CRAFTING BONE – SKELETAL TECHNOLOGIES THROUGH TIME AND SPACE

Proceedings of the 2nd meeting of the (ICAZ) Worked Bone Research Group

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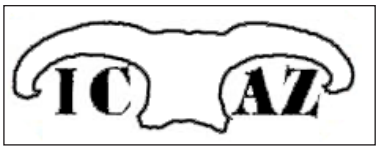

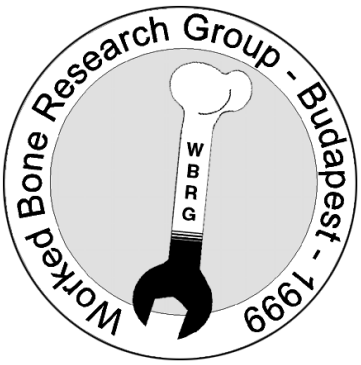

Worked Bone Research Group 2nd Meeting
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Special Assemblages

Participants in the WBRG 1999 Budapest conference (left to right): Ülle Tamla, Elisabeth Brynja, Tina Tuohy, Liina Maldre, Karlheinz Steppan, Heidi Luik, Gitte Jensen, John Chapman, Alice Choyke, Janet Griffitts, Andreas Northe, Noëlle Provenzano, Jörg Schibler, Nerissa Russell, Colleen Batey, Lyuba Smirnova, László Daróczi-Szabó, Daniella Ciugudean, Mária Bíró, Kordula Gostenčnik, Eszter Kovács, Christopher Morris, Sabine Deschler-Erb, Ans Nieuwenberg-Bron, Katalin Simán, Isabelle Sidéra, Mickle Zhilin

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Introduction

Archaeologists and Archeozoologists, both study worked osseous materials (bone, antler and tooth, including ivory, in short all referred to as "bone"). Such reports, however, are often buried at the very back of faunal analyses appended to site reports. Furthermore, the two groups of specialists have had little chance to interact, even within Europe since they tend to attend different conferences and write for different fora.

At the root of this problem lay the arbitrary, largely institutional division between pre- and proto-historians, often imposed on bone manufacturing experts by nothing but formalism in research tradition. The most exemplary series of studies n this field is entitled: "*Industrie de l'os neolithique et de l'age de metaux*" (Bone industry *from the Neolithic and Metal Ages*). Another classic, a book, is sub-titled "The Technology of Skeletal Materials *since the Roman Period*". In very early prehistoric assemblages, attention is often focused on the question of whether a particular piece of bone was worked or not. In later assemblages, it is the intensity of manufacturing that often renders objects zoologically non-identifiable, so that important aspects of raw material procurement, including long distance trade, remain intangible.

The history of raw material use, however, is continuous and many of the constraints and possibilities inherent in skeletal materials are the same whether one is dealing with Paleolithic or Medieval artifacts. Indubitably, the organization of manufacture, the function and value of bone artifacts (as well as some technological innovations such as the regular use of metal tools or lathes), differ substantially between simple and complex societies through time. On the other hand, fundamental questions of tensile characteristics, procurement strategies, style and certain technological requirements are not only similar diachronically, but also open up new vistas when apparently unrelated periods are compared. The function of these objects as social markers, for example, remains remarkably constant through time, even if details vary. The papers in this volume reflect these conceptual similarities and differences as did the papers delivered at the conference itself.

The first meeting of what was to become the Worked Bone Research Group (WBRG) was organized by Dr. Ian Riddler in the **British Museum, London, in January 1997**. The committment and enthusiasm of that first workshop has greatly inspired subsequent efforts in recruiting a wide range of bone specialists, capable of contributing to discussions concerning bone manufacturing.

