

**P.M. Dolukhanov, N.A. Gey, A.M. Miklyayev and A.N. Mazurkiewicz**

**RUDNYA-SERTEYA, A STRATIFIED DWELLING-SITE IN THE UPPER DUNA BASIN  
(A MULTIDISCIPLINARY RESEARCH)**

*Abstract*

The initial Subneolithic settlement emerged on the flood plain of the Serteya River (the left tributary of the Duna) in the mid-5th millenium B.C. in the course of the Atl-2 climatic phase. The layer archaeologically attributed to the Narva Culture and dated to the end of the 5th millenium B.C. corresponds to the thermal optimum of Atl-3. The Late Neolithic Usvyaty Culture coincided with the Early Sub-Boreal (SB-1); Corded Ware to the Middle Sub-Boreal (SB-2) and the Early Bronze Age to the late Sub-Boreal (SB-3).

*P.M. Dolukhanov*, Institute of Archeology (Leningrad Branch), Academy of Sciences of the USSR, Dvortsovaya nab. 18, 191065 Leningrad, USSR.

*N.A. Gey*, Institute of Geography, Leningrad State University, Sredni prospekt 41, 199048 Leningrad, USSR.

*A.M. Miklyayev*, The State Hermitage Museum, Dvortsovaya nab. 34, 191065 Leningrad, USSR.

*A.N. Mazurkiewicz*, The State Hermitage Museum, Dvortsovaya nab. 34, 191065 Leningrad, USSR.

The newly discovered Rudnya Serteya site is of considerable interest both archaeologically and palaeogeographically. It is situated on the flood plain of the Serteya River, the left tributary of the Duna (Zaphadnaya Dvina). Several Subneolithic sites are known from the region (Dolukhanov and Miklyayev 1986 84–85, Fig.1, pts 2 & 3). The narrow valley of Serteya stretches from the south to the north. Judging from its morphology, one may conclude that during the late Glacial the valley formed a chain of small residual ice-dam lakes. The Rudnya Serteya site was situated in the off-shore area of the northernmost lake, 2.5 km to the south of its present-day discharge channel.

