

# NEW DATA ON PALANGA STONE AGE SETTLEMENT

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## Abstract

The aim of this article is to update the data on the research into Palanga settlement carried out in 1958, the objectives being to publish the discovered material to its full extent, to determine the lithological and cultural layers of the settlement, and to determine the cultural dependence of the communities that lived there. The following are used in the article: archaeological, osteological and macrobotanical material, which is kept at Kretinga Museum and which has not been published till now; stratigraphy of geological strata obtained during the drilling of geological boreholes; and radiocarbon dating of peat from the cultural layer level. The natural and cultural landscape of the habitation period of Palanga Stone Age settlement is also presented.

Key words: Lithuania, Palanga, Late Mesolithic, Late Neolithic, Early Bronze Age, settlement, landscape.

## Introduction

In August 1958, archaeological research into Palanga Stone Age settlement was carried out in Palanga, at the intersection of the present-day S. Daukanto and J. Basanavičiaus streets, next to the left bank of the River Rąžė (Fig. 1). The research was conducted following the discovery of animal bones, amber and individual archaeological artefacts during maintenance work on the bed of the River Rąžė. The archaeological research was headed by Ona Navickaitė (O. Kuncienė) (Navickaitė 1958). An area of 105 square metres was investigated, in which archaeological artefacts dating from various periods were found in the peat layer. The results of the investigations are presented in the archaeological research report by Navickaitė. Pranas Kulikauskas wrote about these investigations in 1959 (Kulikauskas 1959, pp.33-41). The artefacts found in Palanga are mentioned in works by Rimvydas Kuskas (Kuskas 2005, p.23f), R. Rimantienė (Rimantienė 1996, pp.120, 134-136), Vladas Žulkus (Žulkus 2007), Algirdas Girininkas (Girininkas, 2009, pp.125, 167, 174, 198) and Marija Vaitkunskaitė (Vaitkunskaitė, 1958).

Upon revision of the material of Palanga Stone Age settlement kept at Kretinga Museum it has turned out that the inventory discovered in the settlement was not published to its full extent by P. Kulikauskas. Besides, the interpretation of the material does not correspond with present-day standards of archaeological research. For this reason, in this article we will present a new stratigraphy of the Palanga settlement, a chronology of the material, a typology and its cultural dependence, as well as all the material from Palanga Stone Age settlement, and attempt to reconstruct the natural environment in which the communities of the Mesolithic and the Early Bronze periods once lived.

## The stratigraphy of the settlement and the palaeogeography of the surroundings

According to O. Navickaitė, the researcher of the Palanga settlement, in Palanga in 1958, at the intersection of J. Basanavičiaus and S. Daukanto streets, there was a rubbish dump 50 centimetres thick. Under the site of the dump, at a depth of 25 to 30 centimetres, a peat layer was discovered in which, as the author of the investigations claims, all the known finds were found. Under the peat layer there was a cobbled pavement, and then further down sand.

This stratigraphy and the findspot of the items contradict the reality, for the simple reason that the crevices in dirty flint artefacts from the Palanga settlement contain sand, and not peat. Therefore, the items found at this site were not contained in peat alone, and this fact indicates that the artefacts might have been recovered from several lithological layers. Furthermore, the typological chronological classification given by P. Kulikauskas of the bone artefacts does not correspond with the present-day Stone Age typology. It is believed that the fixation of the finds during the investigation of the settlement was not accurate or detailed. The stratigraphy of the settlement does not indicate whether peat or sand was contained between the cobblestones, or what kind of sand and peat it was.

The geological boreholes which were drilled in the vicinity of the Palanga Stone Age settlement can supplement the palaeogeography of the settlement (Fig. 1). On the basis of available research data (borehole No 70, latitude 55° 55' 26.02", longitude 21° 03' 30.83"), we can claim that the River Rąžė flowed into a lagoon, because on the right-hand side of the river, under a layer of yellowish grey, and here and there grey sand,

