North Caucasus, carbonized remains of *Secale cereal* L. have been recorded mainly in Transcaucasia [5, p. 79]. Few finds of rye are known on the sites of the III–II millennium BC in Ossetia and Adygea [6, p. 73, 74; 7, p. 250]. However, the question of whether this rye was cultivated or wild-growing remains debatable. The cultivation of rye is reliably confirmed by archeobotanical finds from the Alan site of Podkumskoye-2 in the Kislovodsk basin – it is considered to be one of the early areas of rye cultivation in the mountainous regions of the North Caucasus [8, p. 324]. Therefore, the discovery of three rye grains in the cultural layer of the Muginsky site is the earliest find for the Eastern Caucasus and raises new questions about the time and ways of spreading of this cultivated crop from the original area of cultivation. This subject requires further investigation and obtaining more extensive archeobotanical collections from cultural layers and the resource zone around sites.

The research has found that the archaeological material and the formation of the stratigraphic layers themselves (1–2 and 4) occurred by erosion and other (washing, draining, economic activity) processes directly from the top of the rock mass down the slope, where it deposited on the preserved part of the terrace of the erosion valley. This is also indicated by the fact that an ancient ground surface has been recorded under Layer 4, overlapped by these layers. The formation of Layer 3 took place directly here, as evidenced by the properties of the layer – powdery loam of ash color. Deposits of this kind occur by the rotting of woody, plant organic matter; this is indicated by the data of the flotation of the cultural layer of Trench 1.

It is difficult to determine the chronological period of the settlement's existence on the site, given the redeposited nature of Layers 1, 2 and 4. However, it is possible to clearly distinguish the chronology of Layer 4 and Layer 3. This is indicated by the presence of ceramic ware in Layer 4, which functions as a relative chronological indicator. This is, first of all, a fragment of the vessel wall of light brown color with imprints of a mat basket (Fig. 8, *7*). This technique was widely applied when molding vessels in the North-Eastern Caucasus in the Eneolithic Age [9, p. 76]. It is also important to note the presence of high-quality tableware in the layer – bowls, pot-shaped vessels (Fig. 7, *1, 3, 6, 7*; 9, *1–3*) in combination with rough kitchenware – the brazier with through holes (Fig. 8, *1*). In general, the ware of this layer is analogues with the pottery assemblage of the Chinna site, dated to the final phase of the Eneolithic. It should also be noted that with the onset of the Bronze Age, the practice of molding vessels in special mats and wicker baskets ceased to exist [9, p. 141]. The finds of 4 flint nuclei and knife-shaped blades in the layer are also noteworthy. Based on the above, the material from Layer 4 can be attributed to the final stage of the Eneolithic era.

Layer 3 can be dated the Middle Bronze Age period. This is indicated by the presence in the layer of vessels with liquid-clay coating, a fragment of the rim of a smoothed bowl of dark-gray color, below the rim of which there are traces of coating on the outer surface, fragments of the walls of gray vessels with a coated outer surface (Fig. 8, *12*). This technique of coating the body with liquid clay is characteristic of the Middle Bronze Age. A fragment of a polished spherical stone head of a mace found in the lower part of the layer is also typical for this epoch [10, p. 109]. The radiocarbon dating of collagen from

the animal bone from Layer 3 attributes it to the Middle Bronze Age. Its radiocarbon age is 3370 ± 50 BP; taking into account the calibration, the date obtained can be attributed to 1770 ± 50 BC (Ki – 20322). In general, the Mugin site can be considered two-layered and dated, respectively, to two periods: 1 – the final phase of the Eneolithic (Layer 4); 2 – the Middle Bronze Age (19–18 centuries BC) (Layer 3).

Thus, as a result of the investigations carried out, a variety of archeological material have been revealed, mainly ceramic ware. The finds of a fragment of a stone head of a mace and a flint knife-shaped blade are of particular interest. Field studies of the Muginsky site have provided a new and interesting material for the cultural and historical characteristics of the local culture of the central part of Mountainous Dagestan and, most importantly, allowed us to determine the two-layer nature of the site and date it, respectively, to the final phase of the Eneolithic (Layer 4) and the Middle Bronze Age (Layer 3). The obtained material is important for studying the cultural, historical and economic development of the population of the central part of Mountainous Dagestan, in particular, its economic activities, agriculture, cattle breeding, pottery.

