

Akhshtyr

Summary by Liubin (1989). Sources quoted Gromov (1948) Zamyatnin (1940, 1950, 1961) Panichkina and Vekilova (1962) Vekilova (1966, 1967, 1973) Grishchenko (1971) Vekilova and Grishchenko (1972) Vekilova et al. (1978) Grichuk et al. (1970) Vekilova and Zubov (1972) Zubov (1978) Zelikson and Gubonina (1985) Chistyakov (1985) Cherdyntsev, Kazachevskii, and Kuzmina (1965) Cherdyntsev, Alexeev, and Kind (1965).

A karst cave of corridor type on the southern edge of the Akhshtyr anticline, in the canyon of the river Mzymta, at a height of 120 metres above the level of the river. 15 km from the sea, about 300 metres above sea level. The cave is located in slab-like Carboniferous limestone. Maximum thickness of deposits 5-6 metres. The 160 metres long axis of the cave is oriented west-east, and there is a steep slope to the river 2-5 metres from the present day drip line. Entry to the cave is possible only via two passages in the southern wall of its 10 metre wide mouth (see Figure1). The height of the cave here prior to excavation was 1.5-2.0 metres. It is the driest, lightest, and most roomy part of the site. In the main corridor the cave narrows sharply to 3-5 metres in width, and becomes damp and dark. In the past, judging by the extension of the Lower Mousterian horizon beyond the bounds of the present day drip line, the cave will have been longer (Zamyatnin, 1961, table XLVI).

The Mousterian site in the cave was discovered by M.Z. Panichkina, who dug a test pit here in 1936. In 1937-1938 S.N. Zamyatnin fully excavated the entrance part to an extent of 80 square metres. In 1961 Panichkina and E.A. Vekilova began excavations in the main corridor, which were carried on by Vekilova alone in 1962-1963 and 1965. About 40 square metres were excavated at this time (see Figure 1). In 1978 at the time of the Franco-Soviet seminar a further 1x3 metre wide section was added inside the cave (Vekilova et al., 1978, pages 37-48).

Stratigraphy and lithology

At present, 9 sections have been published, by Gromov, Zamyatnin, Vekilova and Grishchenko, Muratov and Fridenberg. The number of layers distinguished varies from 2-3 (entrance passages) to 5 (before the slope to the river) to 15 (main corridor). The first descriptions were given by Zamyatnin and Gromov. Zamyatnin's section Zh-Z is at Figure 2.

1. Humus and ash layer, 1.3 m. (up to 2.5 m at the drip line, practically disappears in the main gallery). Mediaeval.
2. Brown with rubble, 0.6-1.0 m. (subdivided into 2a, 2, 2b). 2a Neolithic, 2 sterile, 2b Upper Palaeolithic.
3. Yellow clay, compact, lumpy, with a little rubble and fallen slabs of travertine, 0.4-0.5 m. (clay lumps and bones covered with a black coating). Upper Mousterian.
4. Violet brown clay, compact, 0.3-0.4 m. Sterile.
5. Yellow clay, calcareous, with a large amount of rubble at the entrance and a little in the main corridor, 0.3-0.6 m. Lower Mousterian.
6. Grey green clay, silty, compact, with pebbles, 0.2 m. In the upper part a few Mousterian finds.

7. Ochre yellow clay, with crystal and schist pebbles, brought in by the Mzymta, 0.2-0.4 m. Sterile. Layers 6 and 7 present only in depressions in the floor.

The excavations of Panichkina and Vekilova in 1961 produced a complication of the stratigraphy. 3 new levels were distinguished, which were numbered 3a, 4a, and 5a, in order to preserve the previous nomenclature.

- 3a. Intermediate between layers 2 and 3. Yellow brown clay, less compact than 2, with less rubble. Both Upper Palaeolithic and Mousterian artefacts.
- 4a. Below layer 4. Grey clay.
- 5a. Below layer 5. Ochre yellow lens.

Unlike before, a few Mousterian artefacts were found at the top of layer 4. At the top of layer 7 (not 6, as in Zamyatnin's case) were found a sidescraper and a handaxe of Late Acheulean appearance.

The excavations of 1963 and 1965 complicated the cultural stratigraphy even further. Layer 5a produced Mousterian artefacts as well. Hence Vekilova now spoke of four Mousterian horizons in the main corridor: 3a, 3 (including the finds at the top of layer 4), 5, and 5a. Certain changes were observed in layer 2: the top contained only Eneolithic, whereas the remainder of the layer corresponded to the 'Upper Pleistocene'.

M.N. Grishchenko (1971) studied the deposits at the entrance to the main corridor in 1962-1963 and 1968, and presented a composite section as follows (see Figure 3). He distinguished 15 levels grouped into 3 clear lithological horizons.

1. Upper. Brown with rubble, 2.5 m. Dark brown clays filled with limestone rubble and fallen travertine pieces (30 lenses with generally horizontal slabs) plus rare limestone blocks (up to 0.5 m).
2. Middle. 1.75 m. Clays and loams, dark grey, grey, greenish grey, layered, transitional at the top to brown, with heavily weathered rubble (the amount of rubble and its degree of weathering gradually increasing upwards) plus iron-manganese formations.
3. Lower. 0.75 m. Loams and clays of various colours, layered, with pebbles of different petrographic composition. The loams, clays, and pebbles all indicated their washing into the cave (through karst channels) from the surface of the plateau above.