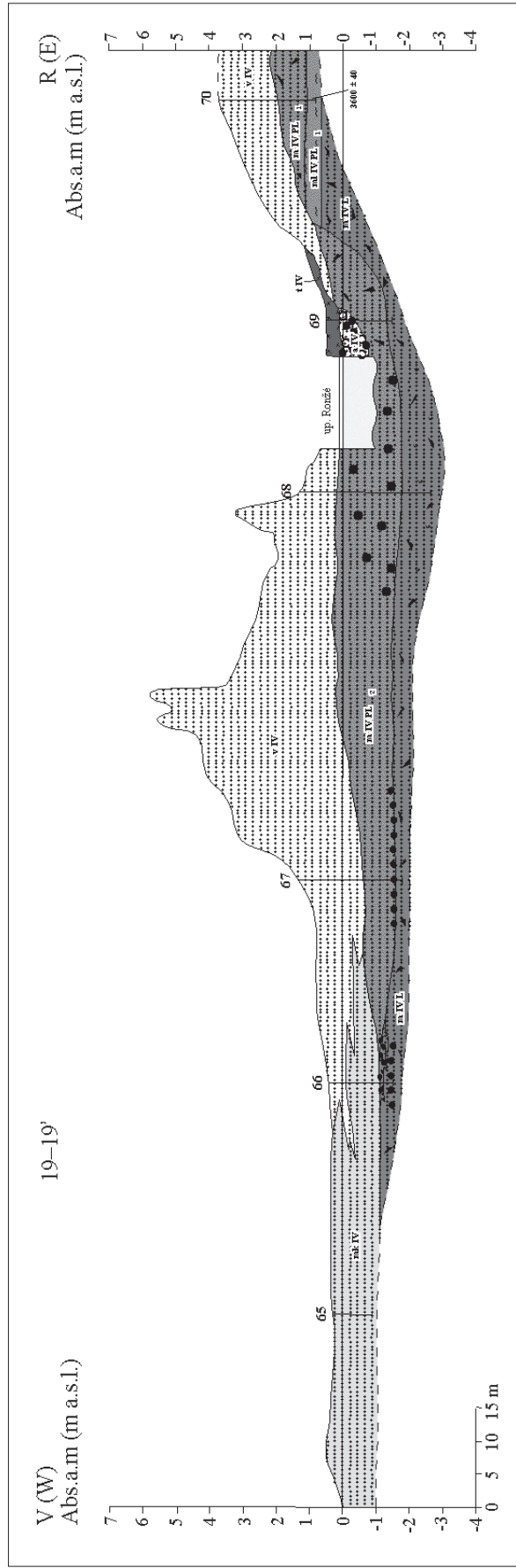


Fig. 1. The sites of the Palanga settlement and geological boreholes (according to J. Satkūnas and A. Bitinas).

1.8 to 2.7 metres thick, there is a layer of peaty sand and peat. Under this layer, at a depth of 2.7 to 2.9 metres, there are deposits of sandy sapropel containing the remains of trees and grass. The peat taken for radioisotope analysis from a depth of 2.75 to 2.9 metres (the bottom layer of peat) is dated (Vs1290) 3600±60 BP (2010BC) (Satkūnas, Bitinas 2004).<sup>1</sup>

According to data from the State Geological Information System (GEOLIS), borehole No 10449 (longitude 21° 3' 52.7", latitude 55° 54' 59.1") (Fig. 1) was drilled on the left-hand side of the bank of the River Rąžė, in the centre of the town of Palanga, at a distance of about 300 metres southeast of the intersection of S. Daukanto and J. Basanavičiaus streets, which were investigated in 1958, and 75 metres west of the intersection of Vytauto and J. Basanavičiaus streets. The data obtained from the borehole shows that there are deposits of grit at a depth of 0.6 to 1.8 metres, clay at a depth of 1.8 to 3.4 metres, and then, at a greater depth, deposits of greyish clay containing boulders. This indicates that from the intersection of Vytauto and J. Basanavičiaus streets to the point where the River Rąžė flowed into the lagoon, the river flowed round moraine from the southern side. This fact leads us to the assumption that the cobbled pavement found under a layer of peat as mentioned in O. Navickaitė-Kuncienė's report might actually be stones from undercut moraine. The moraine might also have been undercut by the Baltic Sea during one of the littoral transgressions.

On the basis of the available data, we can reconstruct the environment of the Palanga Stone Age settlement (Fig. 2). The geological data available indicates that the settlement existed during the period of the former regression of the Limnaean Sea, around 4,200 to 4,000 BP, or slightly later, at the beginning of the second transgression of the Limnaean Sea. The Palanga settlement might have been situated at the mouth of the River Rąžė, or not far from it, next to the edge of a moraine hill bordering a small lagoon lake. The latter lake was characterised by a wide diversity of lake flora and fauna. By that time, the accumulation of a peat layer had already started in the lagoon lake. The peat layer might have been thickest in the western part of the lake. This claim is supported by the aforementioned radiocarbon dating of the peat. The settlement was situated in a more ancient site, inhabited by humans as early as the Late Mesolithic Period. During the Late Mesolithic Period, the terrace slope of the Littorina Sea within the boundaries of the town of Palanga was situated not far from the terrace slope of the Baltic Glacial Lake. Within this strip, the Littoral Sea accumulated the moraine formed during the post-glacial period.