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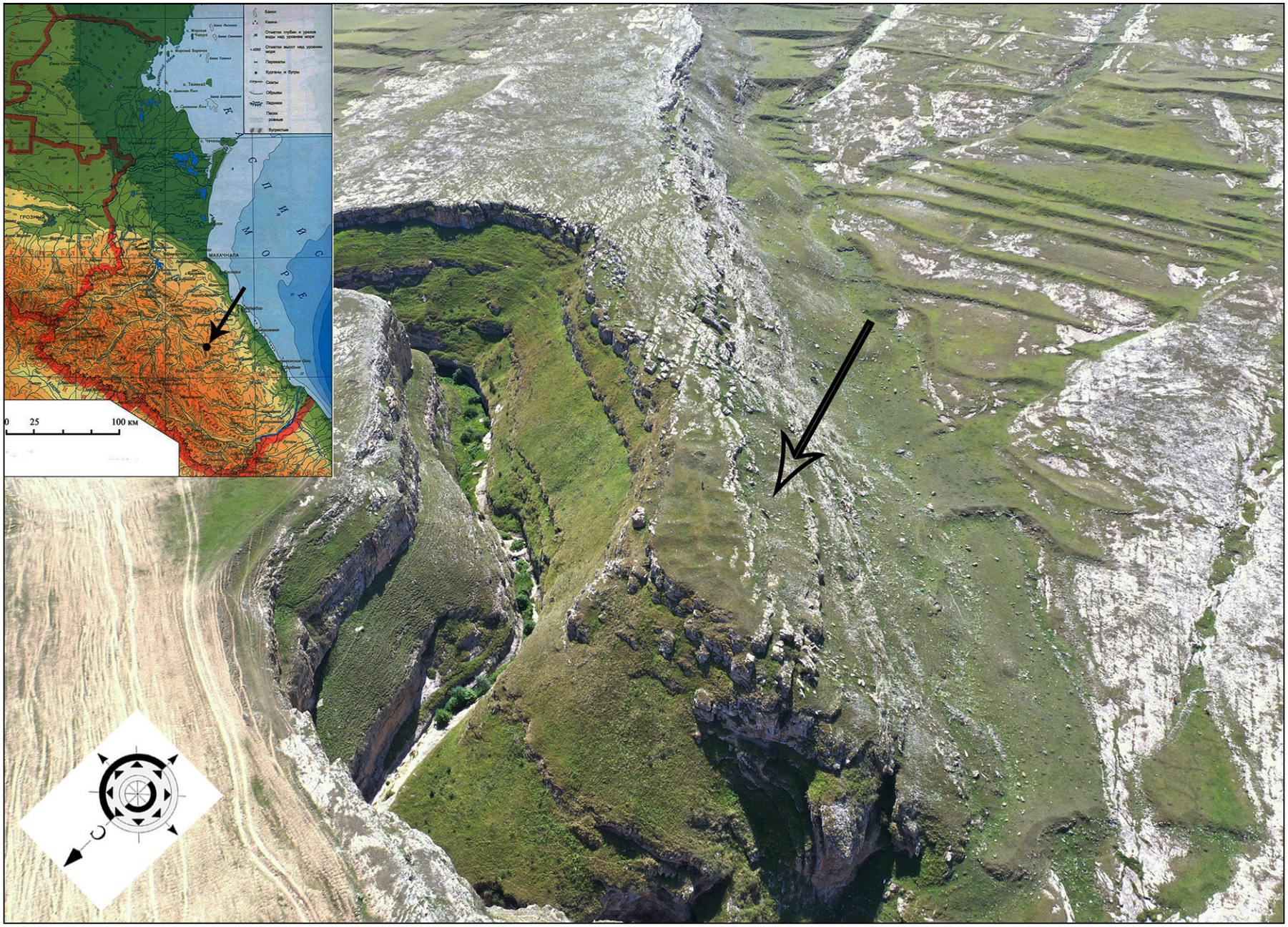

Fig. 1. View of the Muginsky site (the location is indicated by the arrow) from North-West (quadcopter photo)

Рис. 1. Вид на Мугинское поселение (местоположение указано стрекой) с СЗ. Снимок с квадрокоптера