Each of the three horizons was subdivided. **Upper.** Levels 3-6 correspond to Zamyatnin's 2a, 2, 2b. **Middle.** Levels 7-12 correspond to Zamyatnin's 3-6. **Lower.** Levels 13-15 correspond to Zamyatnin's 7.

The archaeological material was associated with the following levels (Vekilova and Grishchenko, 1972). At the top of level 3 (fine rubble with ash) were found Eneolithic remains. In levels 4-6 (brown rubble with hearth lenses) were found 'Mesolithic (?) and Upper Palaeolithic'. The first (uppermost) Mousterian layer corresponds to level 7 (formerly 3a), the second to level 8 (formerly 3), the third to level 11 (formerly 5), and the fourth to level 12 (formerly 5a).

V.M. Muratov and E.O. Fridenberg made a three fold division of the deposits which in principle is similar to the above (Vekilova et al., 1978). Unfortunately they employed a new system of numbering for the levels. With regard to the middle unit, they concluded that 'the contacts between the horizons reveal traces of erosion which are indicative of wetter conditions'.

Vekilova introduced a final modification into the cultural stratigraphy of the cave when she singled out level 9 (Zamyatnin's layer 4) as another Mousterian layer. In the top part of this layer quite a number of finds were made. The number of Mousterian layers in the cave therefore now reached five. 3a (7), 3 (8), 4 (9), 5 (11), 5a (12). The last (as already mentioned) included Acheulean handaxes. There are however points which are not clear about the stratigraphic position of this layer. These may probably be explained by the fact that it was much eroded and subject to facies change. Thus, in Grishchenko's section, level 12 is represented on the south side by a light greyish brown clay with a yellow tinge. Towards the middle of the corridor it becomes a vary-coloured clay, and then it changes into a compact greyish lilac coloured one. The archaic tools were found here, either on a raised part of the cave floor, or at the base of the layer, at its contact with layer 13.

Fauna

Identified by V.I. Gromov and N.M. Yermolova. From all the years of excavation there were 6119 identifiable bones, 92.4% of which belong to cave bear, observed in all layers up to the top of layer 2. They are particularly characteristic of the second Mousterian layer (3=8). The bones from the lower Mousterian layers are fewer and not so well preserved. In layer 3a (=7), the first (transitional) Mousterian layer, there is a probable admixture of bones from layer 2. A mixture of bones is even more likely in layer 2 (=3-6), with a variable thickness from 1 to 2.5 metres, and a variable archaeological classification: Neolithic-Upper Palaeolithic (Zamyatnin) Eneolithic-Mesolithic(?)-Upper Palaeolithic (Vekilova). In 1937-1938 the fauna from this layer was divided into Neolithic and Upper Palaeolithic (Zamyatnin, 1961), but in 1961-1963 and 1965 it was treated together as levels 3-6 (Vekilova and Grishchenko, 1972). The material may therefore be mixed Holocene and Pleistocene. From Upper Palaeolithic layer 2b (Zamyatnin) we have *Vulpes vulpes*, *Ursus spelaeus*, *Martes* sp., *Cervus elaphus*, *Alces alces*, *Capreolus capreolus*, *Bison bonasus*, *Sus scrofa*, *Ovis* sp., and *Capra* sp. From horizons 3-6 (Vekilova) we have also *Canis lupus*, *Ursus arctos*, and *Sciurus* sp. This is a predominantly wooded fauna. But it is only in 2b (as in the Upper Palaeolithic layers at Navalishenskaya) that we have *Alces alces* and greater numbers of *Ovis* and *Capra*. In the upper Mousterian layers 3a and 3 there is no *Alces alces*, there are only a few bones of *Ovis* and *Capra*, but the remaining species are the same, and the fauna as a whole is definitely of wooded character. In the lower Mousterian horizons we have only *Canis lupus*, *Vulpes vulpes*, *Cervus elaphus*, *Cervus euryceros*, *Bison bonasus*, and one bone of *Capra*. *Cervus euryceros* in general is observed only in the older Mousterian complexes of the Caucasus.

Palynology

Details from Grichuk et al. (1970). 16 samples were taken from all layers in the main corridor. Only the first and second Mousterian layers (Vekilova's 3a and 3) proved informative, as well as an ash lens in the middle of the Upper Palaeolithic. In layer 3 *Picea orientalis* /L./ Link. and *Abies Nordmanniana* /Stev./ Spach were predominant, and *Polypodium vulgare* L. was present. *Picea-Abies* woods today are characteristic of elevations at 1200-1900 m above sea level. But oak is also present, plus *Polypodium serratum* /Willd./ Futo, hence deciduous elements were not entirely squeezed out.