In keeping with the aims of the Worked Bone Research Group, since 2000 an official working group of the International Council for Archaeozoology (ICAZ), an effort was made to present these papers on the basis of what *connects* them rather than segregating them by archaeological period or region. Contributions mostly include articles based on papers delivered in September 1999 at the second Worked Bone Research Group meeting in Budapest, organized by the editors with the unfailing support of the Aquincum Museum (Budapest) and its staff. Several people who were unable to be present at this conference were also asked to contribute papers. Finally, five of the studies in this volume, originally delivered at a symposium on bone tools organized by Dr. Kitty Emery and Dr. Tom Wake, entitled "*Technology of Skeletal Materials: Considerations of Production, Method and Scale*", at the 64th Annual Meeting of the Society for American Archaeology (Chicago 1999), were added thereby expanding the academic spectrum both in terms of research tradition and geographic scope.

There are a total of 36 papers in this volume. Research was carried out on materials from Central and North America to various regions of Europe and Southwest Asia. The authors represent scientific traditons from Estonia, Hungary, Romania, and Russia, European countries in which, until recently, ideas developed in relative isolation. Other European countries represented include Austria, Denmark, France, Germany, Great Britain, Greece, and Switzerland. Last but not least, the North American scholarly approach is also represented here.

Schools of thought may be said to be exemplified by what used to be Soviet research, well known for pioneering works on taphonomy, experimentation and traceology. Bone manufacturing was first brought to the attention of Western scholars by the publication in 1964 of the translation of S. A. Semenov's *Prehistoric Technology*, published originally in 1957. Scholars in France have also carried out decades of co-ordinated work on operational chains in the manufacturing process from the selection

of raw materials to finished products, with special emphasis on prehistoric modified bone. An entire working group, "Unspecialized Bone Industries/Bone Modification", is directed by Marylene Patou-Mathis. This working group itself is part of a larger research program on bone industry "*La Commission de Nomenclature sure l'Indistrie de l'Os Prëhistorique*" headed my Mme. H. Camps-Fabrer. Several specialists such as Jörg Schibler in Switzerland, have created laboratories where ground laying work has been carried out for years on worked osseous materials, especially from Swiss Neolithic Lake Dwellings and Roman Period sites. Language barriers have often prevented these important bodies of work from being as widely disseminated as they deserve. Arthur MacGregor in England, writing in English, has had a decisive influence on specialists working on more recent Roman and Medieval worked bone assemblages in Europe.

The work of all of these groups as well as certain individual scholars is well known within limited circles. Otherwise, however, the overwhelming experience of most researchers on worked bone have been feelings of isolation and alienation from most archaeological or archaeozoological work related, most importantly, to the absence of an international forum where their often specialized work can be presented and problems discussed.

In spite of the fact that there have been many practical obstacles to information flow between specialists in this field, there are really remarkable similarities of approach which should ultimately lead to the development of more compatible paradigms in research. Agreement on methodologies will have a positive feedback on communications, helping the field to grow and develop properly.

It seems that, at last, archaeologists and archaeozoologists and other specialists are talking to each other and sharing methodologicial points of view. One striking example of this can be seen in the the emphasis on raw materials studied in parallel to types found in the majority of papers in this volume. Previously studies often concentrated on typo-chronological questions, ignoring the questions of raw material morphology and availability. The series published by the *Centre National de la Recherche Scientifique*, edited by Mme. Henriette Camps-Fabrer in France is largely to be credited for beginning this new trend. It contains many papers concentrating on understanding manufacturing sequences and, indeed, from Europe to North America there are papers which explicitly deal with manufacturing sequences in individual assemblages.

There is also a consistent emphasis on experiment and manufacturing techniques present in much of the work in this volume. The related but fraught question of function continues to tantalize and frustrate most specialists. A number of articles attempt to apply techniques of hard science, such as scanning electron microscopy or light microscopy, together with experiment to get objective, "processual" answers to this important group of questions. Other researchers rely deductively on analogy, archaeological context, gross morphology, and textual sources as they try understanding how these objects were used.