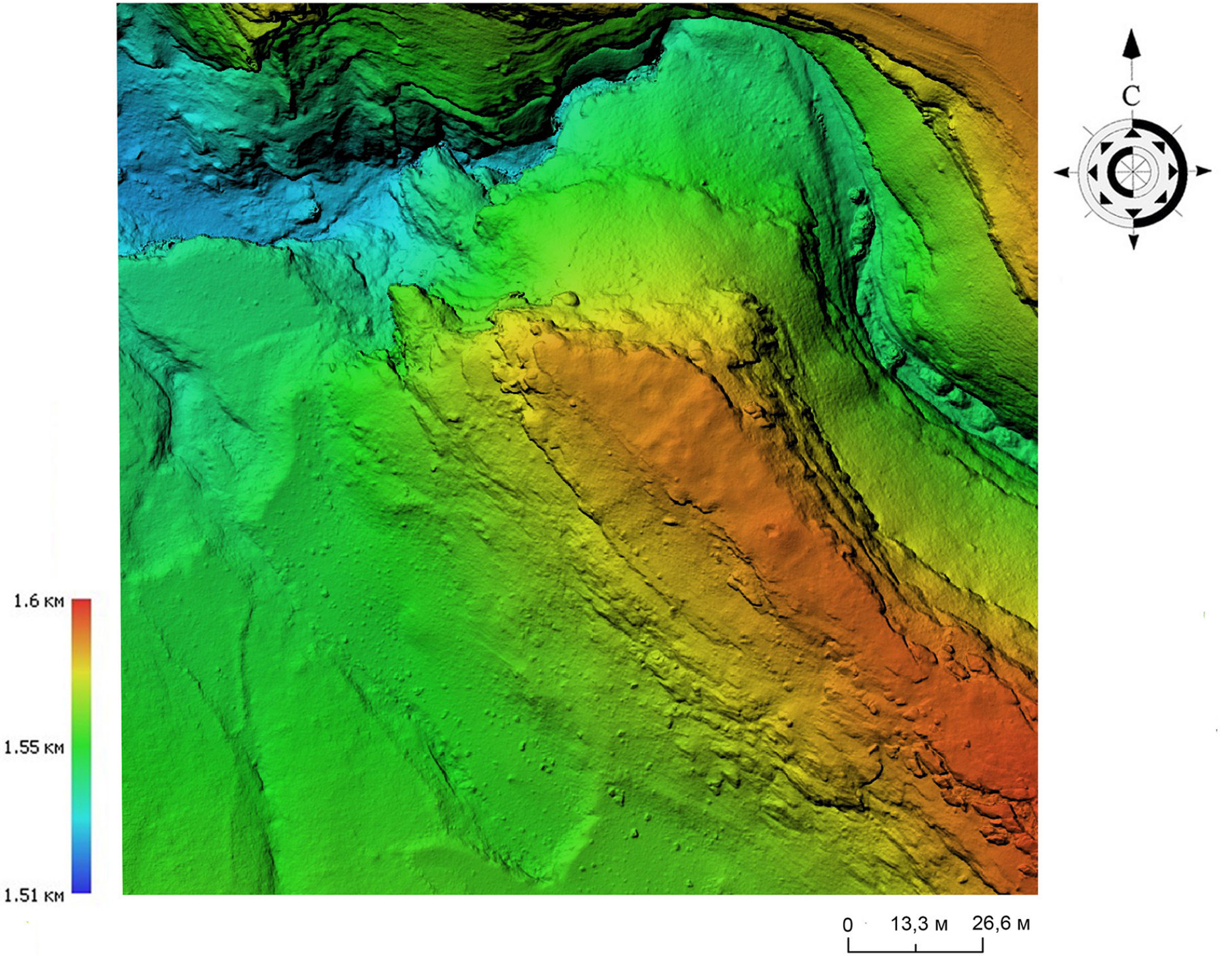

Fig. 2. Model of microrelief of the Muginsky site with color differentiation of altitudinal belts

Рис. 2. Модель микрорельефа Мугинского поселения с цветовой дифференциацией высотных поясов

