

УДК 903.01 903.2

TRACEOLOGICAL EVIDENCE FROM THE LATE TRIPOLYE DAGGER-LIKE BONE OBJECTS¹

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Two contexts attributed to the later half of the Tripolye CII stage are reported to yield similar dagger-like bone artifacts. One of them was recently discovered in Kurgany-Dubova, and another was found long ago in the burial ground of Ofatinți. The use-wear modifications seem to cluster upon broad side as well as within fixing eyelet of the object from Kurgany, to suggest that the non-tool accessory item was actually hung up to carry it around. The Ofatinți object, in its turn, lacks any distinct utilization marks. Its perforation seems to contain nothing but hand drilling traces. Such evidence may reaffirm the highly probable inferences for the Ofatinți object as a statuary amulet which was thought to be stylistically similar to some clay anthropomorphic figurines. Basically, the Cucuteni-Tripolye bone industries include diaphyseal lamellae used in various tool types equipped with highly worn-out edges. These still require traceological examination to reveal their functions as equipments. In fact, in artifacts from Kurgany and Ofatinți the quasi-working parts are presented, yet these are not worn-out at all. The lamellar idols from Kurgany and Ofatinți with perforated heads and dotted ornamentation seem too different from daggers of the Brînzeni group with incised linear décor.

Keywords: archaeology, Eastern Europe, the Chalcolithic, the Cucuteni-Tripolye, bone industry, daggers, idols, use-wear analysis.

An essence of the research issue

The pit feature No. 25 discovered from under the late Tripolye house debris in Kurgany-Dubova has yielded the decorated bone object. Here, the special emphasis is placed upon artifacts from Kurgany-Dubova and Ofatinți (a.k.a. Vykhvatintsy) (fig. 1: 1, 2), with those special surface modifications effected from manufacture and use. In the raw material expertise section, the observations on blanks' origin are represented, and the natural contribution made to the artifacts' morphogenesis is adduced. Further, the artifacts' position in the functional and technical classification of the Cucuteni-Tripolye bone inventory is specified. The traceological section reveals the traceogenesis of detrition, polish, and gloss, as well as linear and pit formations. The surface modifications such as tiniest manufacture marks and use-wear traces were detected applying stereo microscope "MBS-9". The close-up pictures were made using the digital camera with Canon MP-E 65mm f/2.8 1-5x Macro Photo lens. The stacking of partially focused shots into fully focused images was made by the Helicon Focus software, and the

measurements were detected by that of the Altami Studio.

A comparative identification between various dagger-like objects is not an issue of great recency. Such items have long been classified in various ways. Many flat and oblong and beveled tubular bones objects from Koshylovtsy-Oboz and Bilcze Złote-Werteba with perforated handles, for that they might be hung up, as well as unperforated ones, have been initially defined as knives or daggers (Hadaczek, 1914a. P. 433-434; 1914b. Pl. IV: 18, above; V: 28-31). At the same time, the exact term "daggers" was applied to those well-patterned pieces which were thought to imitate bronze weapons (Hadaczek, 1914a. P. 435; Hadaczek, 1914b. Pl. V: 27). Lately, the decorated object from Werteba, as well as other such finds, was considered to be imitation of the Cycladic blades (Маркевич, 1981. С. 96, 97) or even an imitation of some kind of wooden daggers. According to this viewpoint, the ornamental carvings may represent a sheath equipped with a loop, or an eyelet, to carry a dagger attached to the belt (Богаевский, 1936. С. 278. Рис. 195: 2; Богаевский,

¹ The research is carrying out within the project "Between Sunset and Sunrise: the Dynamics of Social Changes from the Eastern Carpathians to the Dnieper in the 4th – beginning of the 3rd millennium BC" (NCN Opus 8 2014/15/B/HS3/02486)).

1937. С. 101, 215-216. Рис. 51: 2). The interpretation takes into account the similarities in designs of the smart items made of various materials, as well as miniature sizes of the Werteba bone object of only 92 mm long and 16 mm wide. This one appears to be a ceremonial armament which has been used somewhere in hunting as well. At the same time, undecorated specimens from roughly coeval site of Koshylovtsy-Oboz evidently made from front or back sides of the red deer, elk, or cattle metapodials have been defined as burnishers used in smoothing wrinkles of leather or finishing moist clay products (Богаевский, 1936. Р. 290, 294. Рис. 205: 1-3; Богаевский, 1937. С. 80, 215-216. Рис. 35).

The smart-looking and carefully crafted double-edged bone daggers have long been thought to imitate metallic weapons (Turcanu, 2012) or, in another part, to pose a distinct blade knives category within bone industries of the Late Chalcolithic (Ткачук, 2012).

According to T.S. Passek, the decorated daggers seemed to include the daggers proper and the anthropomorphic amulet from the grave No. 9 in Ofatinți and one more from Werteba. T.S. Passek ascribed the amulets' emergence to the cultures of the Danube area and the Balkans, emphasizing similarities between clay figurines and bone amulet's decorative style (Пассек, 1954. С. 86-89, 92. Рис. 44: 1; 46). While discussing finds from Brînzești-Țiganca, Werteba, Vărațic-Dealul, Ofatinți, Costești IV, Cubani, and Khorjev-1, V.A. Dergacev differentiated between objects from Ofatinți and Khorjev-1 and the rest in the assemblage, separating all those daggers from laminate burnishers (Пассек, 1954. С. 85. Рис. 41: 1; Дергачев, 1978. С. 13, 38. Рис. 6: 6, 18; II: 4; Дергачев, 1980. С. 65, 72, 100,

116. Рис. 15: II, 1-3; 28: 33; 30, 39-41). Also, V.A. Dergacev included the Ofatinți find into the range of the *schematic flat figurines* and with that he emphasized similarities of this *dagger* to some human statuettes of the Balkan and Danubian Chalcolithic (Дергачев, 1978. С. 13, 39. Рис. 5: 20; 19: 3; Дергачев, 1980. С. 100. Рис. 28: 34; see also Маркевич, 1981. С. 97). The oblong tools with broad faceted ends have been then separated as supposed burnishers and

chisels (Маркевич, 1981. С. 16, 39, 95, 97. Рис. 5: 2, 3, 6; 49: 11).