In layer 3a (transitional between Mousterian and Upper Palaeolithic) there is a noticeable reduction in the proportion of *Picea*, an increase in the proportion of *Pinus*, and the appearance of much NAP, including *Compositae* and *Artemisia*, as well as a few grains of hornbeam and elm. This indicates some reduction in the forest cover and an increase in the area occupied by xerophytic plants.

In layer 2 the ash lens produced indications of pine woods and open spaces, a drier climate characteristic of this phase of the Valdai glaciation. But elements of deciduous woods and 'dark' coniferous species were preserved in favourable refugia (Zelikson and Gubonina, 1985) such as the steep river canyons of the Sochi Black Sea coast where the cave is situated. This probably explains the basically wooded character of the fauna contained in layer 2, as well as the presence of *Capra* and *Ovis*.

Anthropological remains

Determined by A.A. Zubov. Found by N.M Yermolova when she was analysing the finds from layers 3 and 3a. A second upper left molar and three foot bones. The tooth comes from 3a. Assigned by Zubov to *Homo sapiens fossilis*, with a combination of archaic and progressive traits. The assertion by Vekilova and Zubov that this tooth provides a proof of the 'appearance of modern man in the Mousterian' is possible but not indisputable, in view of the fact that the layer in which it was found is transitional, and the bones located within it may be as mixed as the stone tools.

Archaeological materials

Stone inventory, hearth stains and lenses, food debris. Evident that at times of increased moisture people abandoned the site and parts of the cultural deposits were removed by erosion due to water action. The scraps remaining of the lowest cultural horizon with handaxes are evidence of this. The dark film on the bones from all the Mousterian layers was induced by moisture. The extant materials suggest that the most intensive occupation of the cave occurred in Zamyatnin's Lower Mousterian layer (5), although the bones from this horizon were particularly badly preserved. The Upper Mousterian layer (3) at the mouth of the cave also produced abundant finds. The pattern of distribution of the finds in the Upper Palaeolithic was somewhat different, but a number of hearths (up to 25 cm thick) were found here. In Liubin's view, the hearths were necessary to maintain warmth, but the relatively infrequent tools suggest that at this time the cave was visited only rarely and functioned as a hunting rather than a dwelling site.

Stone industry

Relatively few finds from Upper Palaeolithic layer 2. The five Mousterian layers produced a total of 3598 finds. According to Vekilova, the excavations in 1961-1965 produced the following totals: (3a) 194 (3) 483 (4) 298 (5) 394 (5a) 152. Mostly flint, a little schist. Much denticulate retouch. The oldest Mousterian layer (5a) produced four handaxes and hachereaux. In general, Vekilova described the material as a Denticulate Mousterian. D.A. Chistyakov, on the basis of his study of the materials from the 1937-1938 excavations, generally supported this classification. The high proportion of tools (Upper Mousterian 37.9%, Lower Mousterian 39.1%) supported the idea that this was a living site at that time and that flint working for the most part was conducted outside. Indices for the Upper and Lower Mousterian layers were respectively: IL 26.3 and 25.8, Denticulate 30.9 and 25.9, Upper Palaeolithic 15.6 and 16.6, IR 24.1 and 29.2.

Chronology and Palaeogeography

Considering the general position of the cave, as well as the colouring and deep weathering of the lower layers (13-15), Muratov and Fridenberg (in Vekilova et al., 1978) were inclined to date it to the early Pleistocene. The dating of the oldest level is not completely clear due to the eroded nature of this layer and the probable displacement of some of its constituents. Nonetheless the Acheulean nature of the handaxes and their appearance in most cases in ochre-red or ochre-yellow clay does support the idea that they pre-date the last glaciation.

The second packet of deposits (7-12) in the opinion of the same authors reflects a regime of increased moisture. A series of erosional phases is suggested to belong to the early last glaciation. Indeed, the four layers 3a, 3, 5, and 5a, may belong to the first half of the Mousterian period. The upper boundary of this period is fixed by a U/Th date on fallen stalactites from layer (3a) at 35,000 +/- 2000 BP reported by Cherdyntsev, Kazachevskii, and Kuzmina (1965). The pollen data supports this, with the indication of the beginning of an arid phase, and a lowering of vegetational zones in the area by some 1200-1400 metres. The lower boundary of the period is hypothetical. But one should note the concentration of rubble in the Lower Mousterian layer (5) observed by Zamyatnin at the entrance to the cave. This seems to be an indicator of an early last glaciation interstadial at several caves in the Caucasus (Dzhurchula, Kudaro I and III, and others).

The deposits of layer 2 (exfoliated rock) formed in conditions of dry continental climate of the last glacial maximum. The cave was surrounded by 'light' coniferous forests and open spaces. A radiocarbon date is available for the ash lens in the middle of the layer of 19,000 +/- 500 BP as reported by Cherdyntsev, Alexeev, and Kind (1965).

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Figure 1. Akhshtyr. Plan of the excavated part of the cave.

Figure 2. Section along the line Z-Zh, western edge of Zamyatin's dig 1937-38.

Figure 3. Akhshtyr. Section along the line A-B, western edge of Vekilova's dig, according to Vekilova and Grishchenko.