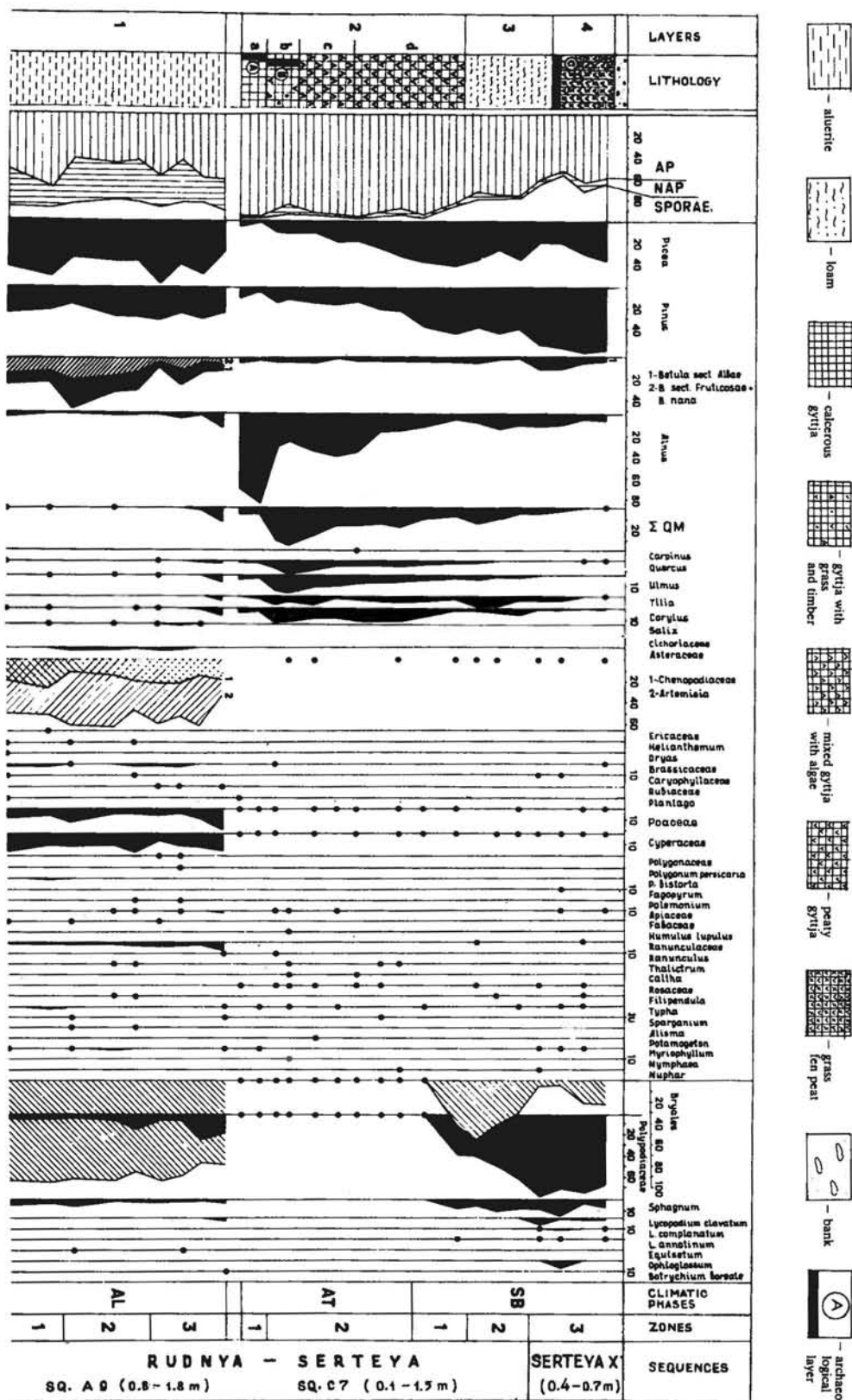
The Late Glacial deposits are represented by blue aleurite, which increases in magnitude along the axis of the river reaching 4 m. As indicated by the palynological evidence (Fig. 1), the aleurite formed during the Alleröd. Based on the percentage of the main components, three sub-stages may be distinguished. In all of the Alleröd attributed spectra, the AP play a domi-

nant role (42–47 %). Herbs make up 20–41 % and spores 12–20 %. The first sub-stage features the predominance of spruce (44–57 %) with pine and birch being represented equally (21–25 %). Single grains of willow, hazel and broad-leaved species (elm, oak) were observed.

The second sub-stage features an increase in the content of birch pollen (up to 26–48 %) and a decrease in spruce (down to 37 %). The percentage of spruce increases in the third sub-stage (29–59 %). The pollen of broad-leaved species is constantly present, reaching 13 % at the top.

Of the plants one should especially mention Chenopodiaceae (10–15 %), Artemisia (35–63 %), Poaceae (5–19 %), Cyperaceae (6–17 %), Helianthemum sp., Polemonius, Dryas sp., as well as the aquatic plants, Typha sp., Alisma sp., Sparganium sp. and Myriophyllum sp.

Based on palynological evidence it can be concluded, that coniferous (mostly spruce) and birch forests were widespread during the Alleröd. At the same time large areas were occupied by tree-