Hence, the imitation and stylistic interrelations as morphogenetic agencies affected the Tripolye bone industry have been revealed during considerations discussed above. Further, the decorative elements and patterns became the basis to classify ornamented objects by isolating daggers as tools and weapons from figurines and figurative daggers. On the other hand, the unpatterned burnishers and chisels with paddle-like working ends have been recognized for lack of parallel blade edges. There also some unexamined relations exist between raw material configurations and tool shape, a research problem which is here to stay.

Raw material structure and morphography

The Kurgany-Dubova object is made of a lamellar blank taken from a side part in proximal half of the cattle or cervidae metacarpal. It is cambered in the side view with segmented marrow cavity left on its convex surface (fig. 1: 1a). The natural diaphyseal outer surface is preserved on the concave side (fig. 1: 1c). The edges are damaged nearly everywhere, and when the bone has been discovered the amorphous crumbling rot was in hand instead of its missing pieces. The sides of the blade and its narrow end once appeared to be evidently rounded with no such sharpening which cutting tools made of copper, flint, or bone, may have.

The extant object's length of some 118 mm is a part of the initial entire length of ca 127 mm (рис. 2: 1). The corresponding dimensions for a widest part of the blade are of 28 and 32 mm, and the cross-sections are 7.0-8.0 mm thick. The perforation's outside and inside diameters are 5.5-6.0 mm.

The Ofatinți object's length is 150 mm, its widest part is of 30 mm, and the cross-section is of 8.0 mm thick (fig. 1: 2; 2: 2). The perforation's caliber is between 3.0 and 3.5 mm, with the rim around it of 6.0-7.0 mm in diameter. The piece preserved the outlines of a lamella from long tubular bone diaphysis. The cavity structures of the skeletal element were removed entirely by the manufacture.

Both pieces are relatively small-sized with natural configurations of long bones diaphyses preserved residually, so they have to be attributed to the *convertat* technoclass (Pankowski, 2017). The blanks were extracted from bones by splitting them lengthwise.

Bone surface modification patterns

The Kurgany-Dubova sample

On the convex side, along one of the edges as well as inside the natural hollow area over the object's rounded head, a series of twisty U- and V-shaped clustered furrows of 0.02-0.3 mm wide are displayed (fig. 3: 4/1-4; 4: 1-4). The sides of some furrows are steep and their bottoms are flat, yet others contain more narrow furrows within. Since these irregular furrows lack any specific transversal notches within, and somewhere they are overlapped by one another so indistinctively, then the scraping seems to be carried out using a flint tool (Cristiani, Alhaique, 2005. P. 400. Fig. 2; 3).

The detrition with dense coarse-grained abrasive is noticed to result in long clear-cut and evenly deep furrows, whereas loose, friable, or lubricated abrasives (f. e., wet sand) normally produce irregular scratches and pits amongst shiny polished surface prominences (Christidou, Legrand, 2005. P. 393. Fig. 18; 19). The features mentioned are found together at the end part mainly on the convex side (Fig. 3: 4/5, 4/6, 5/1, 5/3; 4: 5, 6; 5: 1, 3). Some furrows left by the larger abrasive agent's movement have steep sides and flat bottoms, yet the U- and V- shaped cross-sections occur here as well. The largest traces of 0.08-0.1 mm wide are directed in this area obliquely and transversally to the object's long axis. The narrower (0.02-0.08 mm) and the narrowest (0.02-0.03 mm) furrows are put in the same directions in the form of the rugous ledged bands (fig. 4: 6). A finer dispersed abrasive agent produced the aggregates of short scratches of approximately 0.01 mm wide within polished areas (fig. 4: 5, 6; 5: 1).

The perforation (fig. 3: 5/2; 5: 2) and the ornamental bores (fig. 3: 5/4, 5/3; 5: 4; 5: 3) were made with flint drill identified from coaxial furrows of 0.5 mm wide. Once from the start, the drilling formed a regular funnel

(fig. 5: 3), but its walls became ledged from the deepening and widening, and upper rims became uneven, because of a small flint borer which was not precise enough. The drilling always followed the scraping (fig. 4: 1, 3; 4: 4).

Hence, the conversion of artifact's blank into semifinished product, as well as finishing of it, was made using scraping and abrasion techniques. Scraping was used while making contours of the artifact's side flanges and its upper half; then, the cancellous bone and unwanted roughness within the marrow cavity were scraped off. To obtain the demanded thickness of the rounded point and nearby flat area the abrasion technique was applied. The movement of a coarse-grained abrasive over the head part took place as well (fig. 4: 2), whereas the perforation and pit designs were made with hand drilling.

The use-wear traces seem to pose a special concern. The end part on the convex side (fig. 4: 4) as well as the lower half on the concave side (fig. 5: 3) both display abrasion traces only smoothed and slightly polished over the very prominences; there is no linear structure there from which the trajectories and kinematics of the abrasive use-wear agents' motion could be deduced. At the same time, all along the edges and over the certain area on the convex side surface (fig. 5: 1) not so thickly disposed transversal scratches of 0.004-0.01 mm wide are detected atop the polished prominences of the scraped furrows (fig. 4: 1, 3); the closer they huddle to the shoulders' area the more dense they are, and their directions are more diverse. While watching along the convex side towards the rounded head part (fig. 4: 2, 4), one may find there the scraped furrows overlapped with polish which contains uncoordinatedly disposed scratches of 0.01-0.04 mm wide. These parts of the piece were probably exposed to disperse polishing abrasion acting without of stable trajectories.

