



Astronomical Features of Ural Megalithic Monuments Orientation

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Abstract

There is a presence of archaeological monuments of the early and middle Holocene in the middle Trans-Urals, which may be associated with the act of sky survey, determined by this specific landscape. The headwaters of the Iset River during this period represented a vast system of lakes and drainages. On the numerous islands and peninsulas formed by this system, ancient hunters and anglers could watch the sky, defined by an expansive horizon. The lake system itself was contained between the ridges of the Upper Iset granite massif, which extends in the meridional direction for over 100 km. From the islands and peninsulas, a series of sacred peaks can be viewed.

Multiyear archaeological research on “stone tents” [residual rock outcrops] on the southern island of paleo-lake Romanovsky revealed that southern and eastern directions were dominant in the directional relationships of religious sites during Neo-Eneolithic times. Signs representing the moon and sun are preserved on the surface of the outcropping rock. West and northeast are prioritized in the orientation of chambers of dolmens of the Eneolithic epoch revealed in recent years.

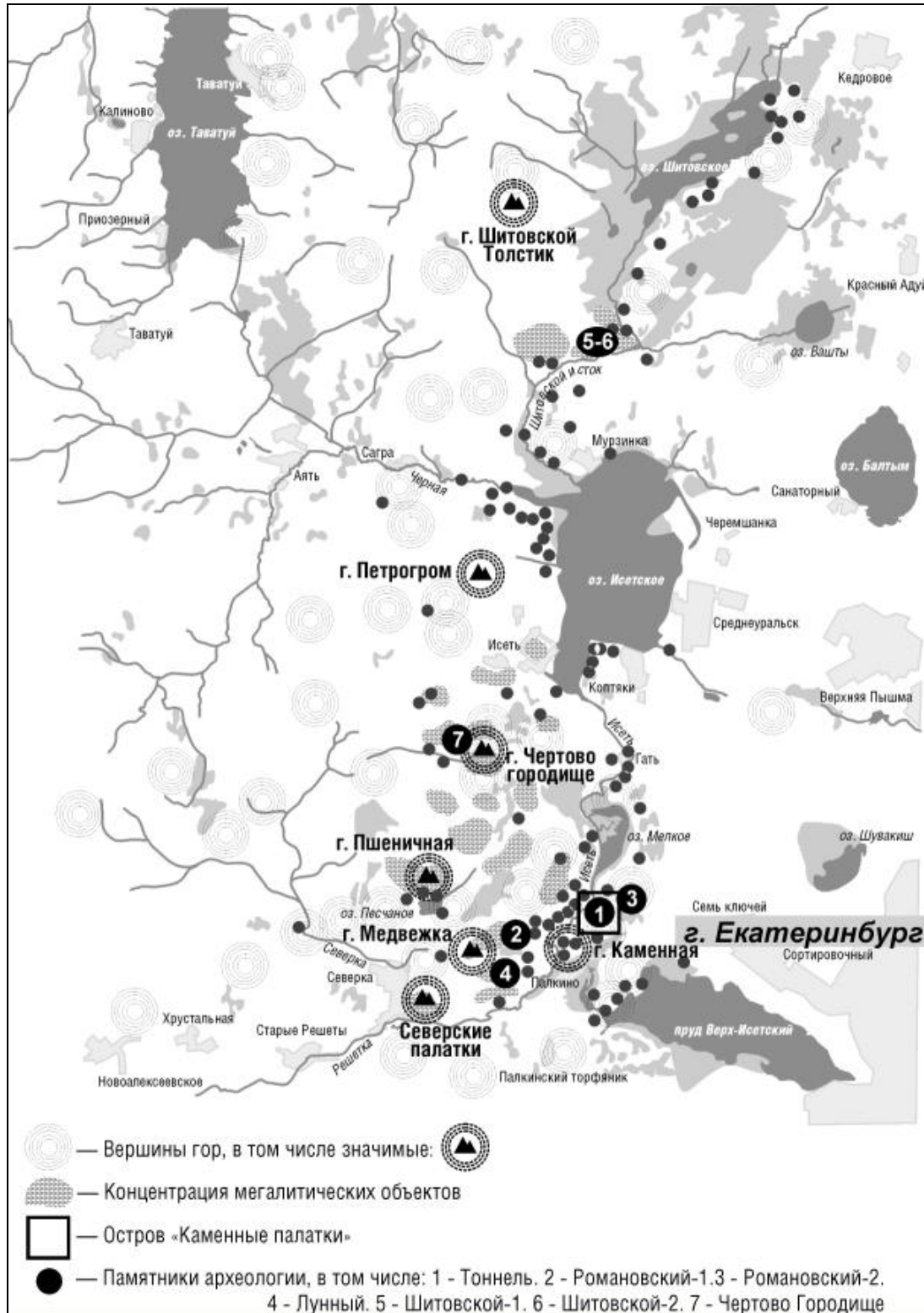
Tunnels in the foothills have longitudinal axes aligning to a north-south orientation. On the slopes and tops of mountains, tunnels, as well as the narrow facets of menhirs, are oriented in an east-west direction. A moon sign appears on the end face of the capstone of one megalithic tunnel monument, termed here the “Lunar Tunnel.”

