

DAMJILI CAVE REVISITED, GAZAKH, WEST AZERBAIJAN (2016–2023)

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Abstract

Archaeological investigations at Damjili Cave, conducted from 1953 to 1957, marked the beginning of substantial Palaeolithic research in Azerbaijan. The remains recovered by these field campaigns highlighted the cave's significant potential for understanding the cultural development of the South Caucasus. The material uncovered during these excavations sheds light not only on the Palaeolithic but also on later periods, including the Mesolithic and Neolithic. However, the details remained obscured for a long time due to the stratigraphic disturbance of the excavated trenches. To address this, we reinvestigated Damjili Cave from 2016 to 2023. Our study revealed a cultural sequence spanning the Mesolithic, Neolithic, Chalcolithic, Bronze Age, and Historic periods, all overlaying Middle Palaeolithic (Mousterian) deposits. Although the Middle Palaeolithic layer was disturbed by water activity, the other layers exhibited excellent stratigraphic preservation. Most importantly, discovering the stratigraphic occurrences of the Mesolithic and Neolithic occupation layers is crucial for understanding the origins of the food production economy. This finding is the first at a single South Caucasus site, underscoring the historical importance of Damjili Cave.

Keywords: *Mousterian, Mesolithic-Neolithic transition, Food production economy, South Caucasus*

Introduction

Damjili Cave, near Gazakh, is one of the memorial sites for the Palaeolithic archaeology of Azerbaijan (Fig. 1). Until the cave was investigated in 1953 by S. Zamyatnin, representing the Institute of History and Philosophy at the Academy of Sciences (Azerbaijan SSR), it was unclear whether any Palaeolithic sites existed in Azerbaijan. Zamyatnin's research at Damjili Cave yielded Palaeolithic artefacts from his small-sounding pit (Zamyatnin, 1958). Based on this research, M. Huseynov, who participated in the 1953 research, conducted full-scale excavations in 1956 and 1957 (Huseynov, 1957). These investigations provided clear evidence of human presence in Azerbaijan during the Pleistocene. This important finding encouraged a further pursuit of Palaeolithic sites in the republic, which resulted in the discovery of another site in nearby Dashsalakhly in 1958 and others in the Garabagh region in 1960, including Azykh and Taglar Caves (Huseynov, 2010). The Damjili Cave is thus considered a historical site that paved the way for the Palaeolithic investigations.

However, the Palaeolithic artefacts at Damjili Cave were recovered from disturbed deposits,

which prevented the excavators from determining their specific periods and nature. This is particularly unfortunate, as the disturbance of the deposits prevents archaeologists from accurately understanding the site's chronological context and the nature of human activity there, despite its historical significance. Moreover, the Palaeolithic pieces were reportedly found together with Mesolithic and Neolithic remains (Huseynov, 1957). In other words, the site of Damjili Cave may have been a multi-layered settlement spanning from the Palaeolithic to the Neolithic periods. As such, a site unknown in Azerbaijan even today, the cultural occurrences at Damjili Cave deserve re-evaluation. Following this, our team, the Azerbaijan-Japan joint expedition, conducted field investigations of this cave from 2016 to 2023. Although the primary purpose of our research was to investigate the Mesolithic and Neolithic periods, new findings were also obtained for the Palaeolithic research. The detailed results of this campaign have been published in Nishiaki *et al.* (2025). This paper provides an overview of the re-excavation of Damjili Cave.