The abraded polished perforation's margins and tunnel seem to look differently, with multiple short scratches of 0.003-0.006 mm wide lying on across the rim and further deep down to the perforation (fig. 5: 2). The latter has been worn with some soft fixing, and as a result it is opened more widely on the convex side. Here, the fixing was

probably knotted to go free to slide around perforation rim. The process has resulted in polished abraded area filled with short criss-crossed scratches of 0.003-0.006 mm wide (fig. 3: 5/5; 5: 5).

The concave side seems to bear a little use-wear marks (fig. 5: 3; 3: 6/1; 6: 1), while the convex side seems to undergo the most intensive use-wear. Here, the all-pervading polish emerged, and the criss-crossed scratches arose (fig. 3: 6/3; 6: 3). Despite expectations, the highly exposed "blade" was no harder altered from use than the other parts have been, with shaping and finishing traces remained well preserved (fig. 3: 6/2, 6/4; 6: 2, 4).

The Ofatinți sample

The piece's facial convex side (fig. 7: 1, 2) displays polished and smoothed bone surface here and there, which is highly ulcerated by the grass roots. Somewhere in the smoothed area, the multidirectional clusters of fine abrasive detrition are detected; nevertheless, such abraded marks seem to concentrate mainly in the marginal areas, just where the adherence of an abrasive agent to the bone have been too intense. On the reverse flat side the abraded traces are rare yet seem to look bigger than the rest. The ornamental pits (fig. 7: 1) and the head's central perforation (fig. 7: 3) are remarkable with their crater-like structures in the form of coaxial furrows left by flint pointed drill. None of the areas mentioned seem to contain any significant traces of the operational use-wear. Was the piece made purposely to fit up the burial rite? Or, being created for a different special behavior, has it ever been used at all? It probably hasn't.

The carved bone idols and the ornamental patterns

The Kurgany-Dubova object (fig. 2: 1)

On its convex side, a *dot* element, which is a bore in fact, seem to form the base of the *in-line* motive. This recurring motive composes a theme or a character of a *border* running along body's margins. Also, the motive draws up a theme of partition *tiers* and *sectors* within bordered area. The concave side is patterned almost in the same way with

the forked border contours by the pointed end of the object.

The Ofatinți object (fig. 2: 2)

It is designed involving the same familiar dot element, and in-line motive, to compose a theme of tiers located near the head's lower margin and then upon the shoulders and body. It should be mentioned that the drawings from T.S. Passek's article (Пасек, 1954. Рис. 44: 1) stands to portray these peculiarities with sufficient adequacy.

The designs and decorations of both objects in question are followed by numerous similarities from amongst the Neo- and Chalcolithic portable idols (Hansen, 2007). Then, I would suggest the figurine of Kurgany was of a female image while that of Ofatinți was of a male one, but this issue is set to reach far beyond the scope of the study.

The very last considerations and conclusion

The manufacture of burnishers and chisels and daggers (or whatever they all may be as tools) in the Cucuteni-Tripolye was based mostly on splitting large ungulates metapodials (Маркевич, 1981. С. 95, 96). In Bilcze Żłote-Werteba (Godula, 2013), the red deer and elk bones have been split mainly to produce three different tool types. The paddle-like tools include some lateral and medial sides of the bones with broadly faceted working ends, and distal epiphyses operated as handles. The chisel-like tools and daggers are also made from dorsal and palmar/plantar sides of the bones, the proximal epiphyseal parts of which once worked as the tools' back ends. The chisel-like tools and daggers are both characterized with beveled working ends, the massive and the flat in cross-sections respectively. Yet these dissimilarities seem not to be enough to define functions of the tools with then classifying them into (only) two categories, and the use-wear study of both bare and decorated daggers is necessary in the case. According to V.I. Markevich, the first object type encompasses lamellae with sinuously carved patterned handles (Маркевич, 1981. С. 39, 97. Рис. 50: 1-6, 12, 13), and another consists of largely unpatterned specimens with natural appearance of the metapodials and epiphyses acting as handles

(Маркевич, 1981. С. 39, 97. Рис. 50: 7-11). With such complex variability, the idea of the daggers' functional uniformity seemed to stand good all the same, although the fragmented varieties were almost unidentifiable, whereas, in Ofatiņi, the artifact was involved into the grave goods context (Маркевич, 1981. С. 39, 97, 103. Рис. 49: 10; 50: 11). There exist no available evidences of the use-wear patterns from which G.F. Korobkova once concluded that all daggers have been used as leather burnishers. Thus, the daggers left wasted alongside bone garbage at the Brînzeni group sites of the Tripolye CII/1 subperiod indeed makes one think of their links with flaying animal carcasses (Маркевич, 1981. С. 97). My own recent observations upon some most attractive Brînzeni daggers still do not allow me to conclude that these were really used as tools for furriers, skimmers, and butchers. The various social behaviors were militarized by the time when the Brînzeni aspect of the earlier half of the Tripolye CII stage has formed (Дергачев,

2007). Could it be so that some daggers of bone once acted like mock weaponry?

As far as surface modifications of the Kurgany and Ofatiņi "daggers" became evident, it seems impossible to attribute them to the tools used in furriery, butchering, etc. The nominal working surfaces and edges only exist in their shape, yet these absolutely lack of specific use-wear traces. These latter are distributed in very different areas, to suggest that all was altered from handling and some related effects. The conclusion may seem to be quite particular to apply it to all those daggers, burnishers, chisels, and amulets until they are expertly explored.

