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LATE NEOLITHIC AMBER BEADS AND PENDANTS FROM THE LAKE LUBĀNS WETLANDS, LATVIA

Ilze Biruta Loze

In Late Neolithic Europe, amber beads and pendants were initially mainly made in the coastal zone of the Baltic Sea, due to the presence of amber washed up by the Litorina Sea. There were four principal localized zones of Neolithic amber artifacts in this region: the eastern Baltic, the mouth of the Vistula River, Jutland and Skone, and Fennoscandinavia. The British Isles are regarded as a fifth zone. As the popular-scientific literature has so far provided scant information on the amber-working zone of the eastern Baltic, this article summarizes the findings revealed by extensive archaeological research, particularly during the past forty years.

AMBER (SUCCINATE) RESOURCES IN THE EASTERN BALTIC

Attention has so far only been paid to the amber resources of Jutland and the Sembian peninsula in the present-day Kaliningrad region, Russia (pre-war Germany) (Fig. 1). Evidence reveals that amber was spread along the shore of the Litorina Sea in dune sand sporadically washed up by the sea and redeposited by the wind. Geological-geomorphological research performed in the Latvian littoral has uncovered rich amber-bearing dune zones on the west coast of the Gulf of Riga in the direct vicinity of Lake Engure (Eberhards and Saltupe 2000:141-147). The sites of 19th- and 20th-century amber pits have also been found in dune sands here as well as elsewhere on the western shore of the Gulf of Riga, at nearby lakes Babīte and Kaņiera, and the Ģipka Lagoon (Loze 2003b:202-208; Zagorska 2003). Thus, it appears that raw amber was not only found on the shores of the Litorina Sea, but also on the coast of the Gulf of Riga.

In the Late Neolithic, amber was also recovered from sand washed up by the sea. Wide-scale

archaeological research carried out in the Żuławy region of Poland, near the mouth of the Vistula River, confirms this (Mazurowski 1985:5-60, 1999:121-129). Hence it is possible to conclude that in the Latvian littoral, the unearthing and collecting of washed-up amber was an organized activity, and that amber working was conducted in specific areas.

A center of amber working appeared during the Neolithic period in the Lake Lubāns depression of eastern Latvia. Interestingly, it was in an amber-free zone situated 200-250 km from the amber-producing sites on the littoral of the Litorina Sea. The inhabitants of the Lake Lubāns wetlands were able to obtain amber either from the people inhabiting the environs of lakes Babīte, Engure, or Kaņiera, or through their own major expeditions to amber-producing sites. Regarding the manufacture of amber ornaments and the development of a far-reaching exchange system, the special significance of the Lake Lubāns depression was determined by its rather advantageous geographical position. Being located in the central part of the Eastern Latvia Plain, the Lake Lubāns depression—by way of the River Aiviekste, a tributary of the Daugava, the largest river in the eastern Baltic—was connected both with the littoral of the Litorina Sea, and the basins of the upper Volga and Dnieper, regions in the Neolithic eastern Baltic where amber ornaments have been uncovered.

Archaeological excavations conducted from the 1960s to the 1980s uncovered amber-working sites in nine settlements. Four of them (Nainiekste, Piestiņa, Suļka, and Zvidze) are of the Middle Neolithic period and were inhabited 3300-2250 B.C. The remainder (Abora I, Asne I, Eiņi, Iča, and Lagaža) date to the Late Neolithic, and are sites where amber working was

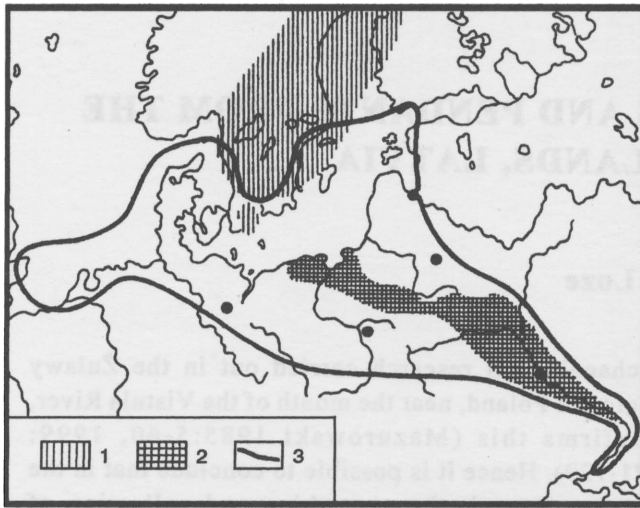


Figure 1. Amber and amber-producing deposits in the Southern Baltic (after Katinas 1966, 1971): 1, possible zone of primary amber deposits; 2, amber in tertiary deposits; 3, limit of spreading of shifted amber deposits (all drawings by I. Loze and Mārta Jaņkalniņa).

developed prior to 2250-1800 B.C. This article stresses amber working and the manufacture of beads and pendants during the Late Neolithic that are characteristic of the introduction of technological innovations.

AMBER WORKING OF THE LATE NEOLITHIC

The amber-working sites have produced both whole and broken beads and pendants, as well as fragments of rings, discs, and zoomorphic figurines. These sites are characterized by the presence of whole and broken ornaments, whole and broken semi-finished pieces in various stages of completion, and manufacturing waste such as chips and flakes, as well as pieces of unaltered amber.

The condition of the amber ornaments recovered from the Lake Lubāns depression depends on the nature of the soil. Amber found in peat is well preserved and neither the structure nor the color have been altered. Conversely, amber deposited in mineral soil (loam) has not only lost its natural color, becoming a dark brownish red, but has also suffered changes to its structure, thus requiring conservation.

Amber artifacts recovered from Late Neolithic archaeological sites in the Lubāns depression comprise 1,400 pieces. The majority were found at the

Abora I settlement site, with the rest coming from the Asne I, Eiņi, Iča, and Lagaža settlements (Fig. 2). In addition there are several hundred pieces of amber-working waste, as well as about 100 pieces of natural amber.

At the Lake Lubāns depression, the manufacture of amber beads and pendants, as well as other items, was carried out according to the amber-working techniques of the day. The stages include:

- selecting suitable amber pieces;
- flaking off the cortex;
- splitting the chunk into pieces of the required size;
- giving the selected amber piece the required form;
- creating the form of the appropriate ornament, and smoothing irregularities by retouch;
- processing the surface by polishing and grinding;
- drilling the perforation;
- polishing with a piece of hide or woollen cloth.