Keywords: archaeoastronomy, petroglyphs, symbolic images, Moon, Sun, megaliths, Ural.

The search and investigation of archaeoastronomical data of the upper reaches of the Iset` river may reasonably to begin with reconstruction of the paleo-landscapes during the upper and middle Holocene.

1. The peculiarities of the ancient regional landscape.

Two basic factors of ancient landscape may be supposed to determine the lifestyle and mythological (including cosmological) views of the ancient population of the investigated region. One factor might be associated with Iset` river (fig. 1, I).



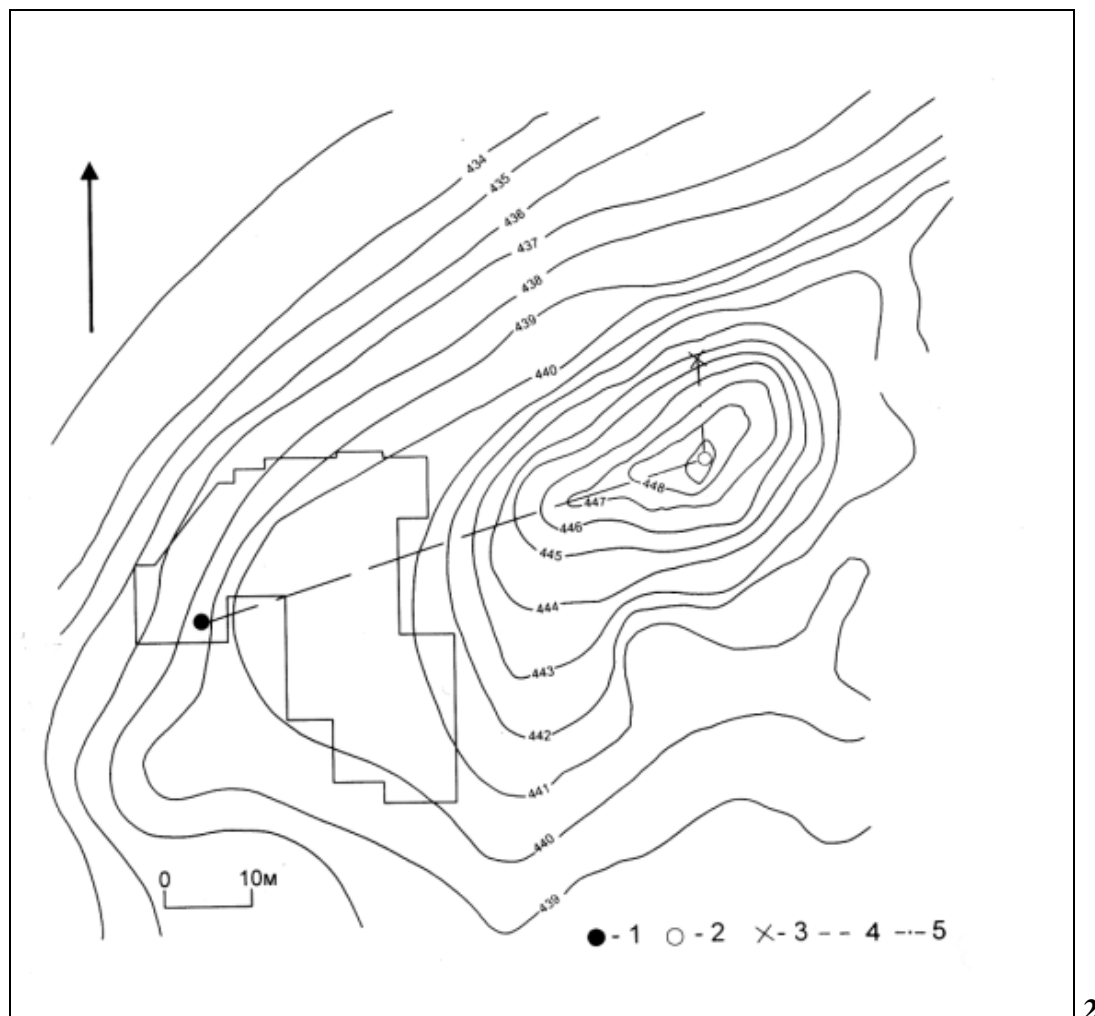


Figure 1. 1 – The map of location of the investigated megalithic objects in the upper reaches of Iset' river; 2 – Location of the Neolithic sites on the Kamenny palatki island: 1 – location of the altar stone in the sanctuary Palatki I; 2 – the bowl on the top of the ridge; 3 – the boulder with the sign, faceted as a ring crossed with diagonal; 4, 5 – lines joining the objects 1 to 3.

After retreat of a glacier border, —which was just in 300 km northward of the Iset' headstream — this river represented underwater channel within the system of overflowed lakes: Shitovskoje, Isetskoje, and paleolakes Romanovskoje and Verh-Isetskoje. Underwater channel was very easily influenced by climatic changes and defined cycles of regressions and transgressions of the water line. Multiple augment (from 300 up to 500 %) of water surface of overflowed lakes allows presume, based on cartographic reconstruction, that ancient tribes have followed laws of life on water. Those people who inhabited numerous islands and half-islands, had possibility to observe cycles of the celestial motions and starry cope within limits of far horizon from fixed-sites, unlike the inhabitants of the forest areas.

Another factor is location of the lake system within Verh-Isetsky granite massif, which is one of the biggest in the northern part of Tagil-Marnitogorsky downfold. In meridional direction that massif extended as far as 100 km. Its picks bordered the lake country from east to west.