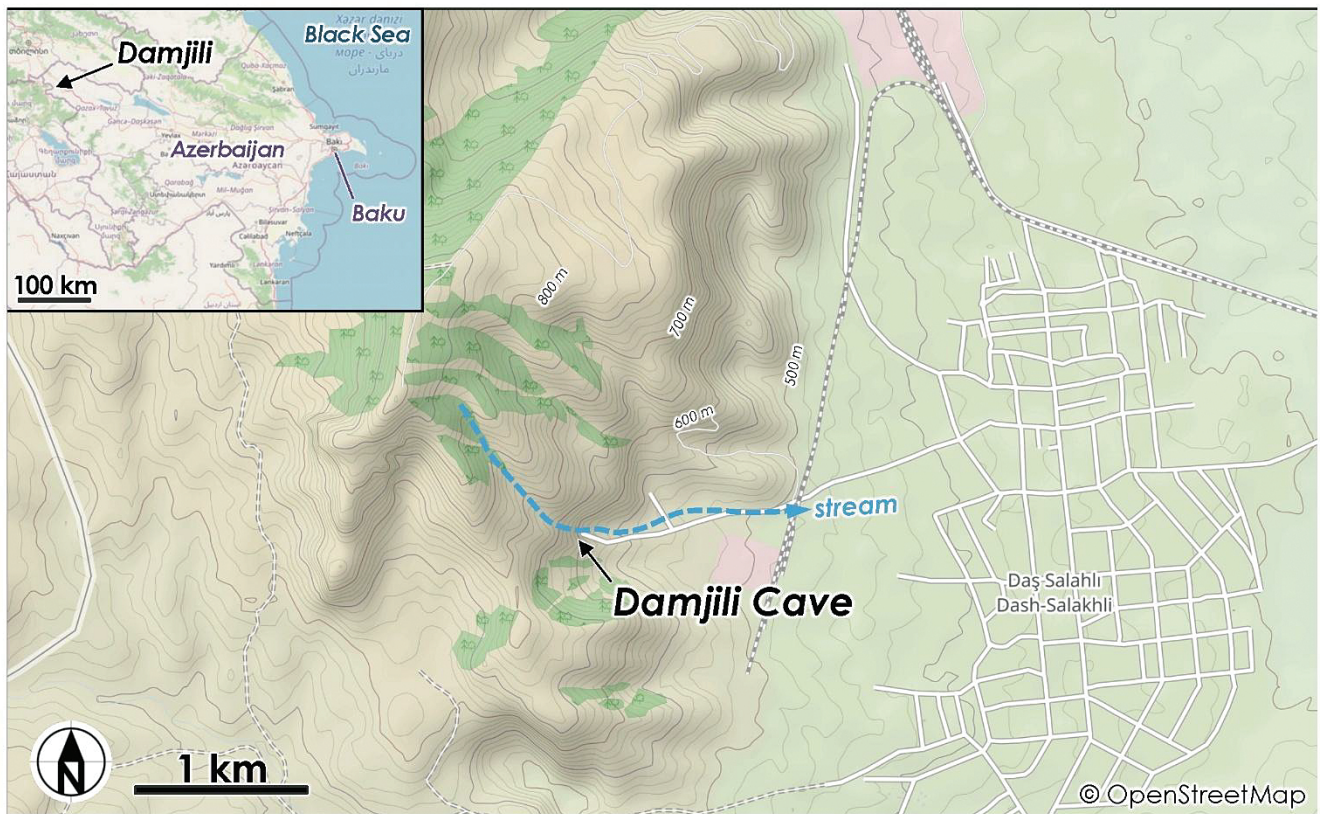


Fig. 1. Map showing the location of Damjili Cave (after Hayakawa & Ebina, 2025).

The cave setting and archaeological investigations in the 1950s

Damjili Cave is situated at the eastern foothills of the Avey Mountain, a rocky peak of Cretaceous limestone in western Azerbaijan (Figs. 1, 2). The nearest city is Gazakh, approximately 10 km to the southeast. The cave opens to the east, overlooking the right bank of the Kura Valley at an altitude of approximately 650 meters. As indicated by the name, *Damjili*, which means water droppings in Azerbaijani, the cave has several spots of water sources (Fig. 3). Our geomorphological study indicates that the cave represents a notch at a waterfall basin formed by a major *wadi* seasonally falling from the Avey Mountain (Fig. 1; Hayakawa & Ebina, 2025). The main cave measures approximately 27 m in width, 6 m in depth, and 4 m in height (Fig. 2). However, the concavity of the rock wall extends to the east for up to 70 m, with the eastern half designated as Damjili Cave 2 (Nishiaki *et al.*, 2025).

The excavations conducted in 1956 and 1957, as well as the sounding done in 1953, have not been adequately published (*cf.* Zamyatnin, 1958). However, the unpublished manuscript filed at the Institute of Archaeology and Anthropology in Azerbaijan indicates that the excavations were conducted in two main areas near the waterfall

basin (Fig. 3: A, B; Huseynov, 1957). A schematic section of one of the trenches is available, showing that the top part, more than 3 m thick, consists of water-derived secondary deposits, including historic cultural remains and limestone rubble. In contrast, the bottom layer, approximately 30 cm thick, contains prehistoric artefacts on virgin soil. As mentioned earlier, the archaeological assemblage from the bottom layer consisted of artefacts of different periods, ranging from the Palaeolithic to the Neolithic. In summary, the investigations in the 1950s were unable to identify the primary prehistoric cultural deposits.