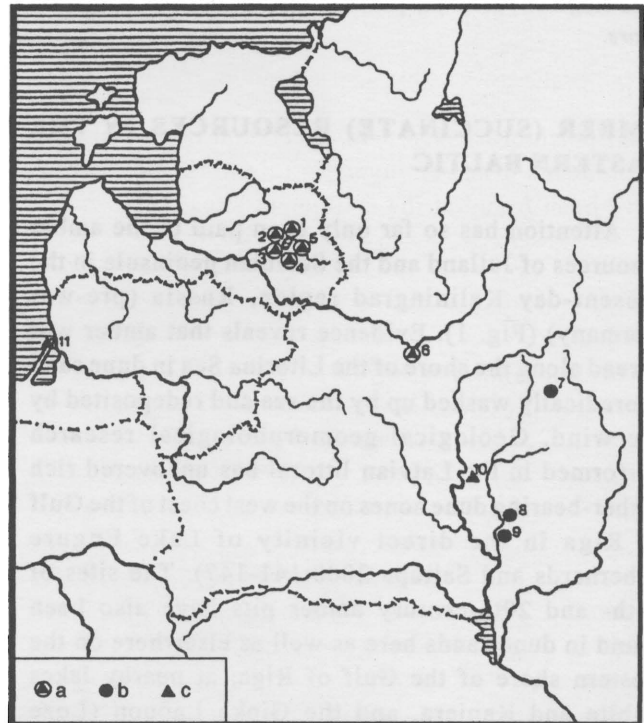


Figure 2. Distribution of tooth-shaped and key-head amber pendants: a, both forms; b, tooth-shaped pendants; c, key-head pendants. The sites: 1, Abora I; 2, Asne I; 3, Eiņi; 4, Iča; 5, Lagaža in the Lake Lubāns wetlands; 6, Asavets II in the Krivina wetlands (Belarus); 7, Pečkuri; 8, Proletariat village; 9, Strelitsa site; 10, Moshа Khodosovischi barrows in the Middle Dnieper region; 11, Juodkrante on the Kuršiu Spit (after Loze 2000).

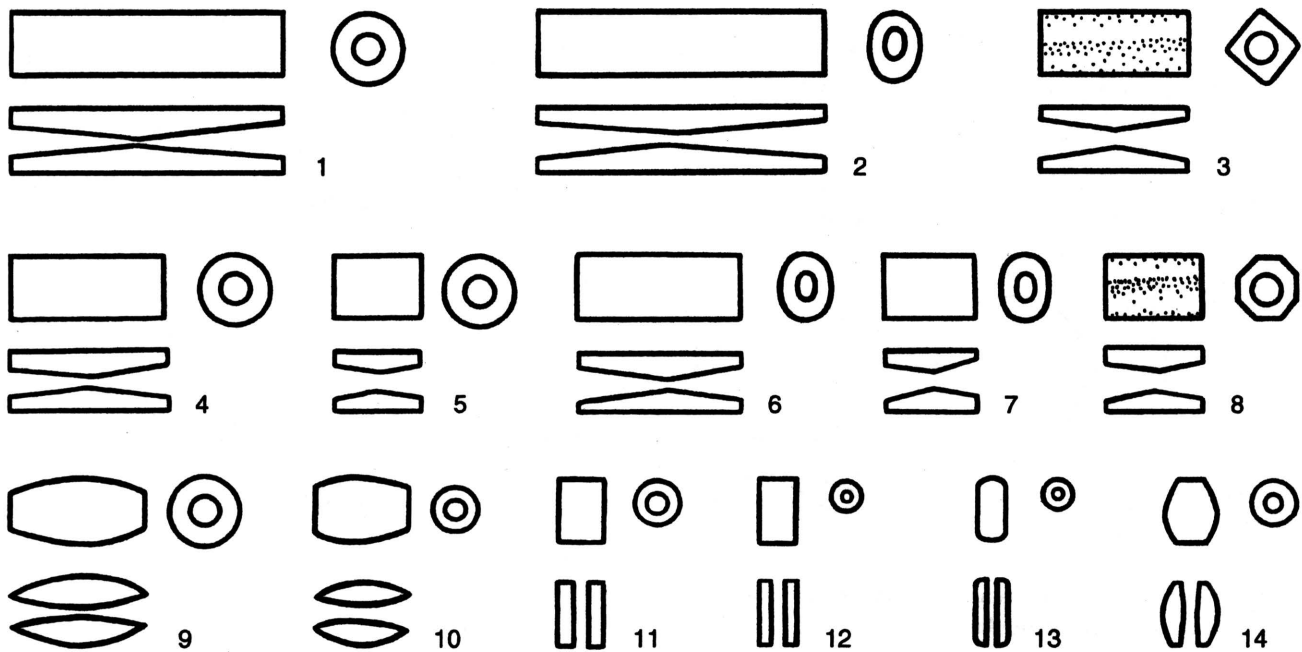


Figure 3. Types of amber tubular, barrel-shaped, and disc-shaped beads: 1, 4-5, tubular, round cross-section; 2, 6-7, tubular, oval cross-section; 3, 8, tubular, polyhedral; 9-10, 14, barrel shaped with flat ends; 11-13, disc shaped.

Flint perforators, scrapers, awls, and bone and horn implements were employed for this work, all of which have been found at the settlement sites.

Beads and Spacers

At the amber-working workshops of the Lake Lubāns depression, finished and partially completed beads comprise half of all the recovered amber artifacts. The Late Neolithic beads represent four forms: tubular, barrel shaped, disc shaped, and button shaped. As has been proved by studies at the Konchansk cemetery in the Novgorod region of Russia, the button-shaped beads were also attached to garments, and were not always strung (Zimina 2003:149-155, fig. 4).

Beads with Simple Perforations

The production technology exhibited by **tubular beads** of the Late Neolithic period differs little from that of the Middle Neolithic. It should be noted, however, that the process had been simplified, since the Late Neolithic amber workers had stopped producing tubular beads with a slight to distinct medial

bulge (Loze 2003a:fig. 5)(Pl. IXA). Based on the finds at Abora I and other Late Neolithic settlements (Asne I, Eiņi, Iča, and Lagaža), tubular beads of this period are cylindrical, less frequently with oval cross-sections and very slightly marked edges at their ends.

The cylindrical examples, which predominate, and the less frequently encountered beads with oval cross-sections are represented by both long and short forms. The former are 1.2-3.6 cm long, their diameters reaching 0.8-1.12 cm (Fig. 3, 1-2). The short beads are no longer than 0.7-1.0 cm, and measure 0.7-1.0 cm in diameter (Fig. 3, 4-7).

Found only at the Abora I settlement, polyhedral tubular beads measure 1.2-2.1 cm in length (Fig. 3, 3, 8). They may be rhombic or hexagonal in cross-section. They are found in relatively small quantities, attesting to the extra skill and time required for their production in comparison with the usual cylindrical beads.