According to archaeological data, western flange has number of sacral tops well visible from the lake islands and half-islands (possible observation points). Certain experience of determination of the visibility regions allows to suppose the connection of the possible astronomical observation points according to the following: Sem` Bratiev mountain top– Ayatskoje Lake; Shitovsky Tolstik mountain top – Shitovskoje Lake; Chertovo Gorodische and Petrogrom mountain tops – Isetskoje and Melkoje Lakes (the latter one joint with Romanovskoje paleolake); Pshenichnaja VI – Peschanoje Lake (fig. 1, 1).

2. The characteristics of the ancient archaeoastronomical objects of the region.

Since the XIX century, the area of the Iset` headstream is known for high concentration of the numerous multi-phased archaeological sites. The thousands-years empirical knowledge about the stellar sky, about the cycles of celestial motion of the Sun and of the Moon was of great importance for calendar cycles of economical, household and domestic life. However, all presently known artifacts may make but an evidence of some symptoms of ancient astronomical notions.

Kamennye palatki (Rocky tents) island, present within the territory of the Ekaterinburg city, southern island of Romanovskoje paleolake. Recently the north-western part of the island is thoroughly well-studied due to archaeological excavations during last 32 years. The relics of various epochs are discovered. Below we discuss the most recent ones.

Neolithic Age. There is a number of evidence that the passage through south-eastern and eastern coast of Caspian Sea via steppe and forest-steppe of the Urals to forest zone of the Trans-Urals and western Siberia was one of the possible direction of ancient migrations of the early farmers from Near east in Vth millennium BC [1]. The three objects of sacral complex found at the island were identified with Indo-European migrants.





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Figure 2. The sanctuary meaning objects in the upper reaches of Iset river. **1** – horns’ sign on the western ridge of the island; **2** – sign of a ring crossed with north-south diagonal; **3** – Western entrance into Romanovsky 2 dolmen; **4** – entrance to northern portal of the tunnel near the base of the island Kamennye Palatki; **5** – eastern entrance into the Lunny (“Moon’s”) tunnel; **6** – menhir on the mountain slope of the pick Medvezhka.