Acknowledgements

My great appreciation goes to Eugen Sava and Mariana Vasilache (Muzeul Național de Istorie a Moldovei), to Valentin Dergaciov, Sergiu Heghea, and Ghenadie Sîrbu (Centrul de Arheologie, Institutul Patrimoniului Cultural al Academia de Științe a Moldovei), as well as to Aleksandr Diachenko (The Institute of Archaeology, the NAS of Ukraine).

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ТРАСОЛОГИЯ КИНЖАЛООБРАЗНЫХ КОСТЯНЫХ ПРЕДМЕТОВ ПОЗДНЕГО ТРИПОЛЬЯ²

В. Панковский

Рассматриваются кинжалообразные костяные артефакты из поселения Курганы-Дубова и могильника Выхватинцы (Офатинць) второй половины этапа Триполье СІ. Эксплуатационные видоизменения локально сосредоточены на одной из широких сторон предмета из Курганов и в его крепежном отверстии. Таким образом, он не является орудием и подвешивался для ношения. Предмет из Выхватинцев вообще не имеет сколько-нибудь выразительных следов использования, и в его крепежном отверстии имеются только следы сверления. Эти наблюдения подтверждают весьма вероятное объяснение предмета из Выхватинцев как статуарного амулета, стилистически подобного некоторым керамическим антропоморфным фигуркам. Костяные индустрии Кукутень-Триполья нередко включают несколько категорий орудий на основе диафизных пластин, снабженных зачастую сильно сработанными рабочими поверхностями. Впрочем, эти категории все еще нуждаются в трасологическом исследовании для выяснения их назначения и способов употребления. На изделиях из Курганов и Выхватинцев тоже имеются свои лезвия и слегка заостренные кромки, однако они совсем не изношены. Эти пластинчатые идолички отличаются от украшенных резными линейными узорами кинжалов брызженской группы просверленными головками и точечным декором.

Ключевые слова: археология, Восточная Европа, энеолит, Кукутень-Триполье, костяная индустрия, кинжалы, идолы, трасология.

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² Исследование выполнено в рамках проекта «Между закатом и восходом: динамика социальных перемен от Восточных Карпат до Днестра в IV – начале III тыс. до н.э. (NCN Opus 8 2014/15/B/HS3/02486).

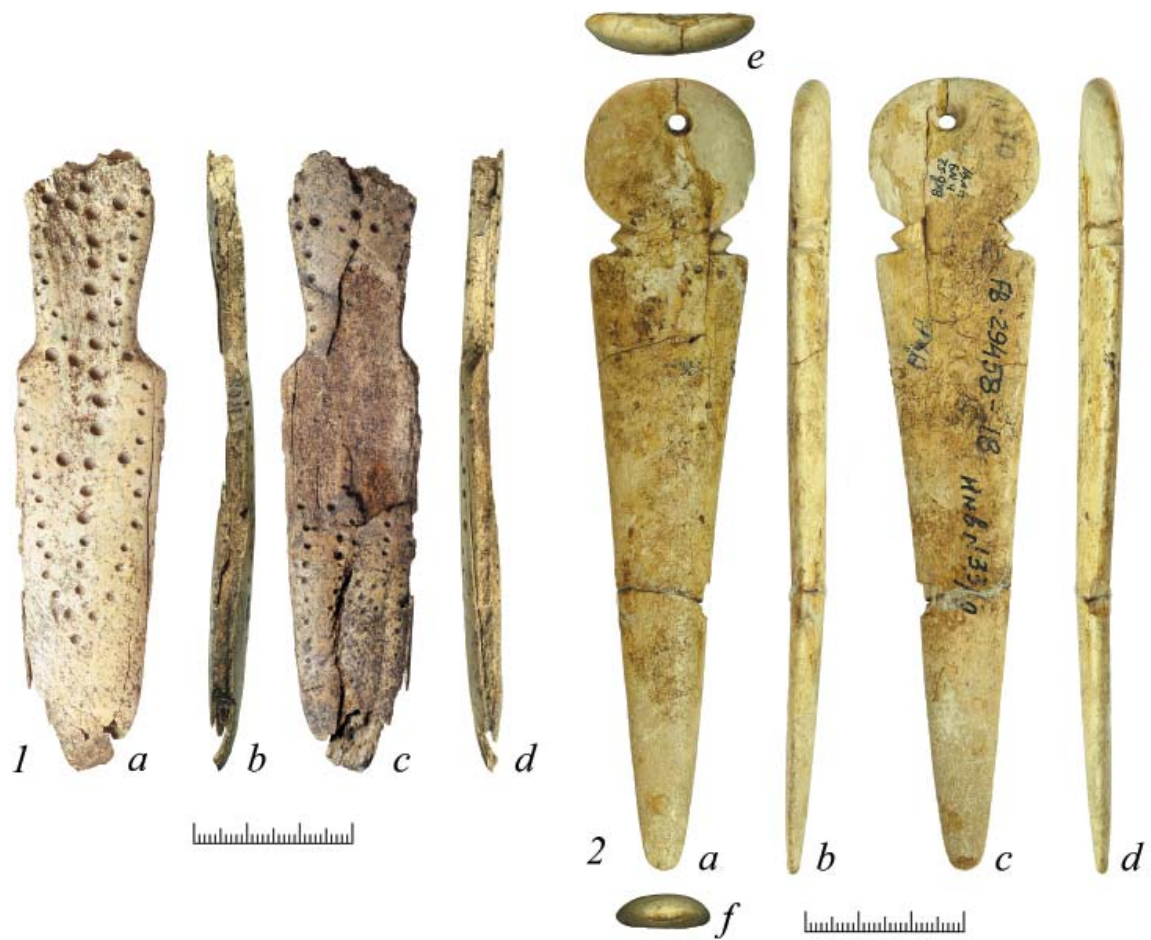


Fig. 1. Bone dagger-like objects from Kurgany-Dubova (1) and Ofatiñți (2).