When editing the volume, we tried to concentate on the underlying main concepts represented by each paper rather than grouping them diachronically or by geographical region. As a result, contributions follow a line from the theoretical through the problems of raw material selection, manufacturing techniques, experimental work, technical function and socio-cultural interpretations. Obviously many of these papers deal with several of these aspects simultaneously. Finally, analyses of assemblages are grouped to show the current state of general application of these principles as illustrated in papers in the rest of the volume. Reports on bone tool types will ultimately benefit from more unified typologies and also provide researchers with comparitive databases from regions beyond their own.

Finally, a word on the organization of papers in this volume. Although the editors have tried to group these papers by what they see as the main theoretical and methodological thrust of the authors it should be understood that most papers, to a greater or lesser extent, overlap between these artificial sub-titles. Happily, almost all these works include considerations of raw material exploitation, manufacturing and functional analyses and all make some attempt to consider the social context from which these artifacts emerged. It is exactly this cross-cutting of boundaries which allows us to hope that the study of worked osseous materials is well on the way to developing into a discipline in its own right.

In addition to the generous support given by our sponsors and technical editors for this volume, organizing the conference would not have been possible without the active help of numerous colleagues. Special thanks are due to Paula Zsidy, Director of the Aquincum Museum, Katalin Simán, archaeologist and two students from the Institute of Archaeological Sciences (ELTE, Budapest): László Daróczi-Szabó and András Markó. The Hotel Wien, Budapest and its efficient manager provided a comfortable setting for our discussions at a reasonable price. Last but not least, help with abstract translations by Cornelia Becker, Noelle Provenzano as well as Marjan Mashkour and Turit Wilroy should also be acknowledged here.

A ROUND BONE BOX LID WITH A MYTHOLOGICAL REPRESENTATION

Mária Biró

Abstract: Most of the ornamental bone carving from 3rd and 4th c. Roman Pannonia comes from settlements and military installations near the limes. The sites of Brigetio and Intercisa are especially notable in this respect. The uniqueness of the carving industries may be connected to the large number of immigrants from the Eastern provinces related to the ethnicity of the legions stationed in Pannonia. A detailed discussion is presented of a bone plaque from Brigetio, probably made from a cattle shoulder blade, with a mythological figure of a woman and serpent incised on it.

Keywords: AD 3rd and 4th c. Pannonia, limes, Brigetio, Eastern troops, bone carving traditions, personification of Roma or Constantinople

Résumé: La plus grande partie des gravures ornementales sur os des IIIe et IVe siècles connues en Pannonie provient des sites et installations militaires à proximité du *limes*. Les sites de Brigetio et Intercisa sont particulièrement remarquables à cet égard. Le caractère exceptionnel des gravures peut être mise en relation avec le grand nombre d'immigrants des provinces de l'Est et le caractère ethnique des légions stationnées en Pannonie. Une plaque en os gravée de Brigetio fait l'objet d'une étude détaillée: probablement aménagée sur une omoplate de bovidé, elle présente la figure mythologique d'une femme et d'un serpent.

Mots-clés: IIIe et IVe s. A.D., Pannonie, limes, Brigetio, troupes orientales, tradition de la gravure sur os, personnification de Rome ou Constantinople

Zusammenfassung: Die meisten der dekorativ verzierten Knochen aus dem römischen Pannonien des 3. und 4. Jahrhunderts kommen aus Siedlungen und Militärstationen nahe des Limes. Insbesondere Brigetio und Intercisa sind hier erwähnenswert. Die Einzigartigkeit dieser Knochenschnitzereien könnte mit der Anwesenheit vieler Einwanderer aus den östlichen Provinzen zusammenhängen, die dem Ethnos der in Pannonien stationierten Legionen zugehören. Besonders detailliert wird auf eine Knochenplatte aus Brigetio eingegangen, die vermutlich aus einem Rinderschulterblatt angefertigt und in die das mythologische Motiv einer Frau und einer Schlange hineingeschnitzt wurde.