The following production stages have been noted for cylindrical beads:

- preparing a naturally occurring cylindrical piece or a split piece for working;
- removing the surface from a cylindrical piece or gradually rounding a split piece by retouch;

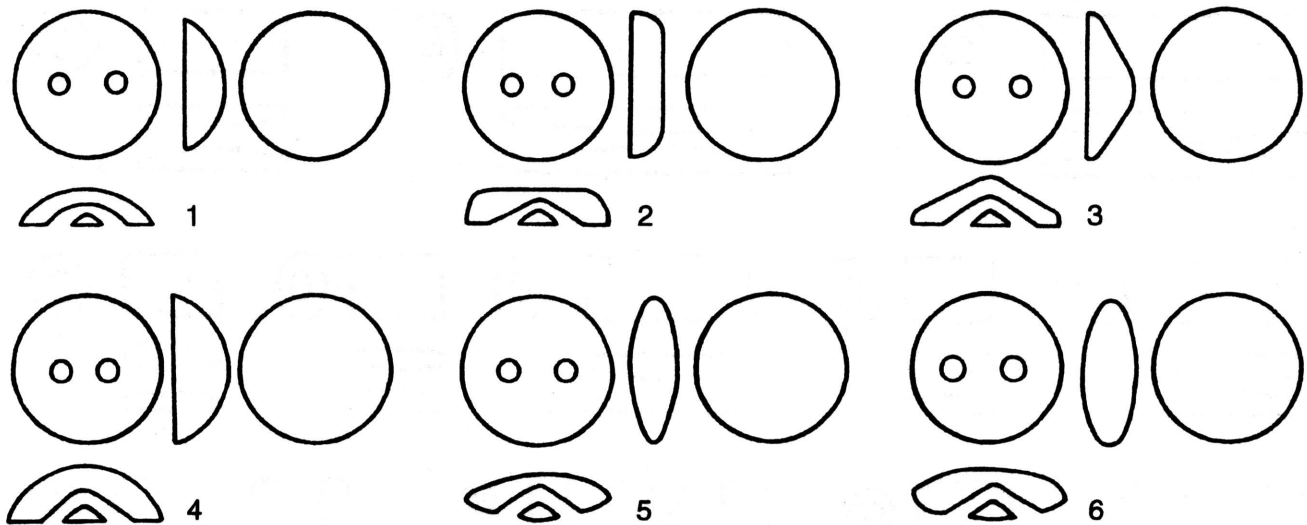


Figure 4. Types of amber circular button-shaped beads: 1, thin convex; 2, rectangular; 3, conical; 4, thick convex; 5, thin lenticular; 6, thick lenticular.

- smoothing and polishing the ends in preparation for perforation;
- perforating the bead from either end;
- smoothing the retouched sides;
- polishing the bead.

Differing from those of the Middle Neolithic, **barrel-shaped beads** were produced in a far more elaborate manner. Among them are both short and long specimens up to 2.5 cm in length and 1.0 cm in diameter (Fig. 3, 9-10, 14).

Disc-shaped beads with flat or rounded ends measure 0.5-0.8 cm in length, with diameters that range from 0.7 to 1.3 cm (Fig. 3, 11-13; Pl. IXA bottom).

Button-Shaped Beads with V-Shaped Perforations

In the archaeological literature, button-shaped beads with V-shaped perforation are also called buttons, and they began to be used more than 20,000 years ago (Arnal 1969:221-227). They were produced of various materials, including ivory and shell, but the mass production of amber buttons only began in Neolithic Europe, when they were in great demand. The largest Late Neolithic manufacturing centers for amber button-shaped beads are considered to be the lower Vistula and the eastern Baltic region, including the Kuršiu Spit (Czebreszuk 2003:164-169), from

whence Eastern Europe obtained them starting in the Middle Neolithic and extending to the period of the Eneolithic Cultures. These peoples subsequently adopted the amber-working techniques, and active individuals of the Bell Beaker Culture, or to put it more precisely, the contingent specializing in trade, spread amber button-shaped beads over Europe as far as the British Isles.

The Late Neolithic button-shaped beads from the Lake Lubāns depression are of circular and quadrangular forms; oval and triangular varieties are found less frequently.

Circular Button-Shaped Beads

Beads in this category are classified according to the form of their cross-section (Fig. 4): 1, convex, thin and thick; 2, rectangular; 3, conical; and 4, lenticular, thin and thick.

Their diameters range from 0.8 cm to 2.8 cm. Rather fine examples produced of honey-colored transparent and smoky amber, as well as bone-white amber, have been found (Pl. IXB). Amber combining all of these colors was also often used. The edges of these beautiful beads are decorated with fine notches.

Partially completed examples of circular button-shaped beads from the Lake Lubāns depression reveal the following production steps:

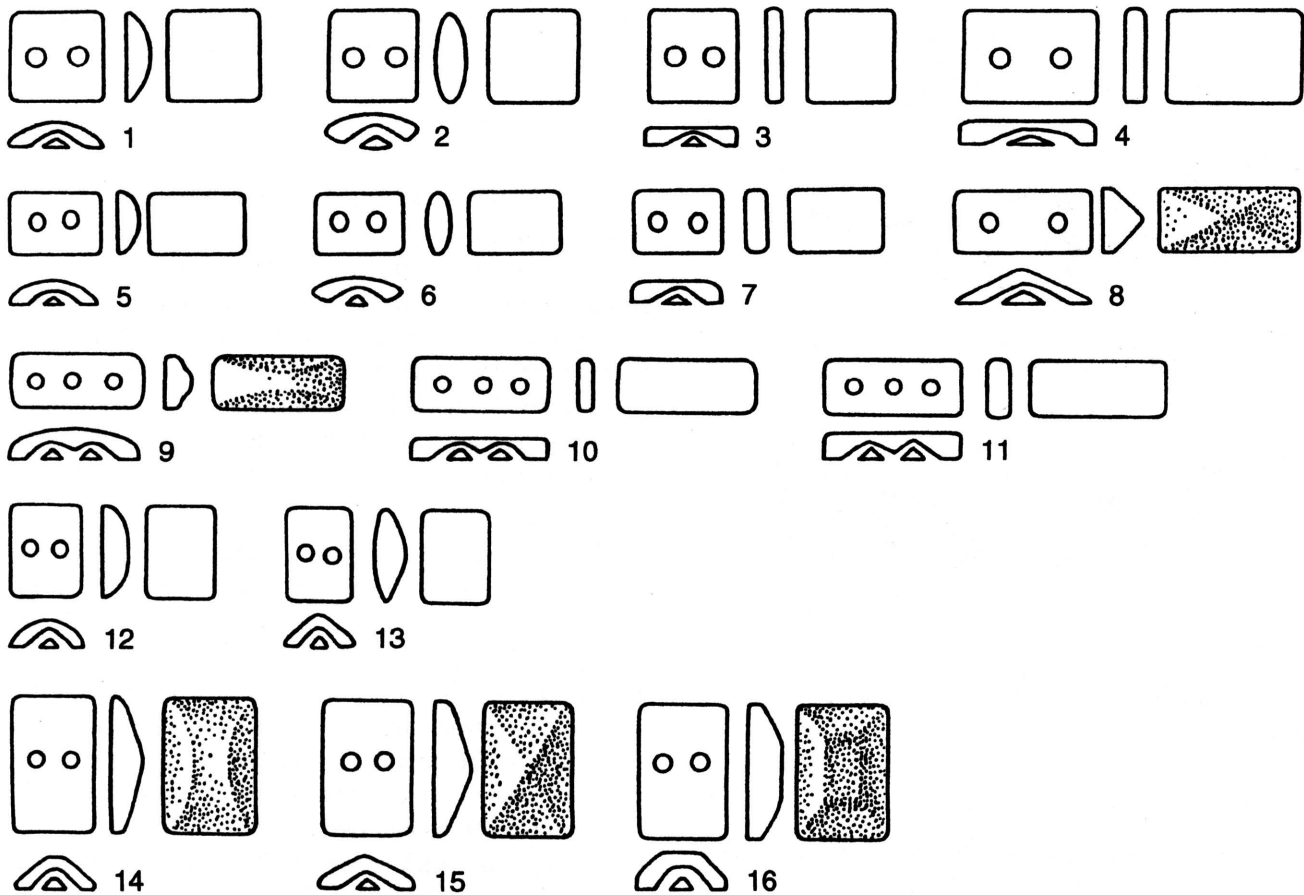


Figure 5. Types of amber quadrangular button-shaped beads.

- rounding the sides of a suitable, naturally circular or split piece;
- smoothing the surface and sides by retouch;
- basal polishing in preparation for perforation;
- thorough polishing of the face, sometimes even forming facets;
- creating a V-shaped hole from the back side;
- final polishing the surface and preparing the bead for use.

The sequence of polishing the face and then drilling the V-shaped perforation was sometimes reversed depending on the skill of the worker. Semi-finished pieces suggest that while a skilled person could safely produce a V-shaped perforation in a single plane after the surface was completely finished, a novice made it before the surface was

polished, fearing breaking the bead during the drilling process. The unfinished beads also reveal that several people were involved in the manufacturing process. The primary processing was performed by certain individuals who then turned them over to specialists who had good perforation skills.

Quadrangular Button-Shaped Beads

Beads in this group only appear during the Late Neolithic. The specimens from the Abora I settlement reveal the particular specialization and skill of the artisans who manufactured them. The beads are rectangular or square in shape with either sharply distinguished or slightly rounded corners (Pl. IXC). Their cross-sections vary, and the V-shaped perforations are aligned either along the transverse or

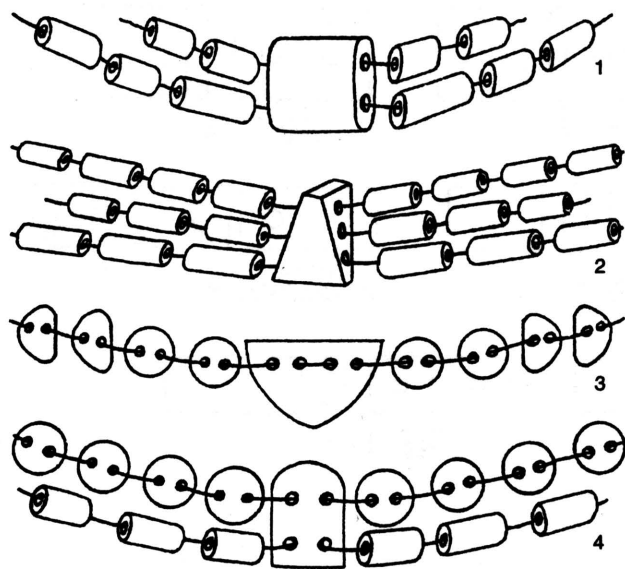


Figure 6. Types of amber spacers.

the longitudinal axis. Their surfaces may be polished smooth or faceted.

Eight categories are postulated:

1. square with convex, lenticular, or rectangular cross-sections (Fig. 5, 1-3);
2. short rectangular with the perforation set parallel to the longitudinal axis (Fig. 5, 4);
3. rectangular with slight differences in the length of the sides; having convex, lenticular, or rectangular cross-sections; and longitudinally-oriented V-shaped perforations (Fig. 5, 5-7);
4. long rectangular with a conical cross-section, triangular surface faceting, and a longitudinally-oriented V-shaped perforation (Fig. 5, 8);
5. narrow, long rectangular with three perforations, convex cross-section, and arch-shaped faceting along the long sides (Fig. 5, 9);
6. narrow, thin and thick rectangular with a rectangular cross-section (Fig. 5, 10-11);
7. rectangular with convex or conical cross-sections and perforations set along the transverse axis (Fig. 5, 12-13);
8. large rectangular with faceted surfaces; convex, conical, or truncated arch-shaped

cross-sections; and perforations set parallel to the transverse axis (Fig. 5, 14-16).

Spacers

In strands of beads, spacers were used to link both tubular and button-shaped forms. Based on the finds at the Abora I settlement, it appears that in the settlements of the Lake Lubāns depression, beads were strung in two to three strands. They are much simpler than those found in Central and Western Europe (Gardin 2003:180-198). In the Lake Lubāns wetlands, block spacers with two to three perforations (Pl. IXD top) were used to link tubular beads. The following are the principal types:

1. broad block spacers with oval cross-sections and two lateral perforations; they measure up to 2.0-2.3 cm in length, 2.5 cm in width, and 1.0 cm in thickness (Fig. 6, 1);
2. narrow block spacers with rectangular cross-sections; they are up to 3.3 cm in length, 1.5 cm in width, and 0.9 cm in thickness;
3. narrow block spacers with sharp oval cross-sections and two lateral perforations;
4. pyramidal block spacer with a regular triangular cross-section and lateral perforations (Fig. 6, 2).

Two types of spacers were used to link button-shaped beads.

1. trianguloid with a pair of symmetrically situated V-shaped perforations along the longest edge (Fig. 6, 3);
2. quadrangular with a rounded upper edge and two sets of V-shaped perforations set parallel to the transverse axis (Fig. 6, 4).

Large circular or quadrangular button-shaped beads with two V-shaped perforations drilled in the back were also utilized as spacers for strands of smaller button-shaped beads with only one V-shaped perforation.