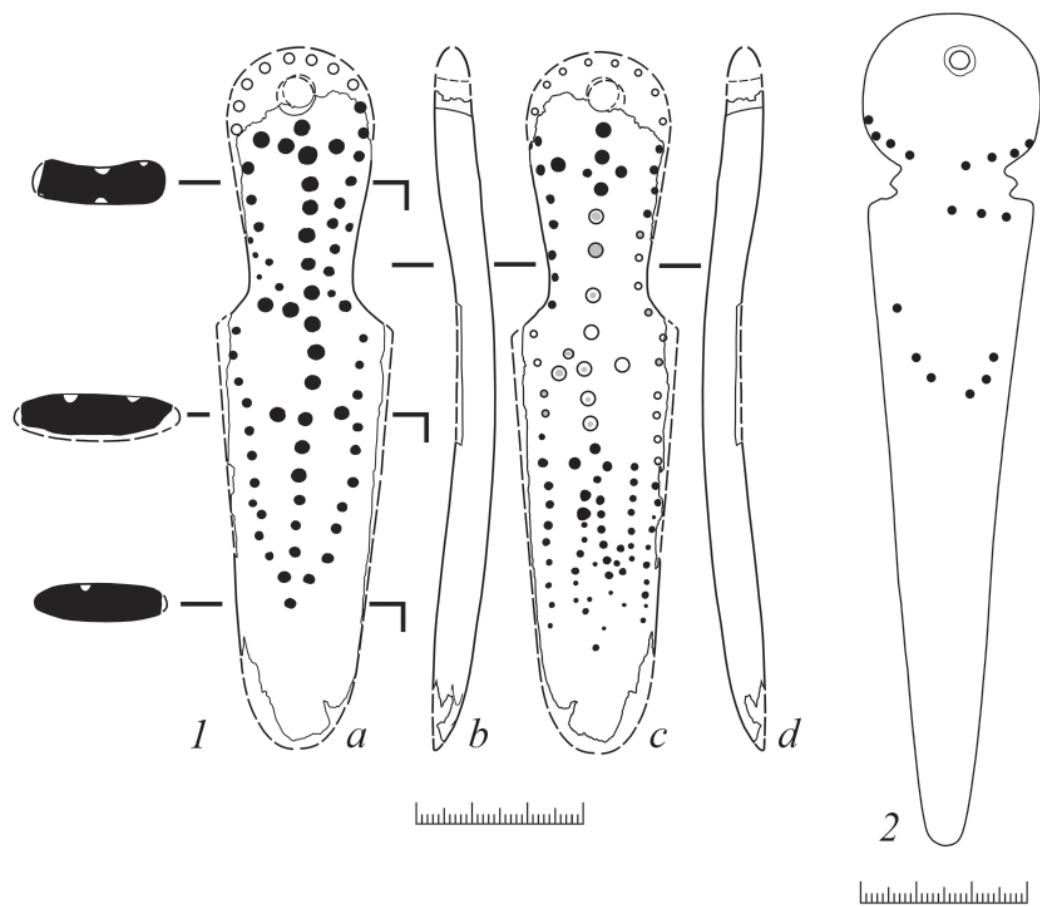


Fig. 2. Graphic scheme illustrating shape and designs in bone objects from Kurgany-Dubova (1) and Ofatinți (2). Grey dots represent a bottom level in each of the partially preserved holes, and the black rings indicate the supposed initial outlines of the holes.