Schlüsselworte: 3/4. Jahrhundert, Pannonien, Limes, Brigetio, östliche Provinzen, traditionelles Schnitzhandwerk.

In the course of studying Pannonian bone carvings it became evident that most of these objects come either from forts bordering the limes or from near-by civil settlements. Of these there are two settlements that yielded an especially great number of bone carvings, namely Brigetio and Intercisa. The former is an auxiliary fort established during the reign of the Flavii, while the legionary fortress of Brigetio was built at the turn of the same century. The civil town of Brigetio was the last among Danubian legionary fortresses that achieved the rank of colonia in the years around AD 210. On the other hand, Intercisa continued as an auxiliary fort. The inhabitants of the civil settlement near the fort possibly consisted of the soldiers' families and of discharged soldiers.

Thus, the outstanding number and unique quality of the bone carvings from these two sites as compared to other settlements in the Province cannot be explained by the social and political conditions prevailing there, considering that the two settlements developed in such diverse ways. Brigetio is the fortress of one of the four legions stationed in the Province. The civil town associated with it had the status of a colonia, i. e. it possessed the highest rank that could be achieved by a Roman town, while Intercisa remained the garrison of a minor auxiliary troop near the border with a spontaneously emerging rural settlement surrounding it. Still, what can be the explanation for such a large number of bone carvings to have come to light from both settlements, including curiosities within the territory of the enormous Roman Empire? Who were the craftsmen in these workshops and who were the customers?

The unique bone carving industry in both settlements can be explained by the continuous presence of a population of considerable size coming from the East (Barnett 1982). Eastern, primarily Syrian immigration, began as early as the reign of Marcus Aurelius. In our Province it is during the course of the Markoman and Jazygian wars that Coh. I. Milliaria Hemesenorum equitata appears in Intercisa. The cohors, stationed in Intercisa, came from the Syrian town of Hemesa, and reinforcements were also drafted from Syria. A Syrian settlement emerged around the fort, while according to evidence from epigraphic finds, discharged Syrian soldiers settled in one of the two near-by colonia, in Brigetio or in Aquincum.

Within the civil population the inflow of Eastern peoples became more dominant during the boom years of the rule of Septimus Severus. In the ordo of Brigetio and Aquincum respectively, Syrians can be detected by their names. The richest decurios of Brigetio were without exception of Eastern

origin. I am of the opinion that the activity in the bone carving workshops at Intercisa and Brigetio can be explained by the presence of this Eastern population. The traditions introduced by them survived even later when the mass immigration of Eastern people ceased.

Unfortunately, the afterlife of bone carvings from these two settlements has also worked out differently. While at Intercisa methodical excavations were carried out from as early as the beginning of the 20th century, in the territory of Brigetio, the first excavations were made by the engineers of the Austrian-Hungarian Railway Company rather than archaeologists. The track of the Vienna-Budapest railway line, the building of which started in the 1870s, exactly cut across the area of the legionary fortress. During the course of constructing the railway an enormous quantity of archaeological finds came to light. The village of Szőny was overrun by merchants and robbers hunting for treasure. Making use of the interest, a handful of enterprising, skilful inhabitants of the village began to falsify bone-carvings. There was a great demand for interesting bone-carvings, and beside private collectors, hundreds of bone carvings were purchased at the site by institutions such as the British Museum, the Kunsthistorisches Museum in Vienna or the Hungarian National Museum. After denouncing the counterfeiters, archaeologists could not help being conspicuous when handling this worked bone (Alapi 1915). The most precious carvings from Brigetio lay forgotten on the shelves of museum magazines, because nobody had the courage to deal with them. Such was the case with the bone plate published for the first time by E. Thomas (1988: 291-292).