Fig. 3. Muginsky site. Trench 1. Profile of deposits of the western wall

Рис. 3. Мугинское поселение. Шурф 1. Профиль отложений западной стенки

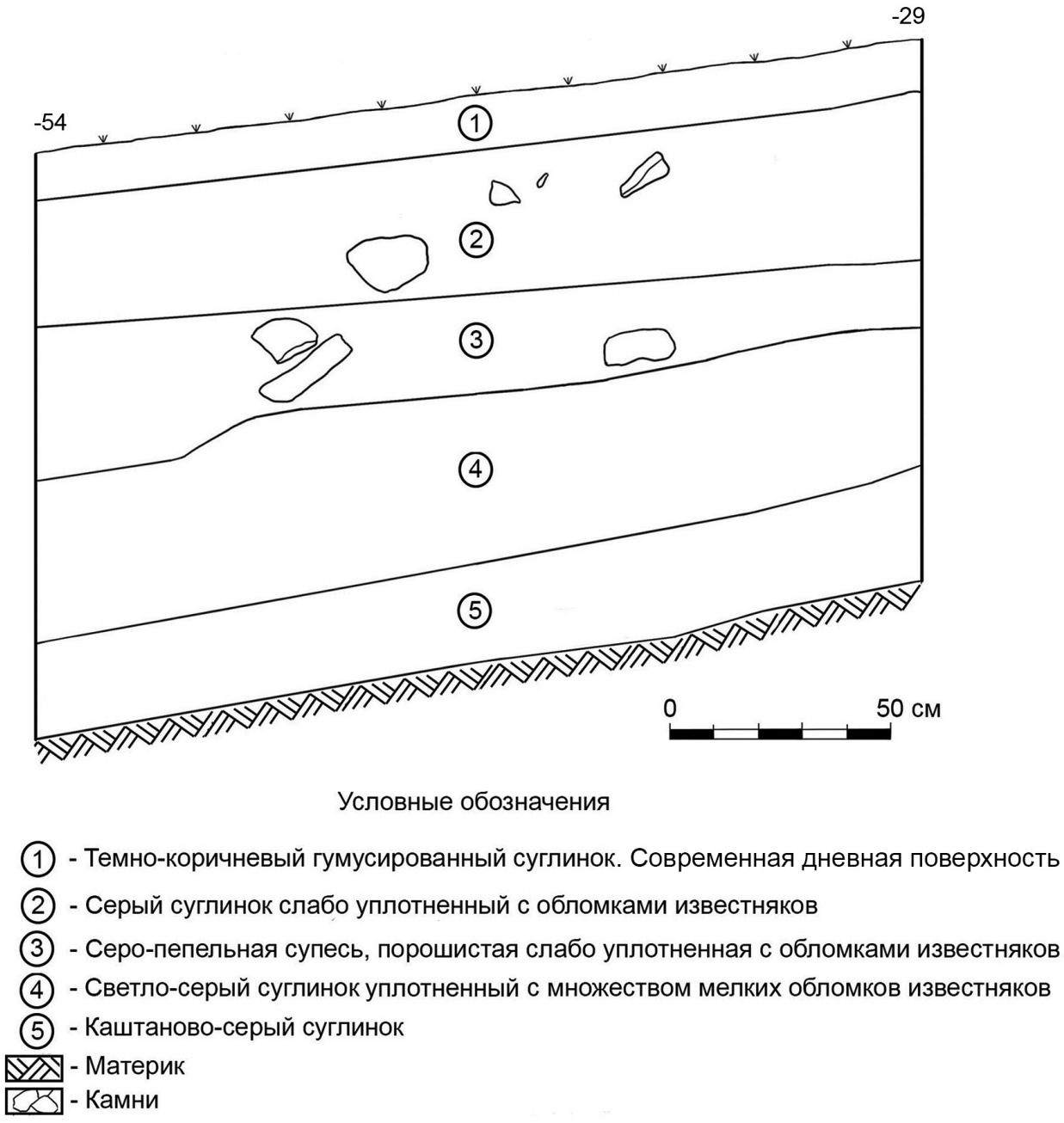

Fig. 4. Muginsky site. Trench 1. Profile of deposits of the western wall

Рис. 4. Мугинское поселение. Шурф1. Профиль отложений западной стенки

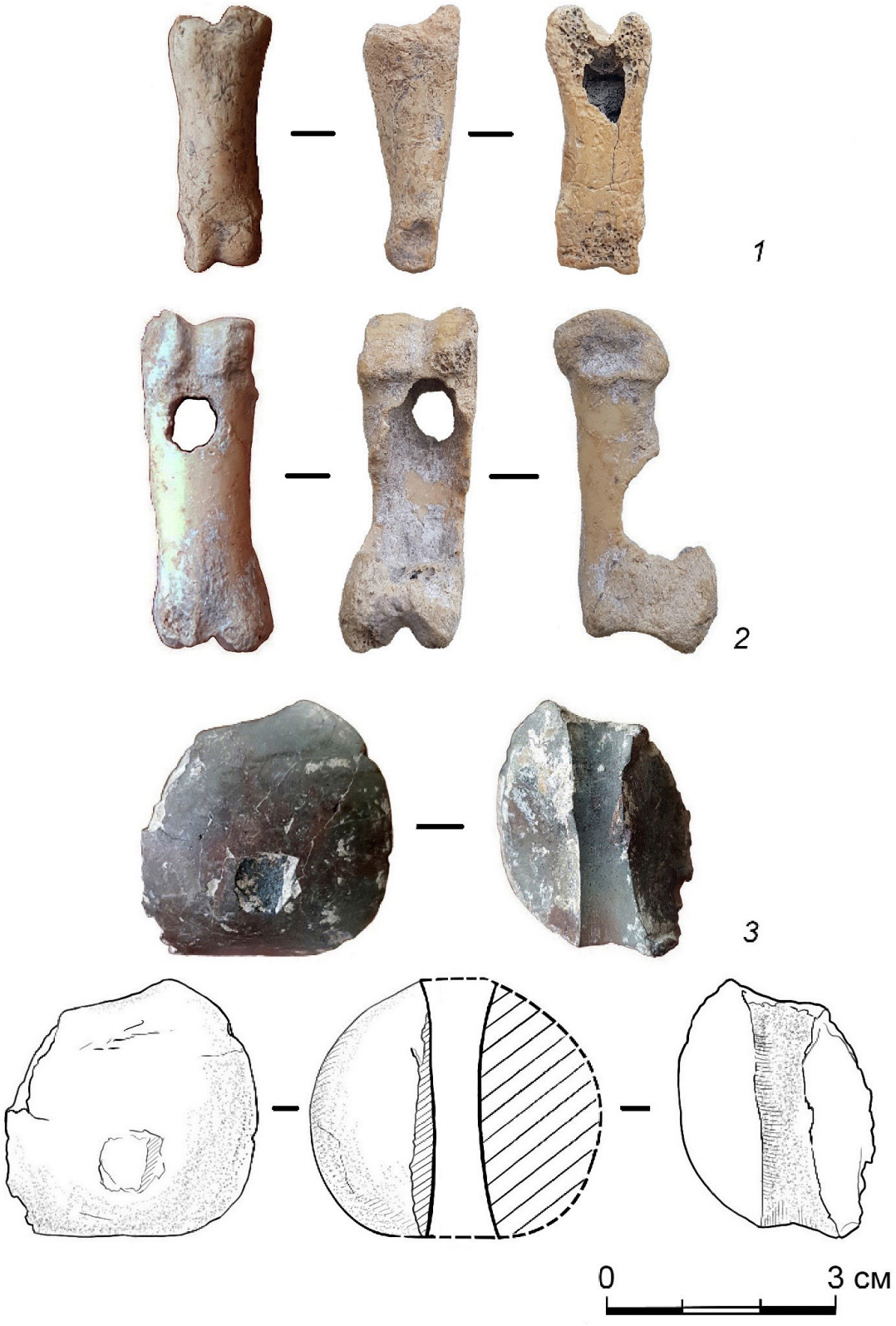

Fig. 5. Muginsky site Trench 1, Layer 2. Individual finds: 1 – a bone piece with a through longitudinal hole, inv. No. 1, -0.47 m deep; Layer 3, 2 – a bone piece with a through hole, inv. No. 3, -1.19 m deep; 3 – a fragment of a stone head of a mace, inv. No. 2, -1.24 m deep

Рис. 5. Мугинское поселение Шурф 1, слой 2. Индивидуальные находки: 1 - костяное изделие с сквозным продольным отверстием, инв. № 1, гл. -0,47 м; слой 3, 2 - костяное изделие с сквозным отверстием, инв. № 3, гл. -1,19 м; 3 - обломок каменного навершия булавы, инв. № 2, гл. -1,24 м

Fig. 6. Muginsky site. Trench 1, Layer 4: 1 – nucleus, inv. No. 4, -1.27 m deep; 2 – knife-shaped blade with one-sided retouching along one edge, inv. No. 5, -1.46 m deep