One of the objects, the remains of sacral place, was found on the north-western edge of the island (fig. 1, 2). The excavation revealed the postholes, which formed a rectangular figure, near fire places. Its long diagonal extended in north-south direction, the short one – in west-east direction with small northward declination.

The second object, the polished figure, represents the bull horns of 1 m length. It was found 60 m eastward of sacral ground on the slightly slanting surface of western ridge (fig. 2, 1). It is necessary to note that this sign is well visible only at early sunrise hours.

The third object(s), the bowl, which was found on the top of a ridge, and a sign, faceted as a ring crossed with diagonal. A sign is located on the horizontal surface of the boulder, 5 m below its top and close to water line (fig. 2, 2). It is necessary to stress that boulder with a sign was found in 16 m northwards from bowl in the south-north line, and diagonal of a sign coincides with south-north line as well.

Eneolithic Age. In the eastern and south-eastern part of the north-western ground of the island, the sacral complex of the Eneolithic Ayatskaja culture is found. It is consisted of two objects. The first one is the megalithic elk's head-shaped figure, which was found of the first stage of western ridge. That figure is separated from a gibber and turned on 45 degrees so that its "eye" is south-oriented to the sacral buildings, which are located in 22 m from a sculpture.

The two signs situated on each side of the rock with a bowl atop may be possibly identified as lunar ones. The sign on the north-eastern side of a rock is made with splits as a bow-looking image (it looks like a sickle Moon). The sign recorded near south-western side of a rock is done as a half disk of a decrescent Moon. These objects have not been dated yet.

The Iset` headstreams` *megalithic monuments* dated back to the Eneolithic period that can be considered archaeoastronomical objects, were found and partly studied during last two years. Until the beginning of XXI century, the megaliths of V-III millennia BC were known only in the three areas over Eurasia: Western Europe, Northern Caucasus and Southern Korea. Recently there are known about few tens of the megaliths – dolmens, tunnels and menhirs were discovered over the forest-mountain zone of the Trans-Urals. They are of natural-anthropogenic and anthropogenic origin, and appreciably different from Western European, Northern Caucasian and Southern Korean megaliths.

Dolmens. The dolmens represent massive granite structure made of gibbers and stone plates. In the upper reaches of Iset` river, the 5 boulder dolmens were found, two of them were excavated.

Their general features are as follows. They are located of the slopes of rocks, the entrance into a chamber is of 1.2-1.5 m height, west- or north-north-west-oriented. Chambers are rectangular- or triangular- shaped, having length of 1.5-2 m. In front of dolmens, there were recorded deliberately mounded grounds of 9 to 12 square meters. Their horizontal surface was supported with massive boulders. Inside chambers and within grounds traces of continual sacrifices were recorded: fire evidence, pieces of ochre, Neolithic (Romanovsky I dolmen) and Eneolithic (Shitovsky 6 dolmen) pottery shards, tools, assemblages of granite artifacts made as birds' and animals' heads and figures.

Romanovsky 2 dolmen is extremely remarkable (fig. 2, 3). Megalithic figure of elk's head was found on the northern side from its entrance. From occipital side it is supported by menhir, which was deeply dug into the ground. Another menhir was recorded in front of the small (0.5 m) destroyed stone chamber (tunnel?), which was located downwards of the deliberately mounded ground. Chamber had 1 m depth, further part was destroyed. All mentioned objects contained assemblages of granite figurines.

Radiocarbon analyses of the charcoals sampled from fire places and grounds provide us with following dates: Shitovsky 6 dolmen – 4200±210 (SO RAN – 7629), Romanovsky 2 dolmen – 4200±85 (SO RAN – 7443). Adding this to the discovered Neolithic and Eneolithic ceramics, those dolmens might be dated in the range of IV-III millennia BC.

Tunnels. There are five known tunnels over the considered region, two sites of them were investigated with excavations.