This bone plate came to the Hungarian National Museum from a private collection (Tussla Collection) from Szőny (Inv. 63. 21. 64; fig. 1). It is a 92 x 6.1 mm fragment of a circular bone plate made of cattle scapula. On the edge of the circular plate can be seen bore-holes which served in fastening. The plate is decorated by chased ornament. On the edge, runs a wide border made up of a dense square pattern (fig. 2). In the middle of the plate, a robust female figure can be seen with an ivory tusk in her right hand and a vexillum in her left (Anonymous 1987: 9, fig.4). She wears a tunic decorated with a tiny square pattern and gathered up by a wide girdle. The dress is decorated by embroidered ribbons on both sides. The clothing of the female figure is characteristic of Late Roman dress, ornamented with embroidered ribbons, similar to those found on the mosaics of Piazza Armerina (Cardini et. al 1982). The same contemporary dresses can be seen even even today in Coptic collections, thanks to the fortunate climatic conditions of Egypt (Anonymous 1996). The figure has a special head-dress. My interpretation of this head-dress differs from that adopted by E. Thomas.

As mentioned before, the carving together with a 12-line description was published by E. Thomas in an exhibition catalogue. Although she had been interested in it for years, she was encouraged to publish it only after recognizing a parallel to it in one of the show-cases of the Vatican Museum: the existence of this parallel excluded any possibility of falsification (fig. 3). The framing of the bone-carving from the Vatican Museums as well as the way it would have been fixed exactly agrees with the bone disk from Brigetio. Here, too, there is a female figure at the center. The monumentality of the figure is further emphasized by a moiré accompanying female figure. The central figure wears a wall-coronet, holds in one hand a round plate with five pieces of bread or fish, and perhaps holds a palm-leaf in the other hand. E. Thomas recognized in this representation some kind of town-protecting goddess. The carving from Brigetio belongs to the same iconographic group. Thomas was of the opinion that the elephant-head representation of Africa Province can be recognized in the head-dress of the figure. Thus, according to her, the figure must be the personification of Africa Province, or rather more exactly the town of Elephantine. She dated its production to the age of Emperor Justinian. She made preparations for the publication of this find, which however, was never finished because of her death. She passed on her scholarly heritage to Endre Tóth. Thus, taking this circumstance into consideration, it was deliberately left out of the bone carvings catalogue of the Hungarian National Museum. It was only 15 years after her death that Endre Tóth gave up on publishing the find so that I had the opportunity to deal with it.

These chased bone plates represent a well-definable group of Late Antique craftsmanship. Perhaps they were produced in smaller numbers than embossed carvings, but it is also possible, that only a small number of them have been published. In the African home of ivory carvings there is no quantitative or qualitative difference whether they are decorated using a chased or embossed technique. In the most famous ivory find group – the ivory carvings of the Kushan kings in their palace at Begram – chased and embossed pieces occur in equal numbers (Auboyer 1986). On the other chased circular plate in the Vatican Museum the figure of a young man can be seen sitting on a chair and holding a scroll in his hand. A famous playwright is probably presented here, as can be concluded from the tragic mask placed to the right of his chair. The craftsmanship of the artist is perfect, and the representation may match the famous mosaic in Pompeii representing Vergil. That is, the chased technique in itself may represent just as high an artistic level as the embossed technique, the difference lying in the skill of the craftsman. Volbach describes two small round plates, one of which represents Christ and the other St. Peter (Volbach 1952 Pl. 10, fig.38). There is likewise a fragment of a smaller circular plate exhibited in the Attalos Stoa, in Athens.

Apparently, chased circular plates were made in two sizes: the smaller ones had a diameter of 6 cm, the larger a 12 cm diameter. Each circular plate had an ornamental border. On these borders bore holes which served to fix the lid can be found. The representations on them were made by craftsmen of very different capacities. The one representing the playwright is of high quality, while the two personifications are much more primitive. Of course, no chronological or geographic conclusion whatsoever can be drawn from this fact, if one keeps in

mind that the copy of St. Peter's platform possessed by the Vatican Museum represents Hercules' life and the constellation is even more primitive.