<sup>1</sup> Peat <sup>14</sup>C radiocarbon dating calibration was performed after M. Stuiver and P.J. Reimer (1998, pp.1022-1030).

Therefore, the Mesolithic settlement that was situated at the intersection of Vytauto and J. Basanavičiaus streets and on the moraine hill extending farther to the west at the beginning of the transgression of the Littorina Sea might have been partially destroyed by the process of erosion and undercutting by water during littoral transgressions.

The interpretation of the archaeological material is also complicated, because first of all we must reconstruct the situation, which would explain where the archaeological finds were discovered. From O. Navickaitė's notes (Navickaitė 1958), it becomes clear that part of the osteological material, including a horn axe made of elk antler, was found among stones, which were formed in the process of moraine erosion and undercutting. The flint artefacts must have been found in the lower part of the layer of stones, which was in contact with alluvial sand. All the latter artefacts are dated to the Late Mesolithic Period. In the course of the reconstruction of the stratigraphy, it becomes clear that the finds from the Late Mesolithic Period might have been found among and under stones, as the Late Mesolithic settlement was undercut by water during a littoral transgression (Fig. 3).

The finds discovered by the aforementioned researcher of the settlement and dated to the Neolithic period, and which were found in the lower part of the peat layer above the remains of undercut moraine, might have appeared there in the transition period from the Late Neolithic to the Early Bronze Age. Finds from the Late Neolithic and the Early Bronze Period, as well as quite large pieces of natural amber, might have appeared in the recently formed lagoon and on the bank of the River Rąžė, which flowed into the lagoon, at a time when the water level became higher and the process of peat formation began at the edge of the former moraine. At that time, the lagoon shore and the banks of the River Rąžė, which flowed into the lagoon, were convenient dwelling sites. Four pieces of log with trimmed ends (3.2, 1.6, 0.9 and 0.6 metres in length, and 30 and 15 centimetres in diameter) found there indicate that there might have been structures built of timber, but undercut by water at a later time, standing in that place.

## The finds and their dating

### *Finds from the Late Mesolithic settlement*

There are six flint artefacts dated to the Late Mesolithic Period. One of them belongs to the lower part of a cone crusher (Fig. 4:3), whereas the remaining artefacts are made from regular-shaped blades or parts of them. The angular cutter (Fig. 4.1) was made from a part of a broken blade. Only the lower parts of the blades were