One of the investigated tunnels, the tunnel of natural-anthropogenic origin located by the western slope of the island Kamennye Palatki has a length of 10 m (fig. 2, 4). It is north-south-oriented, with small north-westward declination. Its northern portal is well-preserved. In the eastern side of the portal, there is a megalithic figurine of bear's head fixed up on 5 stones. In the center of tunnel there is a second westward-oriented entrance. The northern and western direction usage most probably is not occasional. Inside the tunnel, there is a fissure, perhaps of tectonic origin. According to mythology of Eurasian population, fissure means passage to the Down space. It should be noted that on the western edge of the island, exactly above the tunnel, there is Eneolithic cemetery of the Lipchinskaja culture of the IV-III millennia BC. It might be possible, that triple sacrifices near bear's head is associated with that cemetery. There are fragments of three ceramic vessels of Lipchinskaja culture found there, and the remains of forest bird supporting this hypothesis. Close to western entrance to the tunnel, another population of Ayatskaja culture have performed rituals. Discovered collection consists of pottery shards, pieces of ochre, stone tools.

The second tunnel, named "Lunny" ("Moon's") tunnel, also of natural-anthropogenic origin, is oriented in west-east direction. It has 1.8-2 m covering construction, eastern side of which is elk's head-shaped. There is the sign of decrescent Moon with no less than ten cuts over its diameter (fig. 2, 5). V.N. Chernetsov [2] presumed that very similar cuts made on Uralian rock painting sites could be associated with numbers of performed rituals. However, together with the picture looking like the decrescent Moon sign, those cuts could stand for the number of days of a certain time interval connected with certain lunar phases observed visually on the tunnel's ground.

Mounds of recorded grounds along both entrances are bordered by massive boulders. Remains of ritual performances were traced as burnt sand, charcoals, and assemblages of granite images of animals' and birds' heads. Radiocarbon age of the relic is 3975 ± 80 (SO RAN-7444).

Menhirs are upstanding rocks with parallel facets and constricted round-shaped top, having various height (from 0.7 to 2 m). They also differ in chronology, function and direction of narrow facets.

The earliest menhirs are the three monuments from Romanovsky dolmen. One of them has preserved in upstanding position, because it was deeply dug into the ground. Its narrow facets are oriented in east-west direction. It could be possible to date as Eneolithic menhir the monument found on the mountain slope of the pick Medvezhka, where rock-painting and tunnel are observed. Near the menhir base (fig. 2, 6), the roots of fallen tree have recovered granite figurines, which have analogues to those recorded on the dolmen ground.

On the Kamenny Palatki island, close to north-west and south-east sides of Bronze Age stone quarry there were found two menhir rocks. The direction of narrow facets of the stones is east-west. One may presume that nearby menhirs some fire rituals were performed.

The last group of menhirs is a component part of the necropolis of a group of nomadic population, is and dated back to the edge of era. Two menhirs were recorded near the base of stone boxes, the direction of narrow facets of those stones are different. It might be possible that menhirs found on the kurgans of the mountains Sem` Bratiev (Seven Brothers) and at the extremity of half-island of the Shitovsky Lake also belong to that same time.

In conclusion, one may state that the population of the upper streams of Iset' river in the Neolithic period, the migrants from Near East, knew the directions of the four corners of the Earth. In mythology of that population the two directions have special meaning – southern and eastern direction. One can suppose that southern direction was of special meaning because the

South was the place of the migrants' exodus. The eastern direction might be associated with following ritual. During sunrise the sign of the Upper space was well-visible, the bull / male goat horns [3], and on the sacral ground during the performed ceremony there were joy fire and sacrifices for the rising orb.

During the Eneolithic period on the sacral complex the population of Ayatskaja culture kept priority of the southern orientation. It is necessary to add that such a tradition was a very typical for the majority of the Urals rock painting sites – the images were drawn on southward cliffs [4]. Northern and western orientation of the tunnel entrances near the island base most likely might be interpreted as due to mythological views of the Down space where there is no Sun and where their deceased tribesmen have gone to.

In the investigated area, the beginning of the exploitation of the natural objects for ritual performances, possibly scheduled to match significant astronomical events, started as long ago as the Neolithic Age. The population used small tunnels and dolmen-looking rocky hollows. On the turn of the IV-III millennia BC – in the Eneolithic period – the natural-anthropogenic dolmens and tunnels appear, further those of artificial nature are constructed. As it was noticed, the western and northern orientations of the entrances of the main two groups of megalithic monuments were most often. Probably, like western European and northern Caucasian megaliths, they had grave or memorial functions.

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