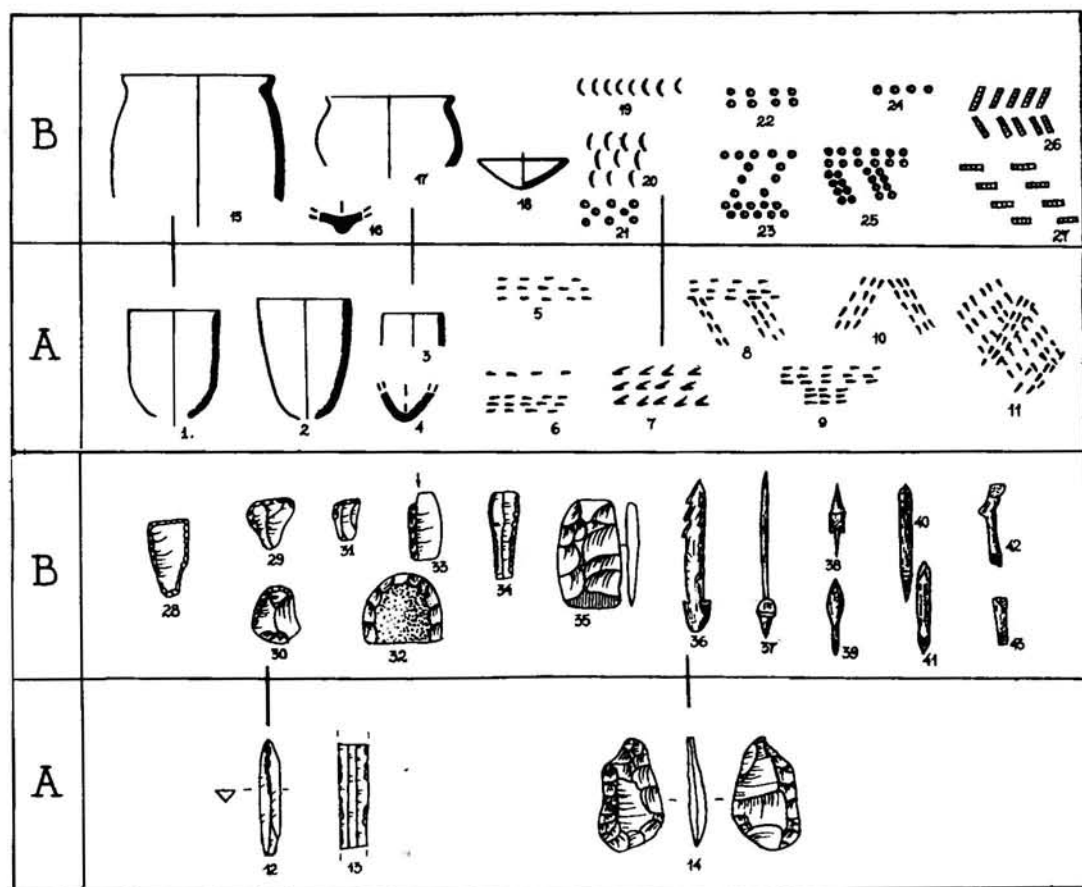


Fig. 2. Stone and bone inventories, pottery assemblage of the Rudnya-Serteya site (A - layer A; B - layer B).

less vegetation featuring periglacial plant communities. The optimal thermal conditions were attained during the final sub-stage.

The initial settlement of the area by man occurred during the Alleröd. Numerous Epi-Palaeolithic sites with stone inventories including tanged points were found on the terraces of the ice-dam lakes.

A thick layer of gyttja of varying composition was deposited on the eroded surface of the aleurite during the lacustrine transgressions which occurred in the course of the Atlantic and Sub-Boreal after a prolonged gap in sedimentation.

The calcareous gyttja lies directly on the top of the aleurite. Alder dominates the AP. The QM total (oak, elm, lime) never exceeds 7%.

Among the macrofossils, alder, birch, willow and horse tail have been identified.

At the bottom of calcareous gyttja and partly inside it, the artefacts belonging to the oldest Subneolithic settlement in the area have been found (archaeological layer 'A'). The stone inventory includes 5 objects: a fragment of a retouched blade, an axe-like tool, a retouched blade, a retouched 'ribbed' blade and two unretouched flakes. Black cretaceous flint was used as raw material (Fig. 2:12-14).

The same layer contained pottery fragments of 10-12 vessels. They were made of clay tempered with sand which included grains of quartz, muscovite, feldspar and organic matter. Pot sherds were either 5-8 or 10 mm thick. Pots were made of bands with the upper rim of each band overlapping the lower part of the one above. The bottom and the lower part of the pots were made of bands 5-7 mm wide and 10 cm high, the body and the neck were of bands

Fig. 1. Pollen diagram of the Rudnya-Serteya site (N.A. Gey, analyst).