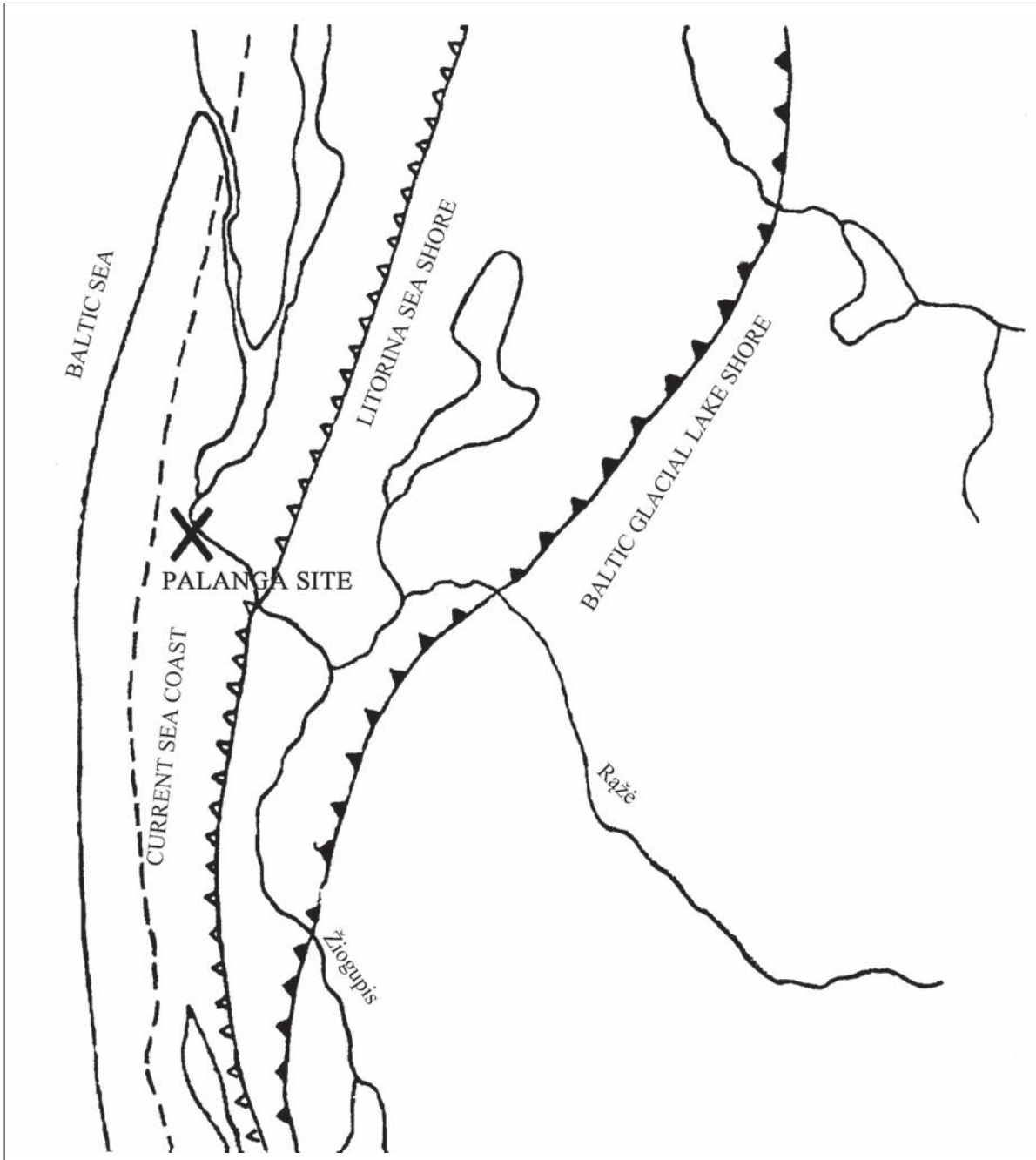


Fig. 2. A palaeogeographical reconstruction of the surroundings of the Palanga settlement (prepared by A. Girininkas).

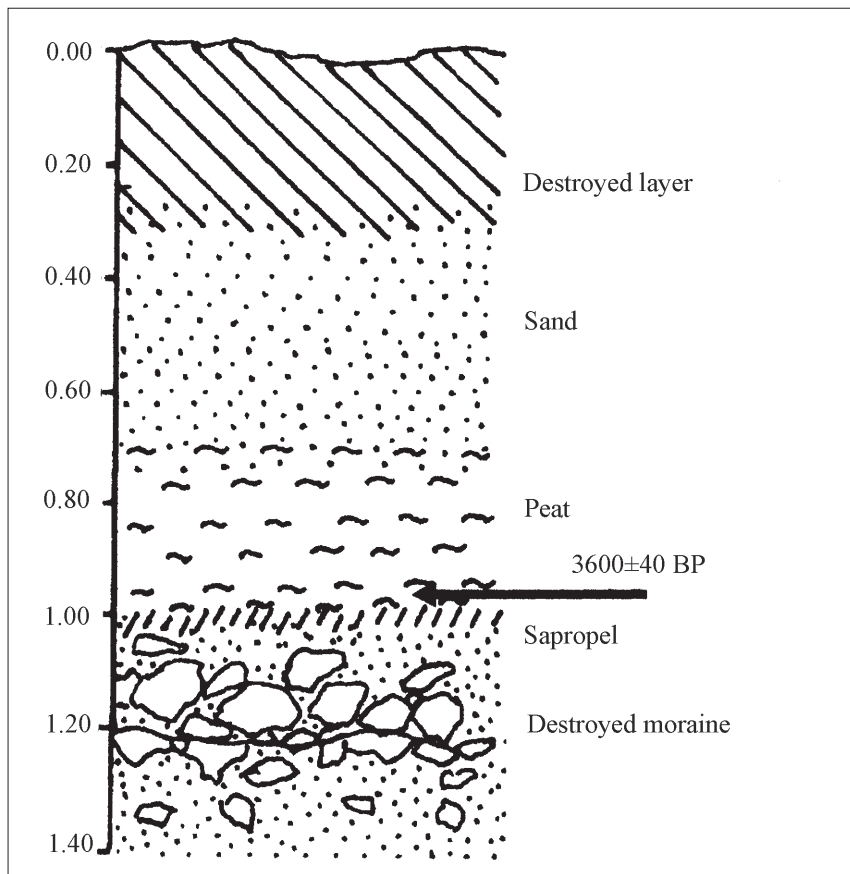


Fig. 3. A reconstructed stratigraphy of the Palanga settlement (prepared by A. Girininkas).