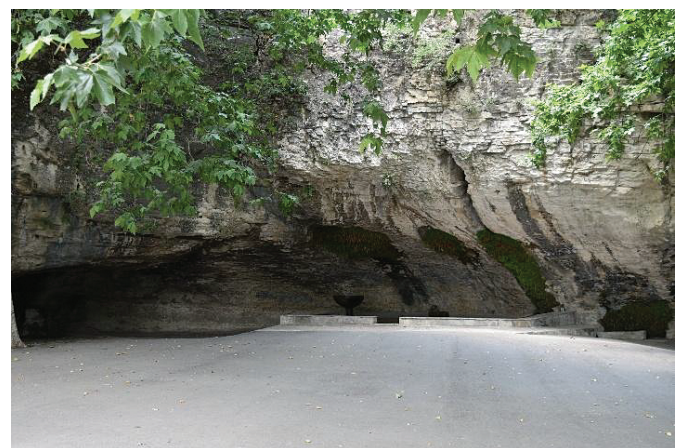


Fig. 2. General view of the central area of Damjili Cave.

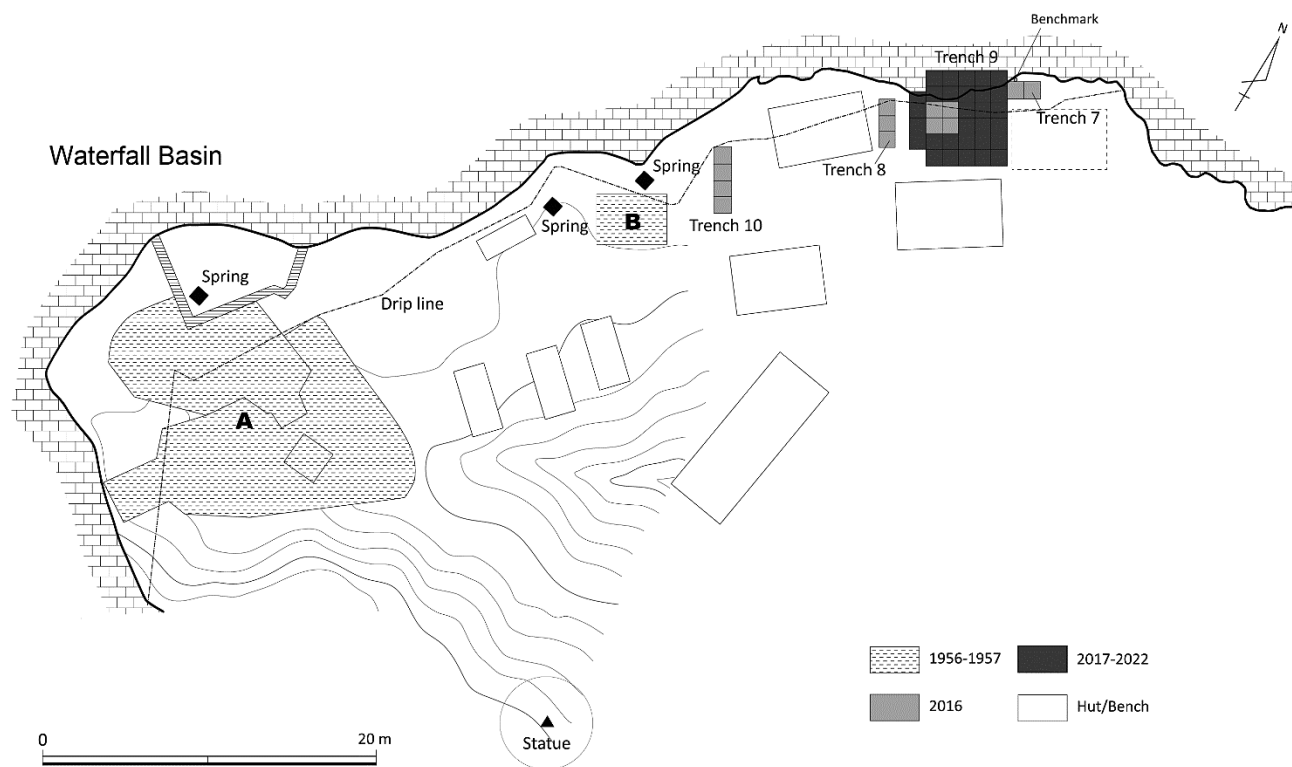


Fig. 3. Plan map of the central area of Damjili Cave. A, B: The excavation trenches of the 1950s.