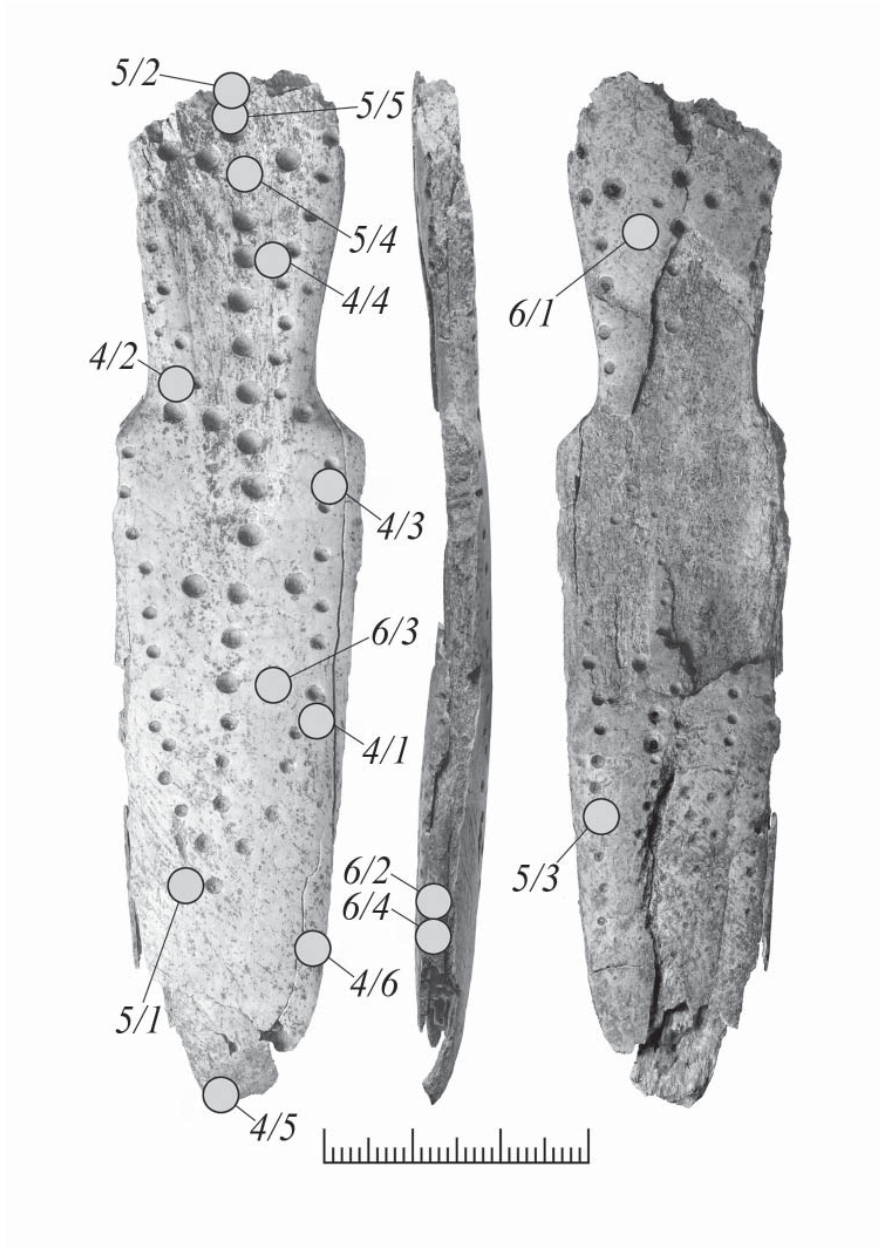


Fig. 3. Bone object from Kurgany-Dubova. Grey circles with black digits represent positions to be seen in figs. 4-6.

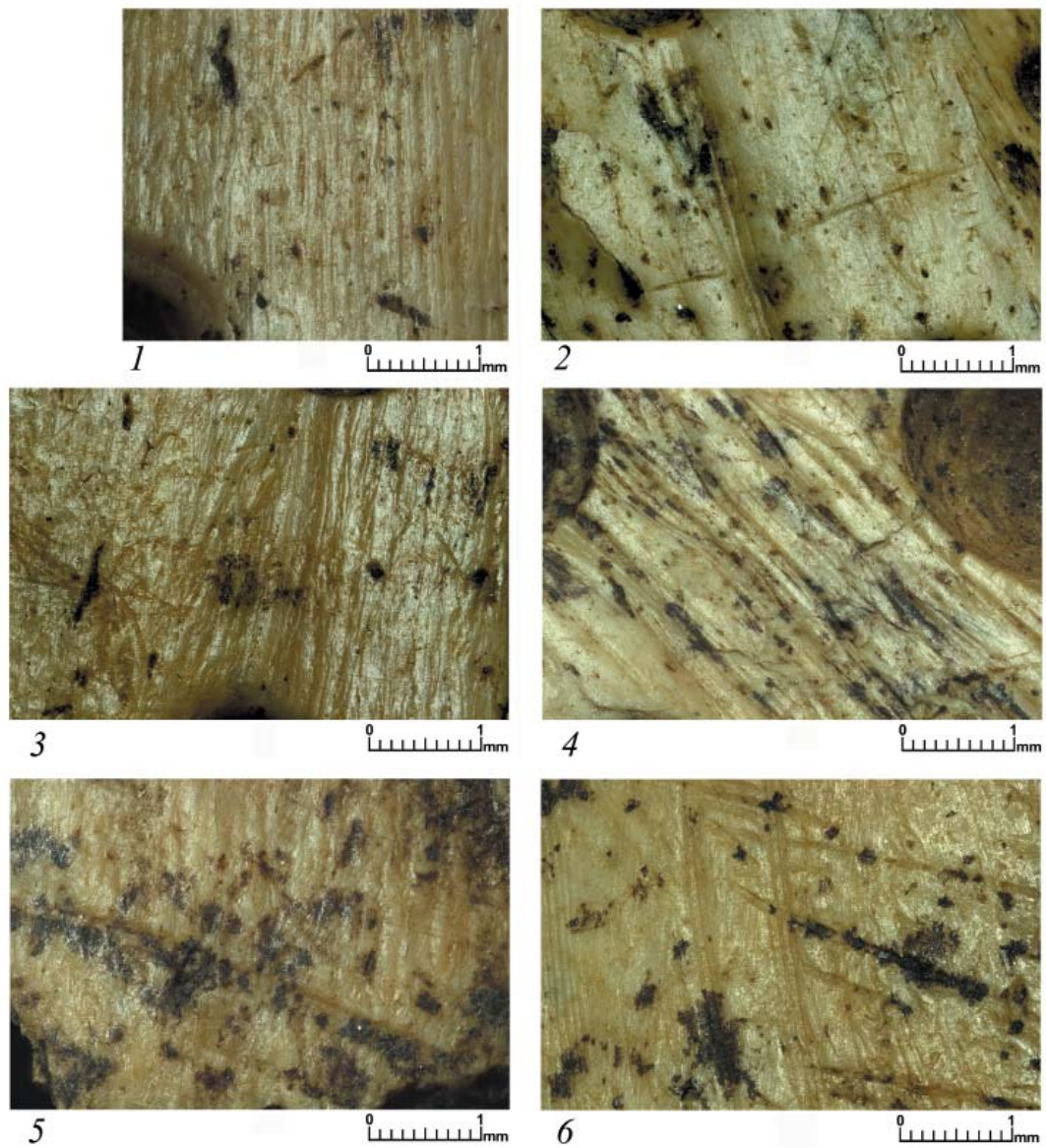


Fig. 4. Bone object from Kurgany-Dubova. Surface modifications along the “blade’s” edge (1, 3), over the head (2, 4), and at the end part (5, 6). See fig. 3 for the positions indicated.