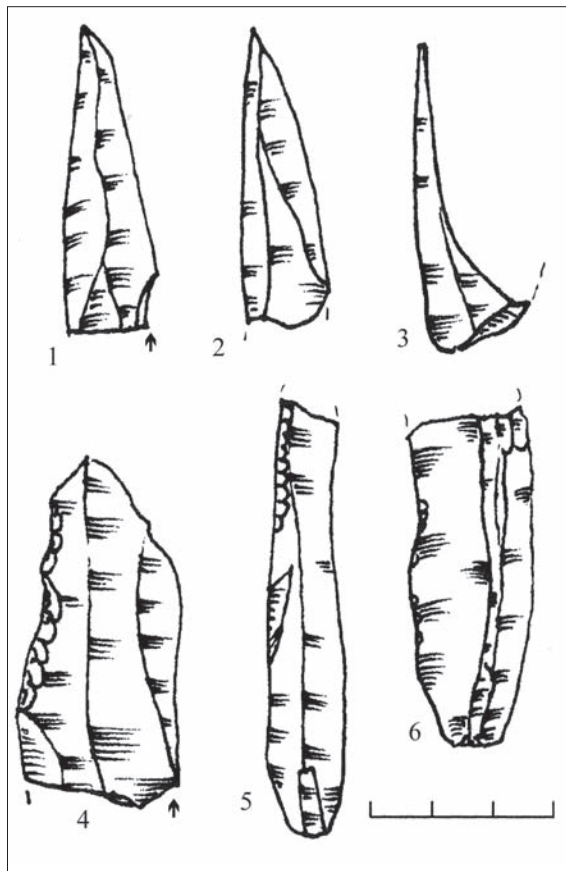


Fig. 4. Flint artefacts of the Palanga Late Mesolithic cultural layer: 1 a cutter; 2 a blade; 3 part of a crusher; 4 a scraper; 5, 6 knives (drawings by A. Girininkas).

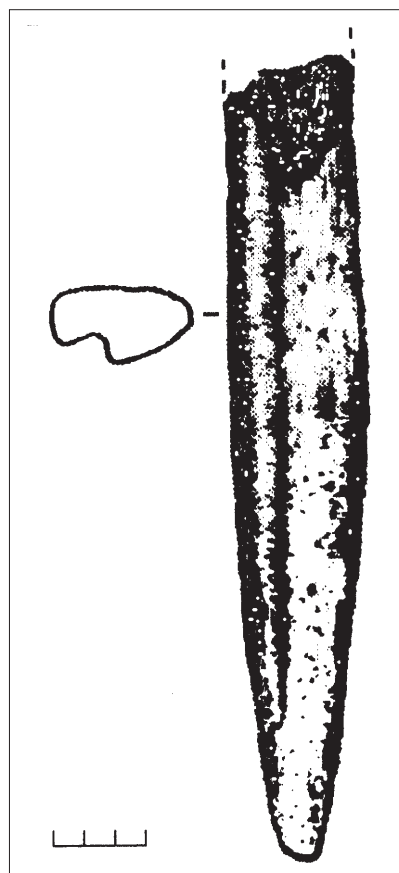


Fig. 5. The lower part of a spear point from the Žemaitiškė 2 settlement (drawing by A. Girininkas).

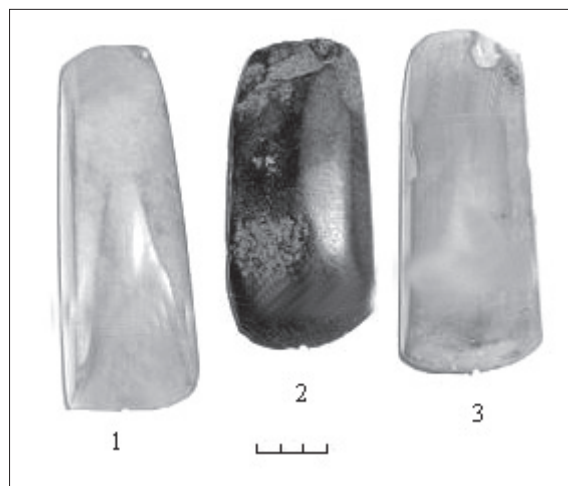


Fig. 6. 1 a flint gouge; 2 a flint axe; 3 a stone axe (photograph by A. Girininkas).