Renewed investigations of Damjili Cave from 2016 to 2023

When we resumed fieldwork in 2016, the central area of the cave and its terrace were covered with asphalt and concrete, serving as a recreation park. Several huts and benches had been installed (Fig. 3). Therefore, we set up 10 trenches in the non-asphalted area to the east of the main cave to investigate the prehistoric deposits (Nishiaki *et al.*, 2019). These trenches are also distributed in the area defined as Damjili Cave 2 (Nishiaki *et al.*, 2025). The excavations of Trenches 8 and 10 in the central area (Fig. 3), located near the waterfall basin, revealed a thick secondary limestone gravel layer, as reported by Huseynov (1957). Additionally, they demonstrated that the area was used as a graveyard during the medieval period. Accordingly, the area closer to the waterfall basin was considered unsuitable for prehistoric research. It was also confirmed that the deposits in Damjili Cave 2, which extend east of the central area, are all of medieval origin (Trenches 1–6).

However, primary prehistoric cultural deposits were discovered in Trenches 7 and 9, which are situated at the eastern edge of the central area (Fig. 3). Consequently, we concentrated our excavations on the area surrounding these trenches from 2017 onwards. As the two were close together, they were merged as “Trench 9”. This measured 6 × 6 m in Units 1 and 2, while it was reduced to 3 × 4 m in Units

3 to 5 for safety reasons. The lowest deposits (Unit 6) were investigated over an even smaller 1 × 3 m area. The deepest point reached thus far was approximately 4.4 m below the present surface. However, the bedrock was not exposed. The sediments were divided into six cultural units, each radiocarbon-dated using 27 samples (Fig. 4; Nishiaki *et al.*, 2022):

1. Late Antique to Medieval; 2. Bronze Age; 3. Chalcolithic; 4. Neolithic; 5. Mesolithic; 6. Sterile. Note that the lowest part of Unit 5 and the top of Unit 6 are shaded to indicate stratigraphic mixing, which contained Palaeolithic and Mesolithic artefacts.

Unit 1: The historic period (6th to 10th centuries AD) may be divided into two phases, as suggested by two stratified architectural constructions and two groups of radiocarbon dates. Regardless, it is clear that the Damjili Cave was extensively occupied during the late Antiquity to the Medieval period. Notably, a series of graves were discovered in the main cave (Damjili 1), whereas only habitation features, such as pits and hearths, were found in Damjili Cave 2.

Unit 2: Bronze Age (c. 2800–2200 BC) yielded no archaeological features except for hearths. This sparse evidence of occupation may reflect a broader pattern observed in the South Caucasus during this period, characterised by highly mobile lifeways.

Unit 3: Chalcolithic period (c. 4500–3700 BC).

Similar to Unit 2, practically no structural remains were recovered in the unit. Again, this finding supports the prevalence of the mobile way of life during the Chalcolithic period.

Unit 4: Neolithic period (c. 6000–5300 BC) is the main period of human occupation at Damjili Cave, recorded as more than one meter thick in cultural deposits. The architectural remains of this unit were characterised by circular buildings (Fig. 5) similar to those discovered at early Neolithic settlements in the Middle Kura Valley, such as Hadji Elamkhanli Tepe and Göytepe, about 30 km to the southeast (Nishiaki & Guliyev, 2020; Nishiaki *et al.*, 2021). Also notable is the discovery of cobble-filled pits (Fig. 5: 2), which were very popular in the Neolithic of Southwest Asia and most likely to be a significant source of the Caucasian Neolithic. What should also be mentioned is the sporadic occurrence of pottery in the early stages of Unit 4. This phenomenon, indicating continuity in the aceramic Mesolithic way of life, has also been observed at Hacı Elamkhanli Tepe. Along with this finding, observations in other aspects, such as lithic manufacturing technology and the occurrence of small and ornamental finds, also indicate continuity from the Mesolithic to the Neolithic in the region.