4–5 mm wide and 30–70 mm high. The parts where the bands joined were smoothed on the inside with a denticulated stamp.

Special analyses revealed that the pottery was not fired, but dried. Later, the outer surface was covered with a thin layer of clay, upon which the ornament was applied. The diameter of the neck was 16–22 cm. The rims were straight with sharpened tips and the bottoms were conical. Judging from the pot-sherds one may suggest a mitre-like shape of the vessels which were 30–40 cm high. The ornamental patterns were very simple: a combination of horizontal, vertical and diagonal rows of triangular impressions usually made with a 'retreating spatula' technique. One may note a zonal pattern: the neck and trunk are covered with compositions of horizontal, vertical and diagonal rows, whereas the bottoms are ornamented by rows of impressions radiating from the centre (Fig. 2:1–11).

The site was abandoned due to an abrupt rise in the water-level of the lake. In the course of this transgression the layer was partly washed away and partly redeposited on the overlying gyttja. Radiocarbon dates obtained for the calcereous gyttja show an age of ca 6200 b.p. (ca 5300 B.C.). Judging by these dates one may conclude that the initial dwelling-site existed in the mid-5th millennium BC. It should be emphasized that the cultural assemblage of this site has no direct analogies in the forest zone of the Russian Plain.

Directly above the aforementioned deposits was sandy gyttja with inclusions of charcoal and various artefacts referred to as archaeological layer 'B'. Still higher one notes a gyttja layer with timber, plants and algae (*Volvox*, *Chara*). The pollen spectra obtained for these deposits feature a maximum content of broad-leaved species (13–34 %). The percentage of alder drops to 25–40 % and that of spruce increases up to 10–20 %. A stagnant lake partially turning into a bog existed inside the valley at that time. Numerous seeds and macrofossils of aquatic plants have been identified including *Nymphaea* sp., *Ceratiophyllum* ap.

The archaeological layer 'B' contained fragments of about 30 vessels, with diameters varying from 20 to 30 cm. The S-shaped vessels were made of clay tempered with sand, organic matter and a small amount of shells. A series of smaller vessels (diameter: 10–20 cm) were made of clay tempered mainly with shells and organic matter and by a smaller volume of sand. The vessels are mitre-like and in rarer cases S-shaped. The band-seams are the same as in layer 'A'. In rare

cases, one notes grooves in the bands where the sharpened tips of the above-lying bands were incerted. The walls are 4–5 mm thick. Both the outer and inner surfaces were smoothed with denticulated stamps. One notes cracks on the inner surface resulting from the drying of unfired paste. Rims are both straight and profiled with either flat, rounded or sharpened tips. In one case a fragment of a round bottom with relief was found (Fig. 2:15–18).

The ornaments consist of comb and triangular impressions as well as of dots and strokes. The most common pattern consists of horizontal and (more seldom) of diagonal rows. Compositions are made of horizontal rows, in some cases supplemented by diagonal ones. The rows consist of single elements (comb impressions, strokes, dots). One notes a zonal pattern: vessels are ornamented either beneath the rim or in the upper part of the body; the undecorated surface below bears the marks of having been smoothed with denticulated stamps. Among the pottery assemblage one should especially mention a conical asymmetrical beaker. 11 cm high and 12 cm in diameter, decorated with concentric circles of comb impressions (Fig. 2:21–27).

The stone inventory includes 188 objects. Among these, tools make up 12 %: scrapers on flakes (a single specimen – on blade); ovoid axes with a partially polished cutting edge, an elliptic adze, 'beaked' cutting tools, 'ribbed' blades, rhomboid arrow-heads, angular burins on flakes. There are also fragments and blanks of axes and arrow-heads, bipolar and unipolar cores and core-like nodules of flint, blades (10 artefacts) and flakes. Cretaceous flint of varying colour and quality was used. The initial splitting of the flint was carried out on the spot.