III

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ANCIENT  
SETTLEMENTS  
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surviving from two artefacts (Fig. 4.5-6) which might have been used as knives, whereas on one side of the third blade, a more massive one, the distinct blade of a scraper has been formed (Fig. 4.4). The upper part of one of the blades resembles the tip of a lancet-shaped head (Fig. 4.2). In terms of the production technique, the collection of flint artefacts is similar to artefacts of Mesolithic Neman culture found in settlements of the Samogitian Upland (Dreniai, Biržulis isthmus) (Ostrauskas 1996, p.196ff), and can be dated to the Late Mesolithic.

An axe with a cut-out hole for the shaft made of part of an elk antler can also be dated to the Late Mesolithic Period (Plate I.1). The length of the axe is 32.2 centimetres, and its diameter is 4.3 centimetres. In terms of its shape and production method, the horn axe is similar to the axe found in Šarnelė (Valatka 1968, p.39ff), as well as to the Late Mesolithic horn axes found in Ražiškiai (Kaunas district), Mokolai (Marijampolė district) (Puzinas 1938, Fig. 4) and Smurgainiai (Belarus) (Cherniavski 1992, p.117; Girininkas 2009, p.100ff).

In terms of the typology of the artefacts, the artefacts found in the alluvial sand and among stones in the Palanga Stone Age settlement can be dated to the Late Mesolithic.

#### *Artefacts from the Late Mesolithic and Early Bronze Age settlement*

In the Palanga settlement, the artefacts dated to this period were found in the lower part of the peat layer.

A 10.2-centimetre-long bone cone-shaped arrowhead was found in the settlement. The part between the tang and the tip is decorated with net-shaped incisions, which run around the arrowhead as a horizontal band. The tip is decorated with six cruciform incisions (Fig. 6.1). Cone arrowheads with similar decoration have been found in the settlements of Kretuonas 1, Žemaitiškė 2 (Švenčionys district) (Girininkas 1990, p.96), and the area around Lake Lubans (eastern Latvia) (Vankina 1999, Fig. LXXXIII), which are dated to the same period, that is, the end of the Late Neolithic. Only the tip has survived of the second cone arrowhead (Plate I.2).

A single piece of a spear point, the lower part 16.1 centimetres in length and made of an elk foot bone, was found (Fig. 5). Similar spear points made of elk foot bones have also been found in the Žemaitiškė 2 settlement (Girininkas 1990, p.37).

A dagger 16.3 centimetres in length and made of an elk radius (Plate I.3.1) has analogues in all the Late Neo-

lithic settlements of Lithuania and Latvia (Girininkas 1990, p.35; Loze 1979, Fig. XXX.6-8).

Chisels used to be made of deer palm bones (Plate I.3.2-3), or the tubular bones of other huntable animals. The length of the first chisel is 8.2 centimetres, and of the second one 14.9 centimetres. Chisels used to be made in a similar manner in other Late Neolithic settlements of the eastern Baltic Sea region (Girininkas 1990, p.84).

In the Palanga settlement, in the transition period from the Late Neolithic to the Early Bronze Age, elk antler was used to make hafted axes (Plate I.4). The length of one axe is 12.7 centimetres, and the width at the blade is six centimetres. The length of the other axe is 19.6 centimetres, and the width at the blade is four centimetres. Similar artefacts made of parts of an antler split lengthwise are found in nearly all the settlements in the eastern Baltic Sea region from the transition period from the Late Neolithic to the Early Bronze Age (Girininkas 2009, p.169).

Imported flint artefacts were also found in the settlement. These include a small gouge, the shape of which resembles that of bone and horn gouges, and an axe of quadrangle cross-section (Fig. 6.1,3), which is similar to axes of Type K1a (Piličiauskas 2008, p.18), and can be dated to no later than the late third millennium BC.

A stone axe with a lens-shaped cross-section was also found among bone and horn artefacts (Fig. 6.2). It is 11.3 centimetres long and 4.6 centimetres wide at the blade, and it resembles flint axes of lens-shaped cross-section axes, which are also dated to the end of the Late Neolithic and the Early Bronze Age.

In terms of the typology of the artefacts and the time of their production, all the artefacts found in the lower part of the peat layer in the Palanga settlement are contemporaneous, and dated to the boundary between the third and the second millennium BC.

#### *Osteological material and macrobotanical remains*

The horn axe with a cut-out hole for the shaft found in the Late Mesolithic cultural layer of the Palanga settlement was made of elk antler.

In the cultural layer of the transition period from the Late Neolithic to the Early Bronze Age, the majority of work tools and tools intended for hunting were made from parts of an elk skeleton. The number of artefacts made of wild boar and deer bones, and the number of skeleton bones is nearly identical (Table 1). A single seal bone was identified: this indicates that the inhabit-

ants hunted not only forest fauna, but also seals on the coast.