Unit 5: Mesolithic period (c. 6500–6000 BC). This cultural layer lies directly beneath Unit 4, which dates to the Neolithic period, suggesting a minimal chronological gap between them. The interval is estimated to be as short as a few decades, if not zero. The archaeological features of Unit 5 consist only of amorphous structures of limestone blocks and patches of ash distribution, suggesting an ephemeral nature of human occupation. Notably, the lowest part of this unit (Unit 5.3) contains both Middle Palaeolithic and Mesolithic artefacts (Fig. 6). Apparently, a heavy geological disturbance occurred during the earlier Mesolithic period, associated with a significant amount of limestone rubble.

Unit 6: Archeologically sterile deposits. This unit is a relatively homogeneous layer of hard, muddy sediments with a yellowish-

grey colour. As mentioned above, it is archaeologically sterile, except at the top, where it represents the disturbed layer. The sterile layer continues downwards more than one meter (Fig. 4). Although the bedrock has not yet been reached, our investigations are currently suspended at this layer.



Fig. 5. Neolithic features recovered at Damjili Cave.

Significance of Damjili Cave in the Prehistory of the Southern Caucasus

Our investigations from 2016 to 2022 confirmed the original excavators' statement that many of Damjili Cave's sediments had been disturbed due to a seasonal stream in Avey Mountain. However, this statement applies only to the area closer to the waterfall basin. We identified undisturbed prehistoric sediments in Trench 9 and its surroundings, approximately 30 m east of the waterfall basin, where excavations were conducted in the 1950s. The stratigraphic sequence of Trench 9 consisted of cultural phases from the Mesolithic, Neolithic, Chalcolithic, and Bronze Age, as well as the Antique and Medieval Periods (Fig. 4). The long, well-stratified, and solidly radiocarbon-dated archaeological sequence is the first in the archaeology of Azerbaijan, significantly contributing to the construction of the prehistoric chronology of the Southern Caucasus. This

represents the most important result of our reinvestigation of Damjili Cave.

Secondly, our research produced an invaluable dataset to document the Mesolithic to Neolithic transition at a single site for the first time in the Southern Caucasus. The emergence of the Neolithic culture, marked by the beginning of food production economies, has been a central subject in the archaeology of the Southern Caucasus for a long time. Due to the rapid development of research in this field over the last two decades, a consensus has emerged that the Neolithic period in the Southern Caucasus began around 6000 BC. However, the absence of research into the Mesolithic period immediately preceding the early Neolithic has prevented a consensus from forming about the

relationship between the indigenous hunter-gatherers and the farmers supposedly arriving from the northern Fertile Crescent. The cultural assemblages of Units 4 and 5 at Damjili Cave, in a stratified position, are thus a significant discovery, demonstrating that the Neolithic farming society, employing a food production economy based on cereals and animal husbandry, rapidly replaced the Mesolithic hunter-gatherer society in the South Caucasus. At the same time, the archaeological analysis of the material cultures of these two units reveals continuity from the Mesolithic to the Neolithic in various aspects, as mentioned earlier (Nishiaki *et al.*, 2025). These findings make the Damjili Cave one of the key sites for the Neolithization research of the southern Caucasus.