The carved lines of the drawings were enhanced with paint or some other natural colors. There are black and red outlines of drawings on the ivory carvings of Begram.

The circular plates from Brigetio and the Vatican Museum were probably parts of a series similar to the bone plates representing Hercules' life (Anonymous 1999). This series perhaps represented goddesses, personifications of provinces or of towns.

Who are the figures represented on the Vatican circular plate and on the carving from Brigetio?

Representations of Roma and Constantinapolis occur among late Roman embossed bone carvings (Volbach 1952: Taf. 10. Fig. 38). These carvings made in the classical style are parts of a plate type dated to the AD 5th century. Of the two female figures one is the personification of Roma while the other is that of Constantinapolis. The latter has a head-dress in the shape of a wall-coronet, holds a cornucopia in one hand and a scepter in the other. Both Roma and Constantinapolis have a companion: Victoria or Eros respectively.

E. Thomas was of the opinion that she recognized the personification of Africa Province on the carving from Brigetio, more exactly that of the town Elephantine. The representation with the vexillum, the elephant-head and the tusk reminds one in certain respects of the Africa representations enumerated in LIMC (1984). The only circumstance that contradicts this idea is what is visible to the naked eye, or even more strikingly on videomicroscopic pictures, namely, that the trunk has clearly discernable eyes and ears (fig. 4). It bears closer resemblance to a serpent-like flying dragon common in Jonas representations than to an elephant trunk. The square-patterned body of the serpent, so to say, covers the head of the female figure. The hair of the woman is also formed by the body of the serpent (Wamser ed. 2000).

Two explanations can be given for the representation:

1) If one accepts that the serpent is not a mistake of the artist, it may be supposed that the figure does not represent the personification of Africa Province, but rather India. The female figure on the mosaic of Piazza Armerina was identified in the LIMC (1984) as a personification of Africa, but was differently identified in the comprehensive work of the archaeologists carrying out the excavation, as India. It is the other female figure on the opposite side of the ambulacrum, accompanied by a lion, who was considered the personification of Africa (Caradini et al. 1982: Taf. 27, 31). In contemporary representations from India, the serpent dragon is an attribute of river goddesses (Indus, Ganges), represented similarly by female figures.

2) The other possible explanation may be that the bone carver, when copying, lacked appropriate knowledge. He may have thought that the two nostrils of the elephant trunk were eyes, and, in trying to interpret it for himself, a serpent dragon was born.

Volbach distinguishes two trends within Late Antique carvings: one was the Hellenistic school, while the other is more closely related to Egyptian Coptic frescos from Bawit and Saqqara. Maybe the analogies to our personifications can be found among Coptic textiles, embroideries or wood engravings. Anyway, E. Thomas' dating to the Justinian Age is too late in my opinion. In Pannonia, from the beginning of the 5th century AD, the continuous presence of a social layer that might have possessed objects of such quality is very unlikely.

What could these objects have possibly been? What could such a round plate have been attached to?

1) In furniture, such plates were used on the end of the triclinum fulchra (Caravale 1994, 52, 53), which served as a head support. However, where such plates were employed, they were mostly embossed. Further, a circular plate may have decorated the seat of some chairs. Although St. Peter's platform was decorated by a pattern of squares and Maximilian's by narrow rectangular sheets, there are diptychons representing chairs with round plates with rosette ornaments. Their employment on chairs is also supported by the circumstance that here, too, a series like the life of Hercules (Anonymous 1999. Fig. 7), or the Evangelists (Volbach 1952: Taf. 43. Fig. 140), etc. were preferred.