Only from stories told by the archaeologists involved in the research of the Palanga settlement is it known that fishbones, too, were found there. However, the bones were not collected.

On the basis of the osteological material available, we can see that in other settlements of the Lithuanian coastal area from the same period, the distribution of species of hutable animals was similar (Daugnora, Girininkas 2004, p.113ff).

Table 1. Osteological material found in the cultural layer of the transition period from the Late Neolithic to the Early Bronze Age in the Palanga settlement (the lower part of the peat layer) (compiled by L. Daugnora)

Animal species	Number of artefacts per animal species	Skeleton parts/ MIS	Total
Elk/ <i>Alces alces</i>	6	5/3	11
Deer/ <i>Cervus elaphus</i>	2	3/2	5
Wild boar/ <i>Sus scrofa</i>	3	2/2	5
Seal/ <i>Phocidae</i>	-	1/1	1
Unidentified	-	5	5
Total	11	16	27

In the cultural layer of the Palanga settlement of the transition period from the Late Neolithic to the Early Bronze Age, hazelnuts (*Corylus avellana*), acorns (*Quercus robur* L.) and pine cones (*Pinus sp.*) were found.

### Discussion

Until now, the material from the Palanga settlement has been dated to a variety of periods, and attributed to different cultures. P. Kulikauskas, who was the first researcher to publish data on the settlement, indicated that the arrowhead that was found (Plate I.2) might originate from the Mesolithic Period (Kulikauskas 1959, p.39), and the rest of the material from later times, the third to the second millennium BC. He did not take into consideration at all the dating of the horn axe, and only to a very small degree the stratigraphy of the settlement. R. Rimantienė indicated that the Palanga settlement can be attributed to Narva culture, and

part of the material might belong to the Early or Middle Neolithic (Rimantienė 1996, pp.120, 134-136). She does not indicate what criteria and what typology made it possible to date the Palanga settlement like this.

On the basis of material from the Palanga settlement published in various publications, it has not been possible to get a complete picture to enable us to define an accurate chronological and cultural dependence of the finds. As has been mentioned above, the axe made of elk antler (Plate I.4) has analogues in material from the east Baltic Sea region and northern Europe dated to the Mesolithic Period. Beside analogues found in Lithuania and Belarus, identical axes or pickaxes are known from Late Mesolithic settlements in England (Tolan-Smith 2008, p.149), as well as in material from Late Mesolithic settlements or burial grounds in southern Scandinavia (Clark 1936, p.111, Fig. 40; Larson 1984, p.33). More often than not, artefacts of this kind were made of deer or elk antler.

On the basis of the Late Mesolithic flint artefacts found in the Palanga settlement, we can claim that Mesolithic Neman culture extended right up to the coast of the Baltic Sea. At present, in addition to the Palanga settlement, two more findspots dated to the Mesolithic Period are known in the Baltic Sea coastal area. These are the former settlements of Būtingė (Palanga) and Šilmeižiai (Šilutė district), in which artefacts dated to the Late Mesolithic have also been found (Girininkas, Zabiela 2005, p.302ff).

Recently, the Late Mesolithic findspots in Palanga, Būtingė and Šilmeižiai are considered to be the earliest complexes of prehistoric artefacts in the Lithuanian coastal area. As yet, the topography of Early Mesolithic and Early Neolithic monuments in the eastern Baltic Sea region remains unclear. It should be assumed that monuments of the Early Mesolithic Period attributed to the Pulli stage of Kunda culture should be situated in the coastal areas of the former Yoldia Sea, which are localised by V. Žulkus at a distance of three to four kilometres from the present-day coast of the Baltic Sea (Žulkus 2010, p.425ff). Meanwhile, the Early Neolithic settlement might also be located below the present-day coast of the Baltic Sea, when the water level was lower than the present-day Baltic Sea level at the end of the Atlantic Period, between L<sub>2</sub> and L<sub>3</sub> transgression (Gelumbauskaitė 2009, p.33).

In the east Baltic Sea region, cone-shaped arrowheads decorated with net-shaped or cruciform incisions should be dated to the second half of the third millennium BC: they are found in settlements of Late Narva



culture and Late Pit-Comb Ware culture. An interesting fact is that in the entire vast east Baltic Sea area, the sign system found on cone-shaped arrowheads is nearly identical: it consists of net-shaped horizontal rows that run around the arrowhead at its widest place between the tang and the tip, whereas cruciform incisions form vertical rows, which are sometimes connected by double parallel lines (Girininkas 1990, p.96; Vankina 1999, Fig.LXXXIII). This sign system was known and used for a rather short period of time, in the second half of the third millennium BC; however, the purpose of this sign system is not yet clear.