Also worthy of mention is a cloven conical ornament with a vertical perforation. Judging from the ornament complex it belonged to (which consisted of four tooth-shaped pendants perforated from the back and the top), the conical ornament had been used as a

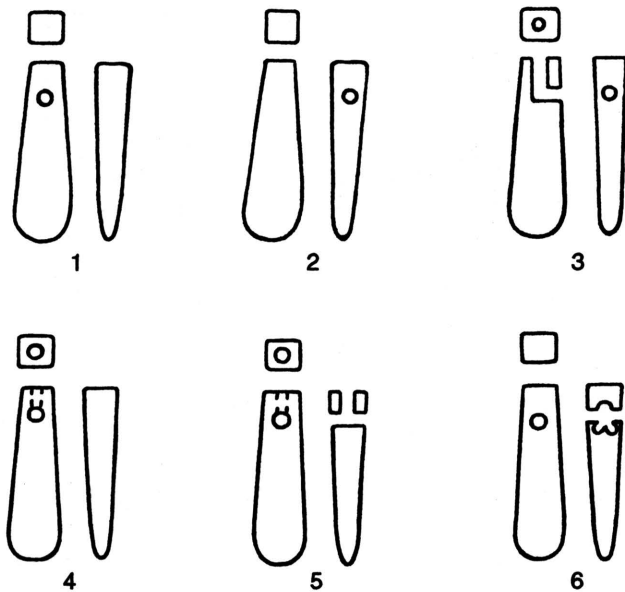


Figure 7. Perforation types of tooth-shaped pendants: 1, frontal; 2, lateral; 3, from the top and side; 4, from the top and back; 5, from the top, back, and both sides; 6, from the back and two sides.

spacer for the pendants, the tiny strings used for attachment having been threaded through the conical spacer (Loze 1975).

Pendants

In the Late Neolithic settlements of the Lake Lubāns depression, pendants form the second largest group of ornaments after beads. They include irregular amber pieces with a frontal perforation, as well as specially manufactured symmetrical examples of irregular form. Among the latter, tooth-shaped and key-head pendants bear special mention as they were made with new types of perforations which were drilled from two adjacent faces. This innovation not only raised the production quality of these pendants to a new level, but also ensured the arrangement of complicated ornaments in which the pendants played a subordinate role, being attached to larger, rather impressive figural pendants.

Tooth-shaped and key-head pendants perforated from two faces may be considered as characteristic of the ornaments produced in the amber workshops of the Lake Lubāns depression, since this perforation method was not used either on the Kuršiu Spit, or at the

Šventoji settlements of the Lithuanian littoral. In the Lake Lubāns depression, the pendants were made of transparent, smoky, and bone-white amber, which gave them a splendid appearance and testifies to the high aesthetic demands of the amber workers. The introduction of the new perforation technologies made it possible to attach them in many different ways; they could be strung, fixed to garments or headgear, or incorporated into complex ornaments.

Tooth-Shaped Pendants

Six types of perforations have been recorded for the tooth-shaped pendants of the Lake Lubāns depression and form the basis for their classification (Fig. 7, 1-6): 1, frontal; 2, lateral (from both sides); 3, down from the flat top and in from one side; 4, down from the top and in from the back; 5, down from the top, and in from the back and from both sides; and 6, in from the back and two sides.

Tooth-shaped pendants include broad and narrow examples (Pl. IXD bottom). Their lower edges may be straight or curved. Some specimens exhibit scrupulously finished lateral facets, which give the upper end a quadrangular form. The upper ends of pendants that lack such facets are round or oval.

The pendants with the first type of perforation (frontal) are not common. Those with lateral perforations include symmetrical and asymmetrical pendants without finished lateral facets. Several fine, broad examples with lateral facets are in the collection and these were the best for necklaces. One such necklace was found in a rich grave of the Middle Dnieper Corded Ware Culture in Belarus (the Strelitsa cemetery), where the string consisted of 21 such amber pendants arranged in a circle inside what may have been a copper diadem (Loze 2000:fig. 4). The form of the pendants might have been borrowed by local amber workers, or the pendants could have been imported from the Lake Lubāns depression via inter-tribal exchange.

Among the tooth-shaped pendants of the third perforation type (from the top and one side) there are few broad examples—the narrow ones prevail, and one of them is of cylindrical form.

Pendants with perforations drilled from the back and from the top (type 4) were produced in large

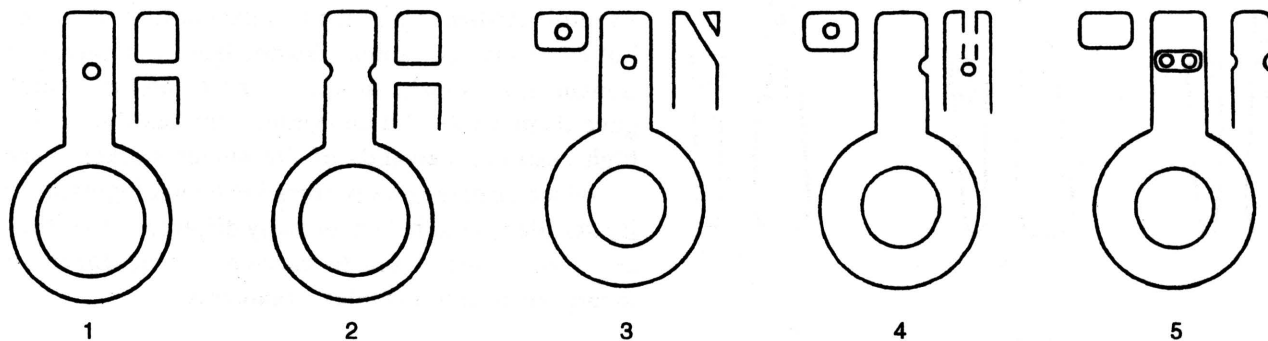


Figure 8. Perforation types of key-head pendants: 1, frontal; 2, lateral (from both sides); 3, from two adjacent faces; 4, from the top and one side; 5, complex.

numbers. Among them were many variants, which differed in their cross-section (rectangular, circular, lens-shaped, oval, flattened oval, and irregular), as well as the processing of the sides and bottom edge. Inconsistency between the cross-section of a pendant and the form of the upper end has also been noted. The pendants are 2.0-4.5 cm long and under 1.1 cm in thickness.

Pendants with complicated perforations (types 5 and 6) were made less frequently, since special skill was needed to perforate them and not break the ornament.

Partially completed tooth-shaped pendants reveal they were made by experts. Their production process includes the following stages:

- forming a contoured blank by splitting and retouch;
- smoothing the top face and sides;
- processing the surface by retouch;
- polishing the surface (horizontally, obliquely, or vertically) and sides (only vertically, sometimes from opposite sides);
- perforating the pendant on the polished surface.

Amber tooth-shaped pendants have also been found in the upper reaches of the Daugava River basin at Asavets II, the Late Neolithic habitation site on the bank of the Krivina, a tributary of the Daugava. The pendants include a few examples similar to the type 3 and 4 pendants from the Lake Lubāns depression (Charniauski 2001:142, fig. 2). These pendants could also have come from amber workshops of the Lake Lubāns depression, either from the Abora I or Iča settlement.