The antler and bone industry comprises 12 objects, including a unilateral harpoon with a spade-like tang a biconical needle-point, 4 needle-points, a tanged thorned point, a knife of an ulnar, and points and axes made of tubular bones (Fig. 2:36–42). Numerous fragments of processed timber were found. Layer 'B' contains the upper portions of wooden posts, sinking deep into the aleurite.

The overall image of the archaeological materials from layer 'B' is comparable with that of the Narva Culture. 30 radiocarbon datings were obtained for the samples taken from the layer. All the dates fall within the narrow time-span of 6200–6000 b.p. (5300–5000 BC).

The upper portion of the investigated sequence – the upper layers of gyttja, loam (established in various parts of the site) and grass-

fen peat – formed during the Sub-Boreal. The pollen spectra feature the dominance of AP: Their content slightly diminished in the uppermost layers due to an increase in spores (from 10 to 44 %). The herbs never exceed 5 %.

Based on the relation of principal species, one may distinguish three substages: Early, Middle and late Sub-Boreal. During the early Sub-Boreal the spruce pollen reached its maximum values (38–42 %). The QM content (elm, oak, lime) dropped down to 7–9 % with the alder constituting 5–11 %.

This sub-stage in the vegetational history of the area corresponded to the Usvyaty Culture, identified at numerous sites in the Upper Duna basin (Dolukhanov and Miklyayev 1986). The radiocarbon dates obtained for these sites fall into the time-span of 5000–4000 b.p. (3900–2500 BC).

Pollen of coniferous species remained dominant in the spectra of the Middle Sub-Boreal sub-stage with the content of spruce pollen slightly diminishing. The QM total (elm, oak, lime) dropped down to 7–9 % alder remained at the level of 5–11 %. This sub-stage coincided with the North-Bielorussian Culture, which belonged to the Corded Ware assemblage (Dolukhanov and Miklyayev 1986, Miklyayev and Semenov 1979). The sites attributed to this culture in the Upper Duna basin are radiocarbon dated to 4000–3800 b.p. (2500–1800 BC).

The Late Sub-Boreal sub-stage featured the dominance of pine (52–60 %) and a comparatively high percentage of spruce pollen (20–36 %). The broad-leaved species formed 1–4 %. During this sub-stage, the existence of

the Uzmen' Culture (Early Bronze Age) is indicated. In the course of this sub-stage, a lake regression took place. At that time the lake turned into a stagnant eutrophic basin. In the course of the following paludification, a layer of grass fen peat formed on top the lacustrine sediments.

Summing up the above evidence, we may ascertain that the initial spread of a hitherto unknown early Subneolithic culture occurred in the mid-5th millennium BC, in the course of a cool climatic phase, tentatively correlated to the Atl-2 sub-stage. During the second half of the 5th millennium BC, in a warm and humid environment of the Atl-3 sub-stage, the Narva Culture spread into the area. At that time a stable cultural tradition emerged, which subsequently developed in the Usvyaty, North-Bielorussian and later cultures of the Sub-Boreal.

#### REFERENCES

- Dolukhanov P.M. & Miklyayev A.M. 1986. Prehistoric lacustrine pile dwellings in the north-western part of the USSR – *Fennoscandia archaeologica* III:81–89.
- Miklyayev A.M., Dolukhanov P.M. & Guman M.A. 1984. Usvyaty IV, Naumovo – ozërnye poseleniya epoh neolita i bronzy v verhoviyah Zapadnoi Dviny (Usvyaty IV, Naumovo – lake dwellings on the Upper Duna). In: *Arhaologiya i paleogeografiya mezolita i neolita Russkoi ravniny*. Moscow: Nauka: 67–81.
- Miklyayev A.M. & Semenov V.A. 1979. Svainoe poselenie na Zižitskom ozere (Pile dwelling on the Zhizhitsa lake) – *Trudy gosudarstvennogo Ermitazha* XX: 5–22.