Рис. 6. Мугинское поселение. Шурф 1, слой 4: 1 - нуклеус, инв. № 4, гл. -1,27 м; 2 - ножевидная пластина с односторонней ретушью по одному краю, инв. № 5, гл. -1,46 м

Fig. 7. Muginsky site. Trench 1. Fragments of ceramic ware

Рис. 7. Мугинское поселение. Шурф 1. Фрагменты керамических сосудов

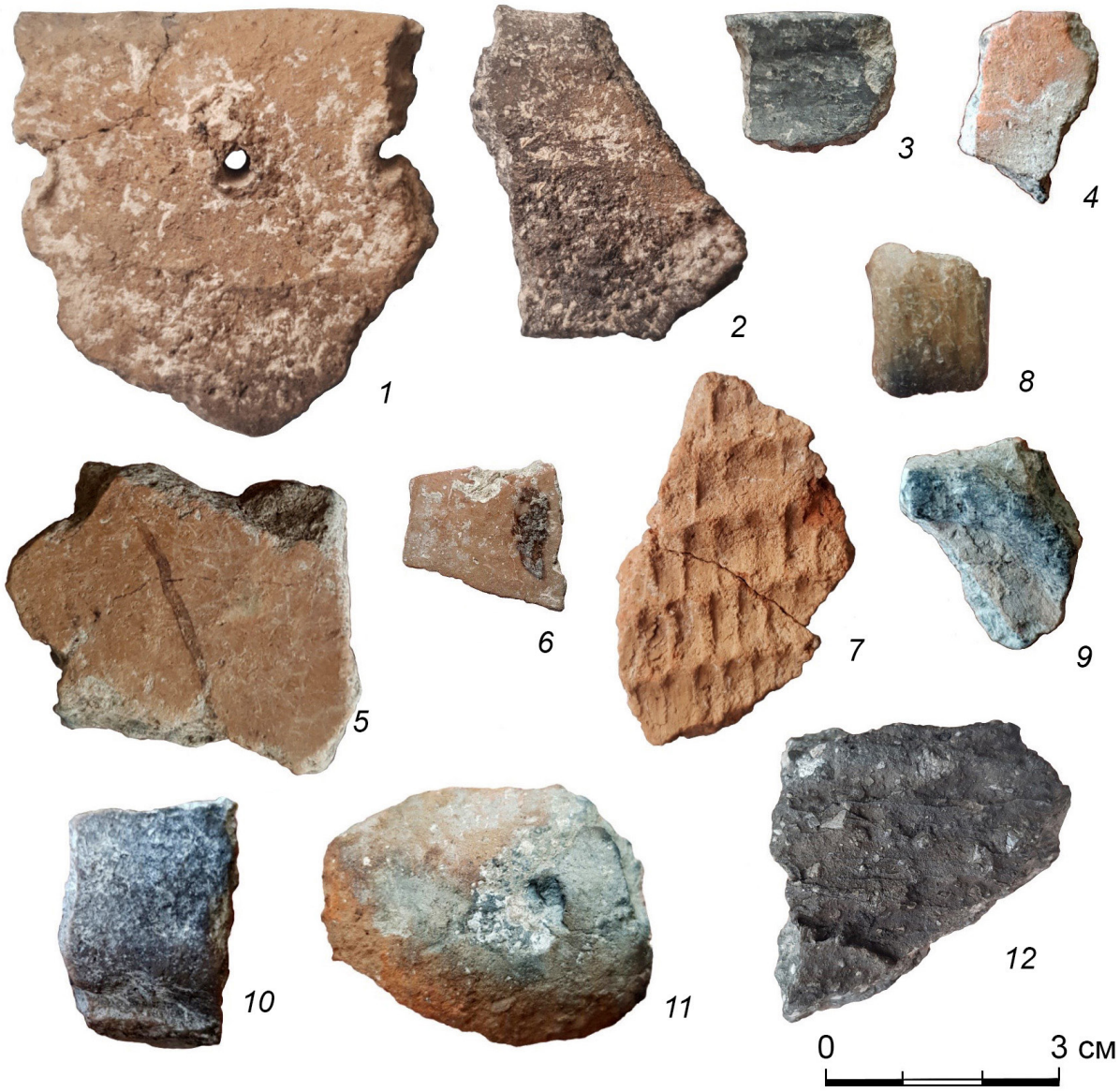