In the Late Neolithic, the amber-working specialists of the Lake Lubāns depression who made V-shaped perforations in button-shaped beads and had introduced the techniques for perforating tooth-shaped pendants, utilized both perforation methods to construct complicated ornaments. Taking a large amber pendant with a lateral perforation, which was a splendid ornament by itself, it was possible to drill one or more V-shaped perforations in their lower edge through which, by means of a tiny string or strip of hide, big tooth-shaped pendants with perforations from the top and the back could be suspended (Pl. XA). In the case of tooth-shaped pendants with perforations from the top and one side, two such pendants with perforations in opposite sides could be mutually linked. They could, therefore, be used to create other composite ornaments where the attachment of paired tooth-shaped pendants increased the impressiveness of the ornament.

Key-Head Pendants

Amber workers in the Lake Lubāns depression in the Late Neolithic and Early Bronze Age got stimulac for manufacturing key-head pendants from the Kuršiu Spit and other European regions. Twenty-one key-head pendants were found at the Abora I and Iča settlements

These pendants, which resemble the head of a key, have a long or short stem projecting upward from a perforated disc (Pl. XB top). The discs are either round, oval, or flattened oval. The stem and disc are in a proportion of 1:1, 2:1, or 1:1.5. The hole in the center

of the disc varies. The cross-section of the stem is either round, oval, or quadrangular.

Five perforation types have been recorded:

1. frontal (Kuršiu Spit) (Fig. 8, 1);
2. lateral (Fig. 8, 2);
3. from two adjacent faces (from the top and the back)(Fig. 8, 3);
4. from the top and one side (Fig. 8, 4);
5. complex: from the back with two smaller perforations from the sides intersecting the larger one (Fig. 8, 5).

Miscellaneous Pendants

Drop-shaped pendants have been found at the Eiši and Dziedziste settlements. The Eiši specimen is medium size (3 cm long) and manufactured of fully transparent amber of the highest quality. It resembles a large raindrop with a biconical perforation in its narrow end (Pl. IXD top, left). The pendant from the Dziedziste settlement is smaller (2.5 cm long) and is also made of transparent amber with a conical frontal perforation.

Disc-shaped pendants are comparatively rare. One of them, found at the Eiši settlement, is made from an oval disc with a hole in the middle and a biconical perforation at the top. It has a nice appearance, being made of matte amber with different brownish and yellowish tinges (Plate IXD top, right).

It is also worth noting several other types of pendants which were used in the production of complicated jewelry. These include a piece of an unfinished **semi-circular pendant** which had a sufficiently broad and thick lower edge to accommodate a V-shaped perforation.

Also of note is a **cloven conical pendant** with lateral perforations and a perforation along its vertical axis. The lateral perforation suggests how the pendant was worn: it could either be attached to a garment or placed in the center of a string, simultaneously having a tooth-shaped pendant with a perforation from the top and back suspended from it. Such use was documented in a disturbed grave at the Abora I settlement (Loze 1975:66, fig. 10, 1).

Figurine Pendants

The figurine pendants found in the Lake Lubāns depression reveal that the Neolithic peoples had surprisingly rich imaginations. Three-dimensional zoomorphic or symbolic figurines predominate. It goes without saying that their manufacture was linked to the demands of the people's spiritual life. It is, therefore, essential that we not only analyze the form, but also the symbolic implications of the figurines.

A possible zoomorphic pendant seems to represent a reptile (Pl. XC). It is flat with a slightly concave surface. The neck is indistinct; the eyes are bored, but the mouth is not marked. The rather broad body is asymmetrical. Two projections on one side add plasticity. The gradually narrowing lower part with a lateral perforation is broken. The figurine, manufactured of the highest quality transparent amber, lacks finishing touches.

A figurine of similar manufacture was found among the grave goods accompanying a 2- or 3-year-old child at the Abora I settlement (Pl. XD, right). It is an easily recognizable snake-like creature because of its lithe body, two drilled eyes, and a groove for the mouth at the upper, fairly bulky, end. It does not have the relative dimensions of a snake, possibly because the maker might not have had a sufficiently long piece of amber at hand. It most likely represents a grass snake because the figurine lacks the zigzag stripes typical of an adder which appear on the bone and antler figurines at the Abora I and Zvidze settlements. The figurine consists only of the head and the upper part of the body. Replacing the whole object with a part of it is a rather characteristic feature of Stone Age art.

Another figurine pendant was found next to the snake-like one. It is more problematic and, therefore, allows for different interpretations (Pl. XD, left). The lower portion exhibits a lateral perforation. It may be difficult to distinguish a zoomorphic figurine, but it is a two-headed creature. It is interpreted as an example of an interesting ornament with symbolic meaning which demonstrates the skill of the amber workers where a snake-like figurine is complemented with a pendant of similar type.

Another rather unique amber figurine pendant was uncovered at the Asne I settlement and, like those mentioned previously, is devoid of any known analogy. It is formed of a large, thick piece of amber and resembles a broken oval mushroom cap. It has a swelling with a hole in the center of one side, but the outer edge of the other side is decorated with 14 holes, each with the same diameter. It is likely that the holes represent units of time based on the phases of the moon. It cannot be doubted that the figurine pendant possessed a symbolical meaning.

Drilled decoration also appears on the surface of a rounded triangular amber pendant. The holes are arranged in two symmetrical rows: two in the upper row and four in the lower row. The bottom edge is slightly rounded. Such decorations also characterize Late Neolithic ornaments in the Juodkrante collection (Klebs 1882).

CONCLUSION

During the Late Neolithic, as in the Middle Neolithic, tubular beads enjoyed particular popularity in the Lake Lubāns depression. Judging from the large quantity of broken unfinished items, the manufacture of them, compared to the production of button-shaped beads and pendants, undoubtedly demanded more highly skilled workers. Cylindrical beads were also made by beginners who had not yet acquired the appropriate skills for this work. During the drilling process, these beads mainly broke along their longitudinal axis. Breakage occurred less frequently along the transverse axis. When this happened, the broken piece was fashioned into a short tubular or disc-shaped bead. Tubular amber beads were also manufactured during the Eneolithic, but did not continue into the Bronze Age.

Globular beads, like those found at the Middle Neolithic Sulka (fine specimens) and Nainiekste (unfinished pieces) settlements, were no longer produced during the Late Neolithic period. One can only guess how the globular beads—which the world of the Mycenaeans got to know several thousand years later—could be produced in the Lake Lubāns depression (one of the most intensively inhabited micro regions of Europe) at such an early date.

Of great antiquity, amber button-shaped beads, generally circular or quadrangular in form, were also popular ornaments in the Lake Lubāns depression during the Late Neolithic. They were worn both strung and attached to garments.

Button-shaped beads are particularly well represented in the Late Neolithic grave-goods of a male buried at the Abora I settlement. Of these, the large rectangular specimens with scrupulous surface faceting deserve special mention. These were strung together with other quadrangular and circular button-shaped beads. This testifies to the existence of strong canons concerning the production of quadrangular beads and the scrupulousness involved in compiling the strings. Who was this individual of around 30, whose grave goods included a string of 27 beads? This person was buried in a grave together with two women and an individual of indeterminate sex, with no differences in their grave goods. This person may have occupied a significant position in Late Neolithic ranked society. This may be why his grave goods not only included the skilfully manufactured button-shaped beads (which served as a model for the classification of quadrangular button-shaped beads from the archaeological settlements of the Lake Lubāns depression), but also an imported object—a slate spearpoint with a rhombic incised design.