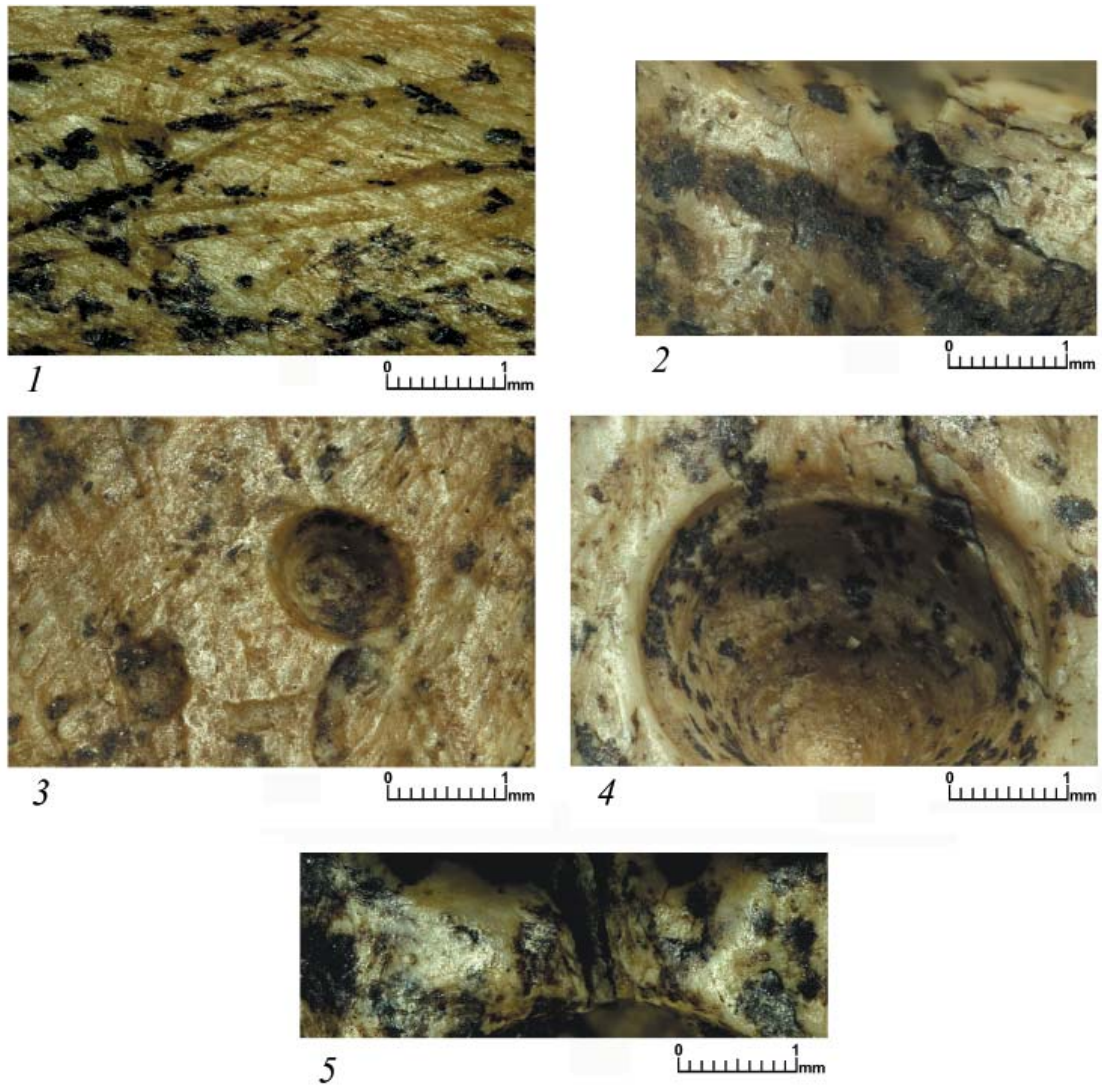


Fig. 5. Bone object from Kurgany-Dubova. Surface modifications at the “blade’s” lower half (1, 3), over the drilled surfaces (2, 4), and around the eyelet (5). See fig. 3 for the positions indicated.