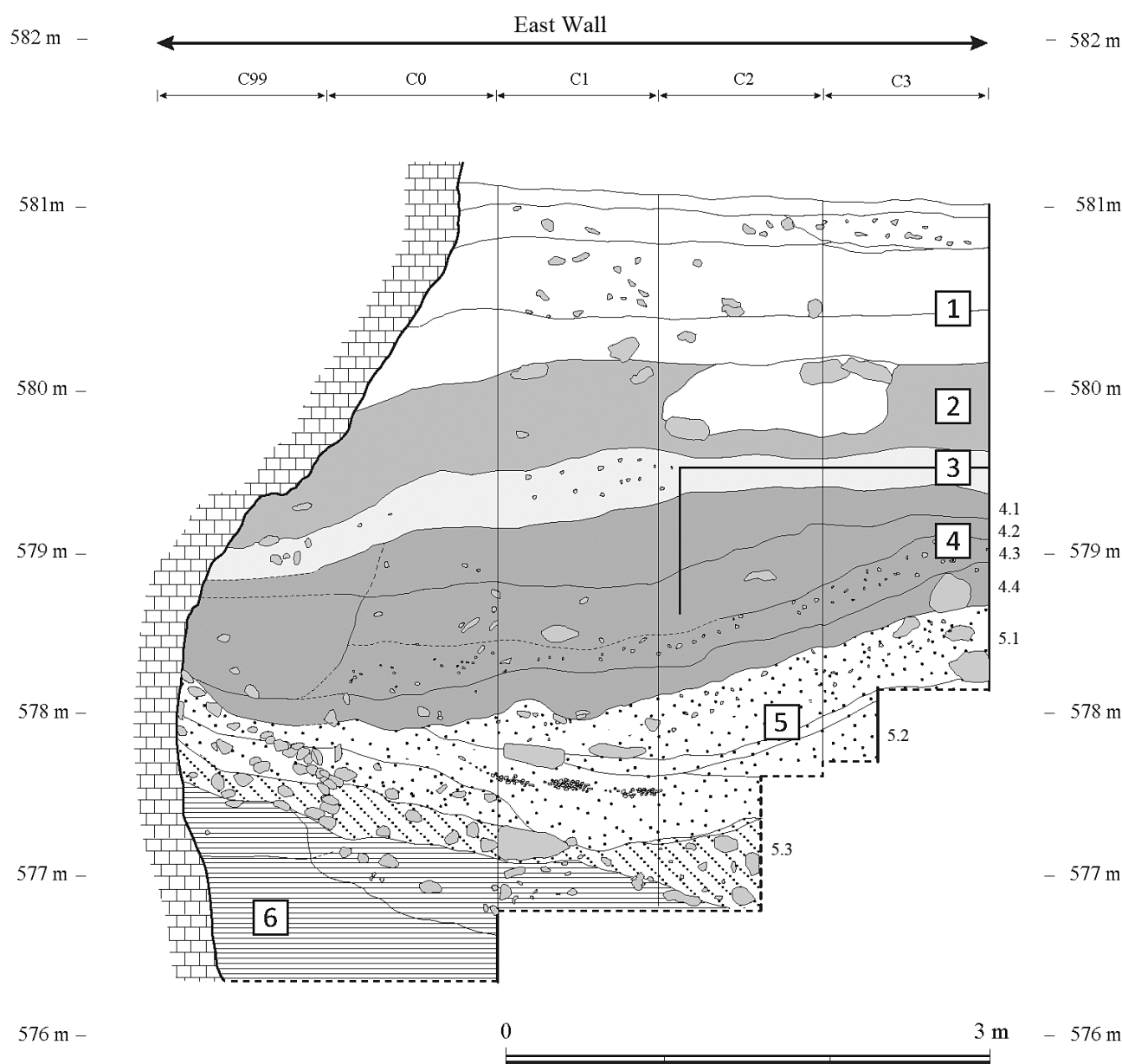


Fig. 4. Stratigraphy of Trench 9 of Damjili Cave

Thirdly, a new insight was obtained into the Palaeolithic occupations at this cave. The original excavators reported the occurrence of Lower, Middle, and Upper Palaeolithic materials, as well as Mesolithic and Neolithic materials, in a disturbed layer of virgin soil (Huseynov, 1957). However, our investigations identified only Middle Palaeolithic

artefacts for the Palaeolithic period in the new trench (Fig. 6). Given that the available drawings of the artefacts from the 1950s investigations also indicate the dominance of Middle Palaeolithic artefacts (Huseynov, 2010), this period may have been the main occupation phase of the Palaeolithic Damjili Cave.