Pendants were also very popular in the Lake Lubāns depression during the Late Neolithic. The elongated-trapezoidal and oval pendants with a frontal perforation which predominated during the Middle Neolithic (Pl. XB bottom) were replaced by tooth-shaped and key-head pendants. The former were represented by particularly original ornaments which were not produced outside the Lake Lubāns depression. They were the first to be used as subordinate elements in the production of multi-component ornaments. They were attached to V-shaped perforations along the bottom edge of a larger pendant which had a lateral perforation at the top.

As for the key-head pendants, discussion is ongoing concerning who might have worn these ornaments. An opinion is held that it may have been women. This is based on findings at the Abora I settlement where, in grave no. 33, two key-head pendants were found under the lower jaw and skull of a woman. As revealed by finds in female graves in the Lake Lubāns depression, amber key-head pendants were either worn independently or incorporated into

complicated ornaments in the same way as described above for amber tooth-shaped pendants.

The amber key-head pendants uncovered at the Abora I settlement have been produced at different times as the manner of production differs among them. Several specimens are similar to those from the Kuršiu Spit—they are disc-shaped with a fairly broad upper part and a frontal perforation (Klebs 1882). Some archaeologists believe that these pendants relate to the Bronze Age; namely, their age coincides with the period of classical Unetice culture in Central Europe.

Finds of partially completed amber key-head pendants at the Abora I settlement provide evidence that they were manufactured locally. In the manufacturing process, a piece of amber was first worked into a rough form and then a disc with a shorter or longer stem was formed. Its surface was subsequently carefully retouched and finely ground. The grinding made the retouched part smooth and only then was the middle of the disc bored and a perforation drilled in the upper part.

Prototypes of key-head pendants may be sought in the southern part of Eastern Europe. Amber was used for their manufacture only in the Eastern Baltic and from there they could reach the Middle Dnieper as, for example, a specimen was found in grave no. 1 of barrow 11 at the Moshka Khodosovichi burial ground near Mogilova. The grave was discovered at the beginning of the 1960s (Loze 2000:71). The object is a ring-shaped pendant with a long stem and a complicated perforation at the back—a big hole is connected to two smaller ones bored in the direction of the lateral faces. Such a perforation had previously only been known from amber ornaments produced in the Lake Lubāns depression.

The pendant was found together with a stone battle axe, a flint wedge-shaped axe, and flint knives and arrowpoints. All this is typical of the Middle Dnieper Corded Ware Culture. Two copper spectacle-shaped pendants and a spearpoint were found there as well. It is very likely that the amber pendant, the same as those from the Lake Lubāns depression, dates to the time of the aforementioned culture.

It is possible that the amber pendant found in the Middle Dnieper basin was brought from the Eastern Baltic, namely, the Lake Lubāns depression. It is also possible that it is the result of mutual cultural contacts

and spheres of influence as the copper spectacle-shaped pendants were produced based on examples from the Middle East. Thus, it is very likely that the Dnieper was a major waterway that played a significant role in promoting cultural change in the Middle Dnieper region during the period from 2300 to 1700 years B.C.

Prototypes for the key-head pendants might also be the copper and gold pendants of similar shape found in the Northern Balkans and Anatolia (Turkey), though they bear the greatest resemblance to pendants of the Aegean Late Neolithic and Early Bronze Age (Aegean AB II and AB III phases) of the period 3000-2500 years B.C. (Makkay 1976:250).

It is also interesting to note that amber ornaments in the Aegean Sea basin, the Peloponnese, and southeastern Thessaly were manufactured only in some settlements in the Aegean Late Bronze period which corresponds to the Middle Bronze Age in northern Europe. Thus, one may conclude that amber from the Eastern Baltic had not yet reached the Aegean Sea basin during the Early Bronze Age.

Heretofore, there was no definite evidence that the Dnieper had a role in conveying amber to the northern and southern coasts of the Black Sea. The outstanding researchers of Mycenaean culture—Anthony Harding and Helen Hughes-Brock—believe that in the years 1600, 1500, and 1200 B.C., amber was brought to Greece from the northern parts of Europe; but it was from the southeastern coast of the British Isles, not the Eastern Baltic (Harding and Hughes-Brock 1974).

The distribution of key-head pendants in such a vast territory (the Aegean Sea basin, Macedonia, Thessaly, Hungary, Slovakia, the Middle Dnieper, the Middle Volga, and the Eastern Baltic) testifies to their specific role in the symbolism of the Late Neolithic, the Eneolithic, and Early Bronze Age that is closely related to the dissemination of a definite world outlook in the territories that were already under Indo-European influence.

Unlike the amber workers of the Middle Neolithic, those of the Late Neolithic occasionally produced special figural ornaments. It is likely that these were the work of experienced specialists who utilized their inventive faculties and professional skills to produce zoomorphic pendants representing such animals as snakes and lizards. These ornaments were relatively

large and not only represented actual animals, but also had symbolic meaning.

The working of amber ceased in the Lake Lubāns depression at the end of the Eneolithic, when the inhabitants of the region moved outside the wetlands. The rather scanty amber finds at Bronze Age sites in other parts of Latvia confirm that the new amber-working technologies introduced in the Lake Lubāns depression during the Late Neolithic were lost forever with the coming of the Bronze Age.

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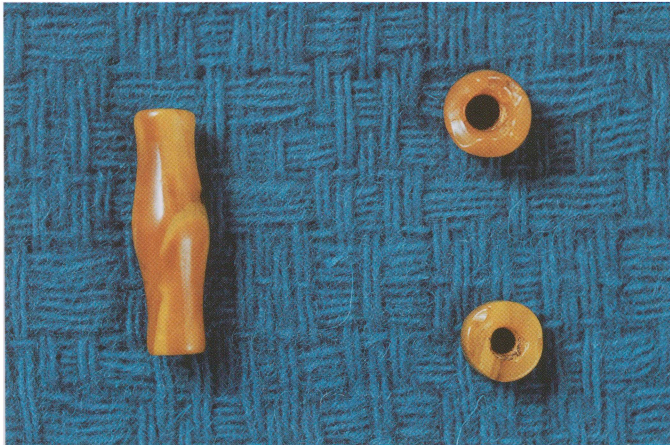
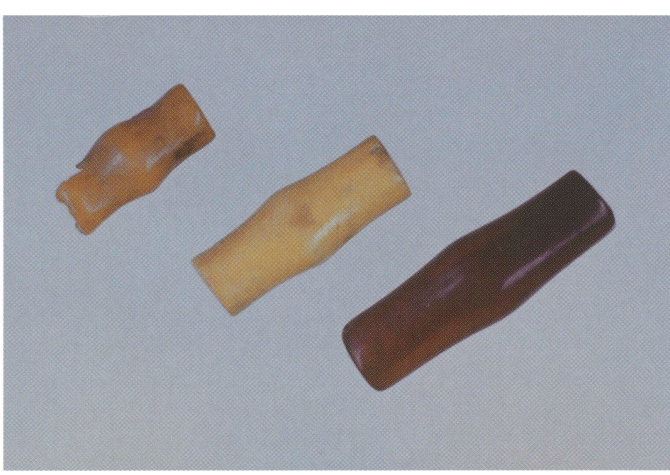