In the entire area of Late Narva culture, bone gouges intended mostly for timber processing were made from the tubular bones of huntable animals; sometimes, such gouges had blades at both ends. Quite often, the blades were ground, whereas the tool itself was secured in a wood or horn sleeve.

Neither of the axes, stone or flint, found in the Palanga settlement were produced locally. The stone axe is made of a dark imported stone, and has a cross-section of an irregular lens, with one side slightly bulging, and the other side flat. It is similar to flint axes of Type D6a (Piličiauskas 2008, p.18), which can be dated to the beginning of the Early Bronze Age, that is, the first quarter of the second millennium BC. As has been mentioned above, the flint axe is similar to Type K1a in terms of its shape, the only difference being that the butt of the latter is rounded. The latter axe might have been made of raw erratic flint.

Just like the flint axe, the flint artefact of a quadrangular cross-section that resembles a small chisel and which was found in the settlement, is made of the same sort of flint, that is, a whitish erratic flint. On the basis of similar artefacts found in the settlement, we can date the small chisel to the late third millennium BC.

It can be assumed that the researchers who excavated the settlement in 1959 might not have noticed pottery, because the research was conducted in rather a hurry, and the pottery might have been poorly preserved.

## Conclusions

1. The Palanga settlement is attributed to two chronological periods: Late Mesolithic and Late Neolithic/Early Bronze Age. The artefacts of the Late Mesolithic Period might belong to Late Neman (Janislawice) culture, whereas the cultural layer of the transition period from Late Neolithic to the Early Bronze Age might

have been left behind by a community of Late Narva culture.

2. The settlement of the Late Mesolithic Period was situated at the edge of a moraine next to the River Ražė; during one of the earlier transgressions of the Littorina Sea, this moraine was undercut and partially destroyed by erosion. During the transition period from the Late Neolithic to the Bronze Age, people who left an expressive trace of their way of living settled above the washed-off moraine, which was already covered with washed-up or wind-blown sand. At the time they were living there, during the regression of the Limnaean Sea, the peat formation process might have started in this area: this accounts for the fact that items of organic origin were preserved in the cultural layer.

3. The inventory of the Palanga Late Mesolithic settlement is the earliest one in the Lithuanian sector of the Baltic Sea. Settlements of the Early Neolithic and the Early Mesolithic periods can only be discovered in the present-day sector of the Baltic Sea coast by conducting research into the underwater landscape of the Baltic Sea.

## Acknowledgement

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## Abbreviation

LA – Lietuvos archeologija, Vilnius (since 1979–).

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## NAUJI DUOMENYS APIE PALANGOS AKMENS AMŽIAUS GYVENVIETĘ

### ALGIRDAS GIRININKAS

#### Santrauka

Palangos gyvenvietė yra dviejų chronologinių laikotarpių: vėlyvojo mezolito ir vėlyvojo neolito-ankstyvosios bronzos. Vėlyvojo mezolito laikotarpio dirbiniai gali priklausyti vėlyvajai Nemuno (Janislavicy) kultūrai, o vėlyvojo neolito-ankstyvosios bronzos laikotarpio kultūrinis sluoksnis galėjo būti paliktas vėlyvosios Narvos kultūros bendruomenės (4; 6 pav.; I iliustr.).

Vėlyvojo mezolito laikotarpio gyvenvietė buvo įsikūrusi prie Rąžės upelio esančios morenos pakraštyje, kuri vienos iš ankstyvesnių Litorinos jūros transgresijos metu buvo paplauta-apardyta. Vėlyvojo neolito-ankstyvosios bronzos laikotarpiu virš nuplautos morenos, bet jau ant užplauto ar užpustyto virš jos smėlio, apsigyveno žmonės, kurie paliko išraiškingą savo gyvenimos pėdsaką. Jų gyvenimos metu – Limnėjos regresijos laikotarpiu – ši teritorija galėjo pradėti dūrpėti, todėl kultūriniame sluoksnyje esantys organinės kilmės daiktai išliko (1; 3 pav.).

Palangos vėlyvojo mezolito gyvenvietės inventorius yra ankstyviausias Lietuvos Baltijos jūros ruože. Ankstyvojo neolito ir ankstyvojo mezolito laikotarpių gyvenviečių dabartinės Baltijos jūros pakrantės ruože aptikti galima tik tyrinėjant Baltijos jūros povandeninį kraštovaizdį – buvusias jūros pakrantes.

### III

FROM  
ANCIENT  
SETTLEMENTS  
AND PIRACY  
TO TOWNS