Fig. 8. Muginsky site. Trench 1. Fragments of ceramic ware

Рис. 8. Мугинское поселение. Шурф 1. Фрагменты керамических сосудов

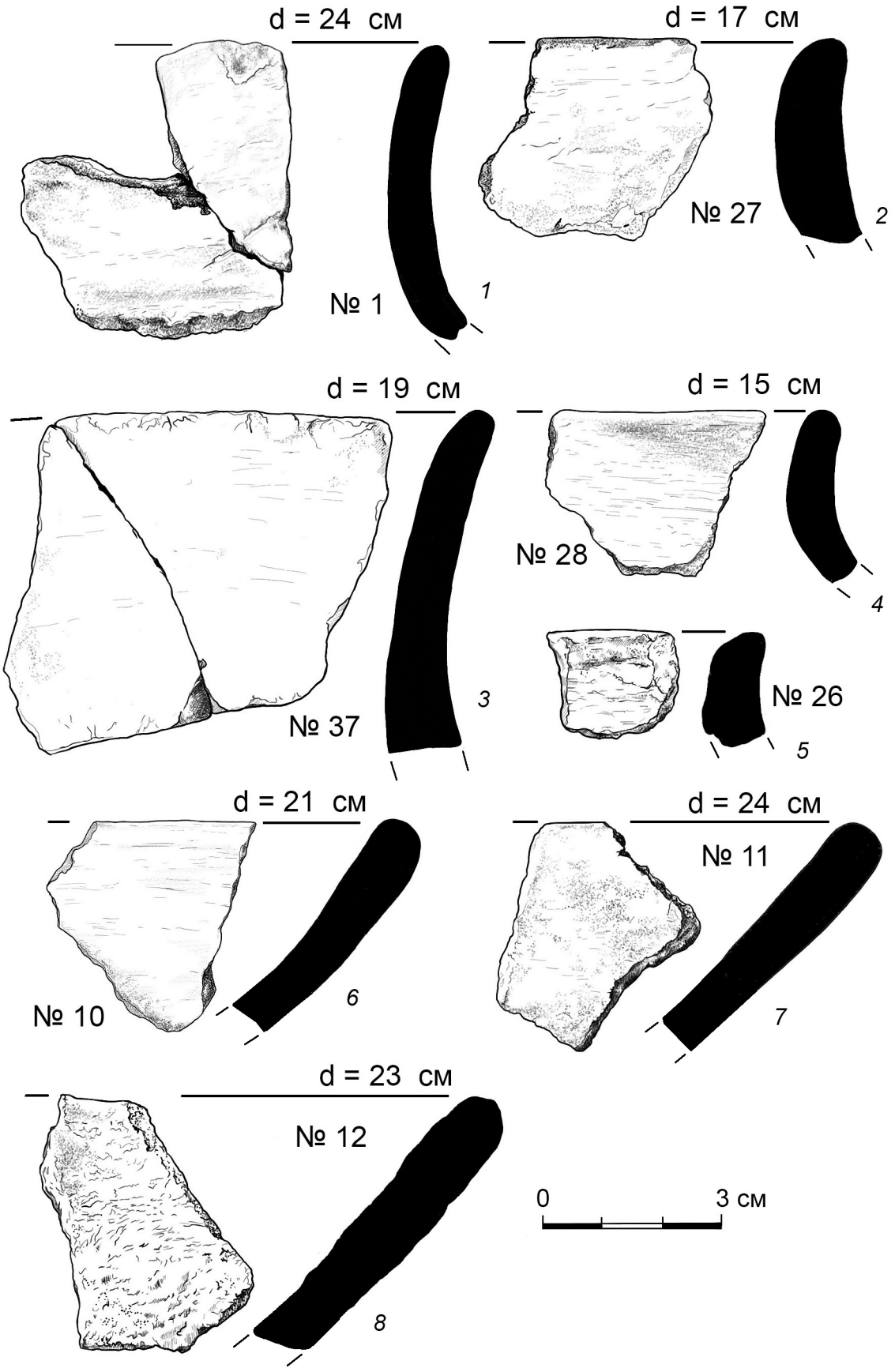

Fig. 9. Muginsky site. Trench 1. Fragments of ceramic ware

Рис. 9. Мугинское поселение. Шурф 1. Фрагменты керамических сосудов

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