Bone and Ivory Carvings Dating Between the Roman and Early Islamic Period Preserved in the Museo Egizio in Turin. An Interdisciplinary Approach

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Object of this study is an unpublished corpus of 193 bone and ivory objects dating between the Roman and early Islamic periods, preserved in the Museo Egizio. Most of the finds come from Evaristo Breccia's excavation at Ashmunein (1903–1904); moreover, there are objects bought by Ernesto Schiaparelli in Egypt at the beginning of the 20th century. In an attempt to obtain as much information as possible from these materials, an interdisciplinary approach has been adopted along with the traditional typological-stylistic analysis.

We attempted a reconstruction of the excavation context about which only short reports are known. We also made a typological, iconographic and stylistic analysis aimed at the cultural contextualization of the objects and their iconographic comparison. A physical analysis of the material was conducted with the intention to reconstruct the craftsmen's *modus operandi*, to identify the type of material (bone or ivory) and the selection criteria, according to the shape of the objects.

The comparison between the objects found in the area of the excavations in Ashmunein, in particular the figurative ones, and the materials from sites recently investigated with modern methods, have allowed to remedy the shortage of data regarding the context where these objects were found and to reconstruct the stratigraphic phases of the site. The site was a habitation quarter with levels from the Hellenistic, Roman and Byzantine period: a stratigraphy therefore similar to the one found in some sites in Alexandria, which have returned materials of the same kind.

Therefore, the approach adopted for these "forgotten" materials allowed to broaden our knowledge about the methods of processing objects and their context of discovery.

1 The Italian Excavations in Ashmunein-Hermopolis Magna (1903–1904)

> "Personificato da un ibis, [Thot, a cui era sacra Ashmunein] era nientemeno che il creatore, Dio lo perdoni, del mondo, della scrittura – schema scheletrico d'una follia suprema che un uomo triste fa d'un bimbo lieto – e della scienza."
> Breccia 1957: 107

My colleague Cristina Ghiringhello examined in her study about 193 bone and ivory objects coming mostly from the excavations which Evaristo Breccia led in Ashmunein between 1903 and 1904 on behalf of the Missione Archeologica Italiana (M.A.I., Italian Archaeological Mission). Many items bought by Ernesto Schiaparelli in the antiquities market at the beginning of 20th century can be added to the lot of bone and ivory carvings coming from this first Italian campaign. The objects kept in the Museo Egizio also include a small amount

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of ivory and bone examples coming from the excavations of Francesco Ballerini and Ernesto Schiaparelli in Hammamiya and in the Valley of the Queens, such as tools, ornaments and semi-finished products. I am going to deal with the objects coming from Ashmunein and, particularly, from Breccia's work there.[1]

The study of the finds from the Italian campaign in 1903–1904 reveals that we have no exact data about the excavated places in the site and the context where the objects were discovered. From the available scanty information, it appears that the excavations involved a multilayered settlement with evidence from Hellenistic, Roman and Byzantine eras.[2] Breccia worked in Ashmunein from February 11th to March 10th 1903 (Fig. 1). After him, the works continued with Ballerini probably until the end of April. In the same years, Breccia was tasked by Schiaparelli with digging in the Giza necropolis where he probably worked from March to April 1903. The Italian archaeologists shared their concession in Ashmunein with the German Archaeological Mission. The separation line between the two missions divided the town into two sections, starting from the top of the *kôm* and going towards the East. Breccia himself had undertaken work in this area in search of papyri.[3] In the *kôm*, he found some small Coptic and Roman objects, in addition to many papyri fragments dating back to Domitian, Trajan and Vespasian, concerning accounting and administration in this part of the Roman province. He discovered a number of bronze coins, too, the oldest one dating back to Arcadius (377–408 AD).[4]

Breccia undertook a second campaign in Ashmunein during the months of February–March 1904, but in the meantime he was appointed as a director of the Graeco-Roman museum in Alexandria, so he left the site. Giacomo Biondi continued the excavations on the site during the month of May 1904, focusing his work in the area of the Kôm Qassum.[5] This place name designates two debris hills derived from the crumbling of the raw brick walls and from the rubbish stockpile; the *kôm* lay in the north-west area of the town (Figs. 2–3).

The excavations started again in 1908–1909 under the direction of Schiaparelli from March 3rd to April 10th. In this last occasion, the Italian Mission found Greek papyri and architectural fragments, which were placed in a temporary deposit in Luxor and then sent to Turin.