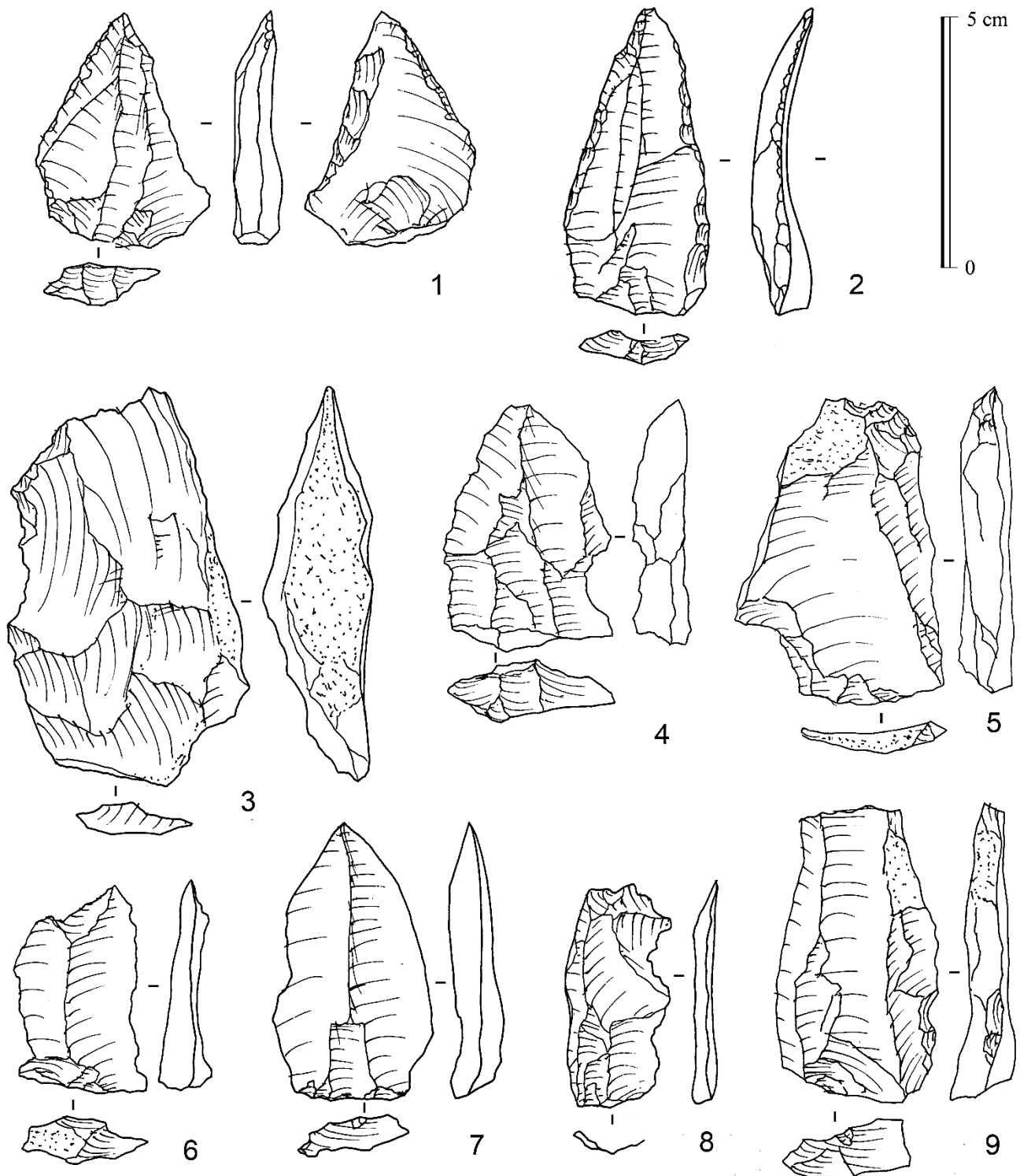


Fig. 6. Middle Palaeolithic artefacts recovered at Damjili Cave. 1, 2: Obsidian; 3–9: Flint and volcanic stones.

CONCLUSIONS

Our investigations, conducted at Damjili Cave after an interval of more than half a century since the first excavations from 1953 to 1957, benefited from a range of modern research strategies not available at that time, including remote sensing, geomorphological analysis, rigorous stratigraphic excavation techniques, archaeobotany, zooarchaeology, and radiometric dating. The research shed new light on the scientific significance of this historical site. The stratified sequence included chalcolithic levels rarely identified in West Azerbaijan. Furthermore, the discovery of Mesolithic levels directly below the Neolithic ones can be emphasised as the most important result of our investigations. It enabled us to interpret the processes of the Mesolithic to Neolithic transition at a single site. Our view from the Damjili Cave investigations is that the Neolithization of the Southern Caucasus was due to a combination of the contributions from indigenous Mesolithic hunter-gatherers and incoming Neolithic farmers.

Through the Palaeolithic remains, which attracted the early researchers to this cave in the 1950s, we could identify their provenance, at least in the eastern part of the cave. Heavy water

activities mixed them up with some likely Mesolithic remains. At the same time, our typological study indicates that all of the recovered Palaeolithic lithic artefacts belong to a Mousterian industry of the Middle Palaeolithic. To further investigate this period and determine whether there were Lower and Upper Palaeolithic occupations, as suggested by the original excavators, it is necessary to conduct more extensive excavations in this cave, which serves as a public recreation area.

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