Plate IXA. *Amber:* **Top:** Tubular beads with medial bulges, Zvidze settlement, Middle Neolithic; length: 1.3-2.4 cm. **Bottom:** Tubular bead (1.2 cm long) with medial bulge and disc-shaped beads, Nainiekste settlement (photos: E. Ošs).

Plate IXC. *Amber:* **Top:** Rectangular button-shaped bead, Abora I; 2.6 cm long, 1.5 cm wide, and 0.5 cm thick. **Bottom:** Unfinished rectangular button-shaped bead, Abora I; 3.0 cm long, 1.8 cm wide, and 0.85 cm thick (photos: I.B. Loze).

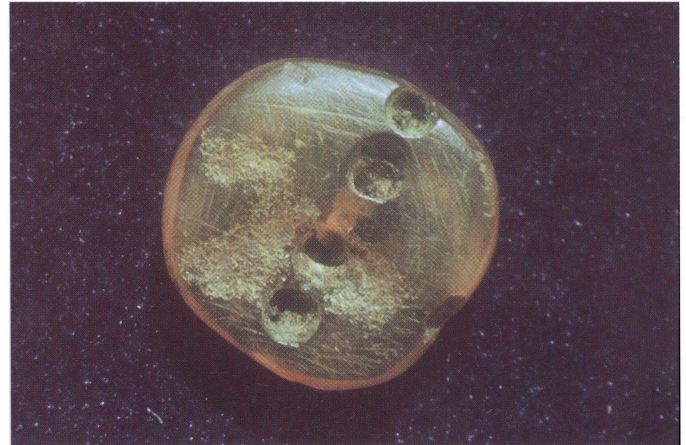


Plate IXB. *Amber:* Circular button-shaped bead, front (top) and back (bottom), Abora I settlement; diameter 2.5 cm (photos: I.B. Loze).

Plate IXD. *Amber:* **Top:** Rectangular spacer (top), Lagaža settlement, and drop-shaped pendants, Eiņi settlement; length: 1.9-3.9 cm (photo: I.B. Loze). **Bottom:** Tooth-shaped pendants, Abora I; length: 2.1 cm, 3.7 cm, and 2.9 cm, respectively (photo: E. Ošs).





Plate XA. *Amber:* Complex two-part ornament—a large pendant with three V-shaped perforations at the base and a tooth-shaped pendant from Abora I; length: 5.9 cm and 3.9 cm (photo: E. Ošs).

Plate XC. *Amber:* Reptile-like pendant, Abora I settlement; length 5.7 cm (photo: I.B. Loze).

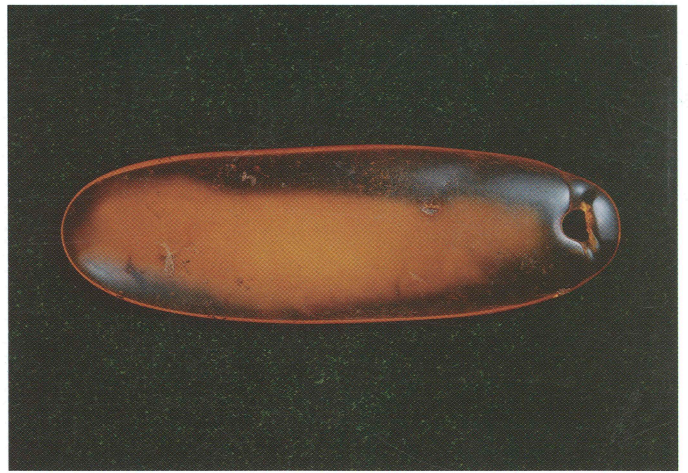
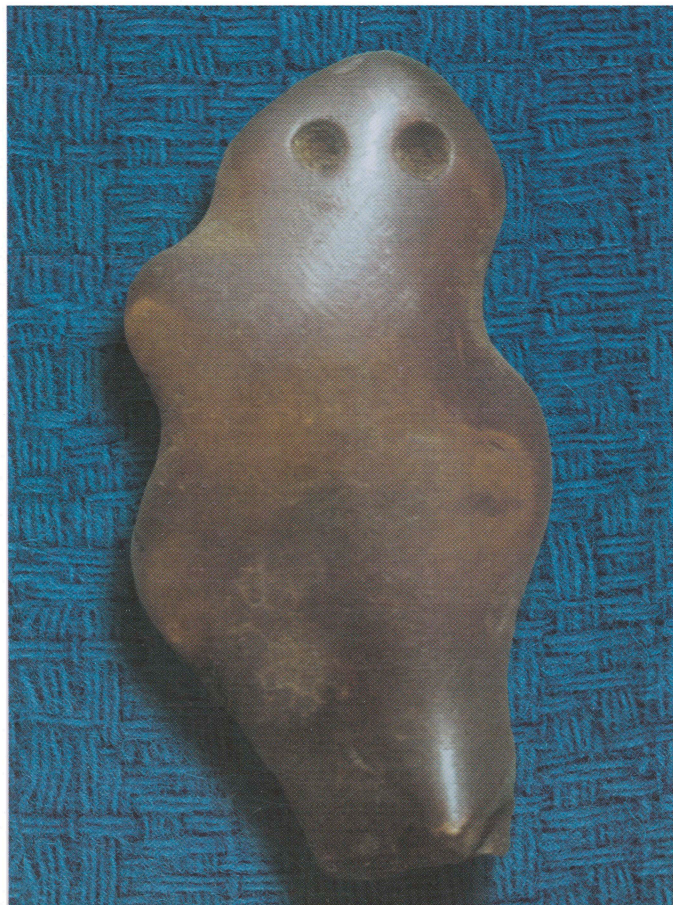


Plate XB. *Amber:* **Top:** Key-head pendants, Abora I; length: 2.6 cm and 2.1 cm. **Bottom:** Oval pendant, Dzedziekste settlement, Middle Neolithic; length: 9.1 cm (photos: E. Ošs).

Plate XD. *Amber:* Two-headed zoomorphic pendant and a grass-snake pendant, found together in a child's grave, Abora I; length: 6.6 cm and 5.5 cm, respectively (photo: I.B. Loze).