2) There were chased drawings on the reverse of Etruscan mirrors, while the back of Roman mirrors were seldom decorated, although there were mirrors found in Pompeii the reverse of which had ornamental engravings. Unfortunately, I have no knowledge of any mirrors fixed in a bone frame. Thanks to Plinius senior we know glass mirrors also existed, and these fragile objects had to be protected by cases made of some solid material. It is interesting to realize that the drawings of these bone plates have most in common technically with the chiseled glass pictures of the 4th-5th centuries AD. Is it possible to suggest some connection between the production of glass mirrors and our bone plates?

3) The third possible way these plates could have been employed is as box lids. There is such a bone box preserved together with its lid (New York), where the cover plate is decorated by geometric motifs and even the metal bands serving for fastening can be seen on it (Volbach 1952: Taf. 56. Fig. 183 and Taf. 53. Fig. 166). Volbach's catalogue publishes 48 fragments of pixis. Of these, 22 jars had a diameter of 12 cm. This means that nearly half of the jars could have been covered with exactly the same lid as our bone plate. In my opinion, it is very likely that the circular plate from Brigetio served as a decorated cover for such a jar, which could be easily transported. When copying these lids, local craftsmen

were not faced with a difficult task. The production of platroms or triclinums, decorated with bone carvings, is rather unlikely under 4th-century Pannonian conditions. In fact, the production of the former is far more unlikely in a provincial town on the front line than the manufacture of a jar or of a mirror frame.

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Fig. 1 Szőny personification of India, incised on disk cut from a cattle scapula

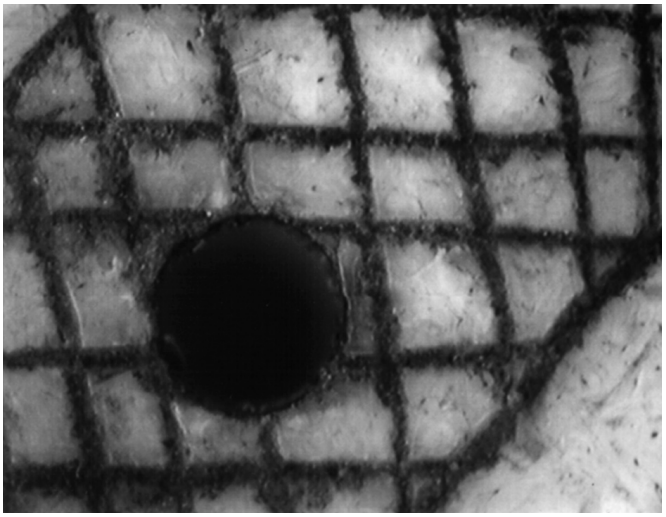

Fig. 2 Wide border on Szőny disk decorated by dense square pattern

Fig. 3 Town-protecting figure on bone disk from the Vatican Museum as a parallel to the Szőny disk

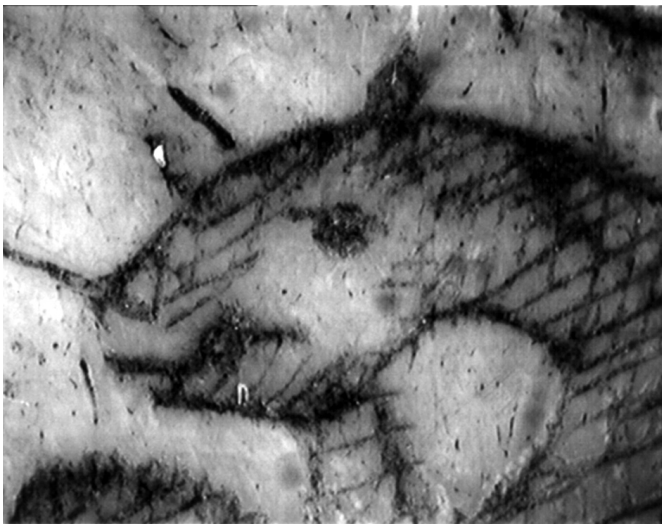

Fig. 4 Headress on Szőny disk with serpent-like flying dragon representation