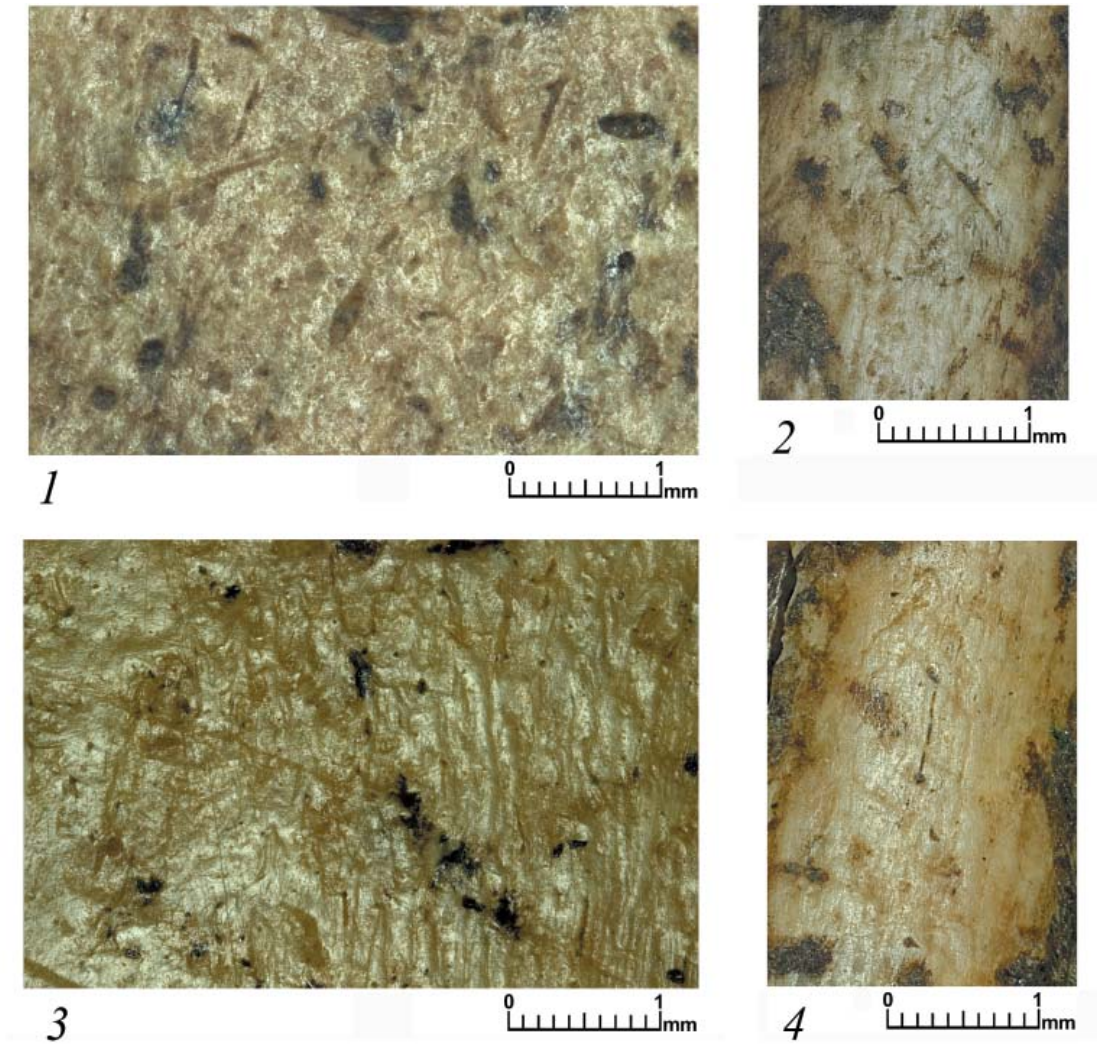


Fig. 6. Bone object from Kurgany-Dubova. Surface modifications at the “blade’s” edges (1, 3) and along its flange (2, 4). See fig. 3 for the positions indicated.

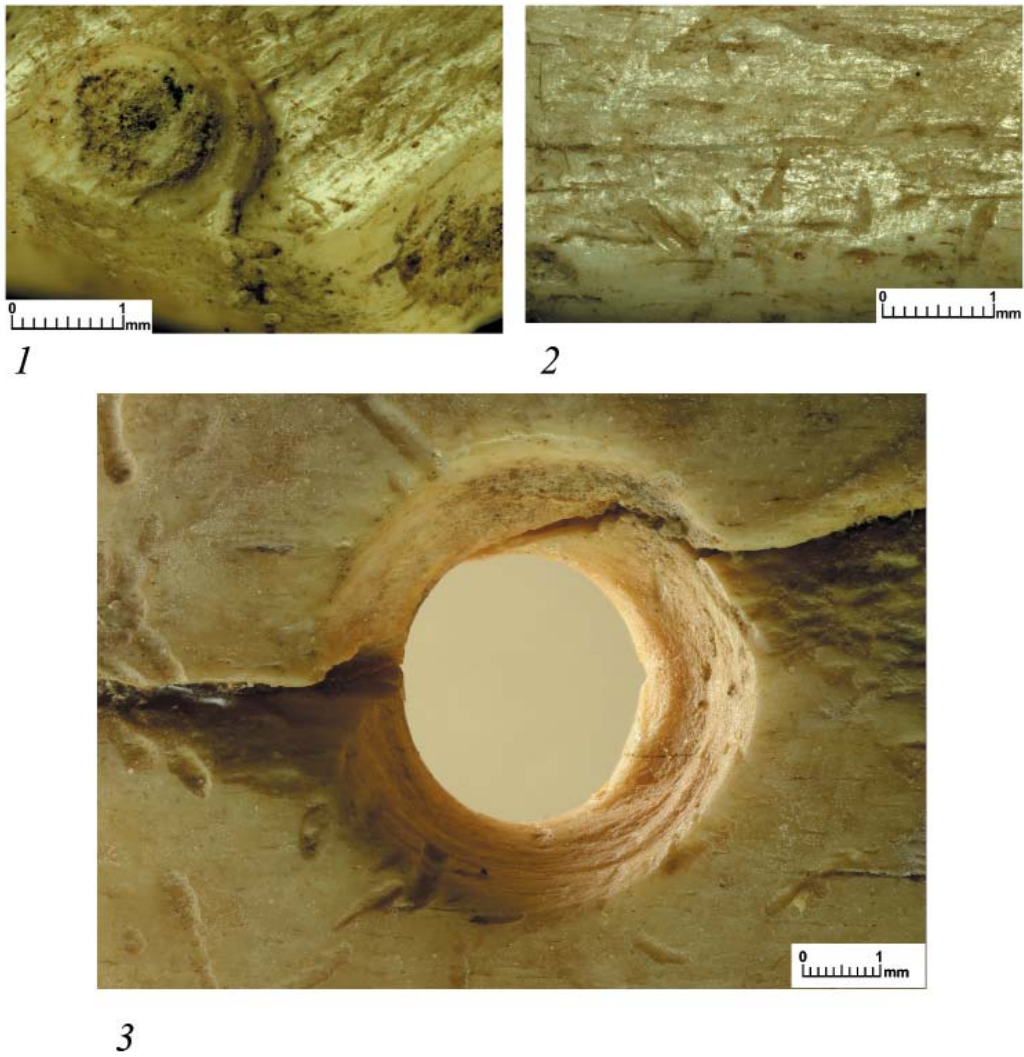


Fig. 7. Bone object from the grave No. 9 in Ofatinți. Surface modifications at the head's margins (1, 2) and within the drilled area (3).