The site of the ancient Egyptian city of Khemenu, later the Graeco-Roman Hermopolis Magna, has long been known; it is situated on the west bank of the Nile in Middle Egypt, approximately 40 km south of Minia and 7 km north of Mallawi. The ancient written sources speak of a harbour of Hermopolis which is not visible any more because of the repositioning of the river bed.[6]

The modern name of the first and larger of the two villages composing the site derives from the ancient Egyptian name of the city, transmitted from the original Khemenu through the Coptic Shmoun to the Arabic Ashmunein. The latter, much smaller, village at the northern end of the site bears the name Idara, but at the time of the

1 For a profile of Evaristo Breccia, see Bresciani et al. 200, and, for his activity in Egypt, Donadoni 1982.

2 Breccia 1903; 1957.

3 Breccia 1903: 463. It is not possible from Schiaparelli's documents to deduce the exact date of closing of the excavation in Giza. We know he asked Breccia to leave Ashmunein for Giza at the middle of March until the end of April 1903: Moiso 2008: 206–210.

4 Ibidem: 465.

5 Biondi 1905: 287.

6 Pensabene 1993: 244.

Fig. 1: The site of Breccia's excavations in Hermopolis (1903); slide no. B00010 (© Archivio Museo Egizio, Turin).

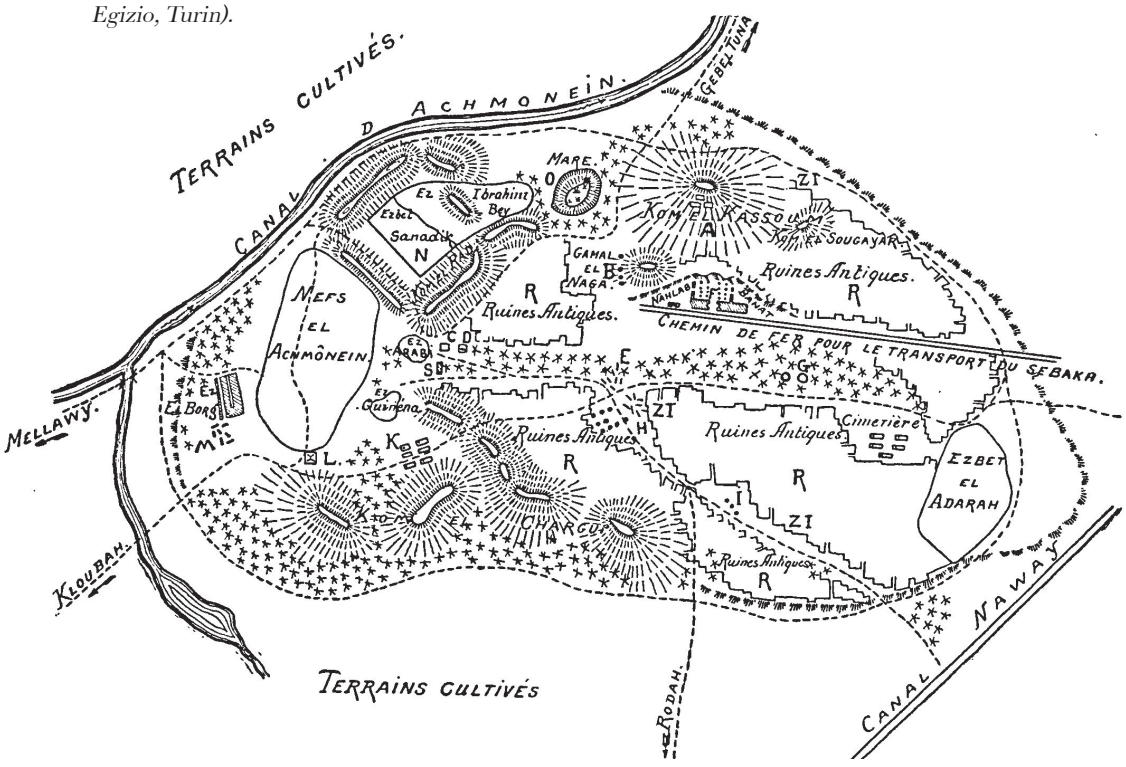

Fig. 2: The map of the site by Biondi 1905, reproduced in Chabân 1907: 213.

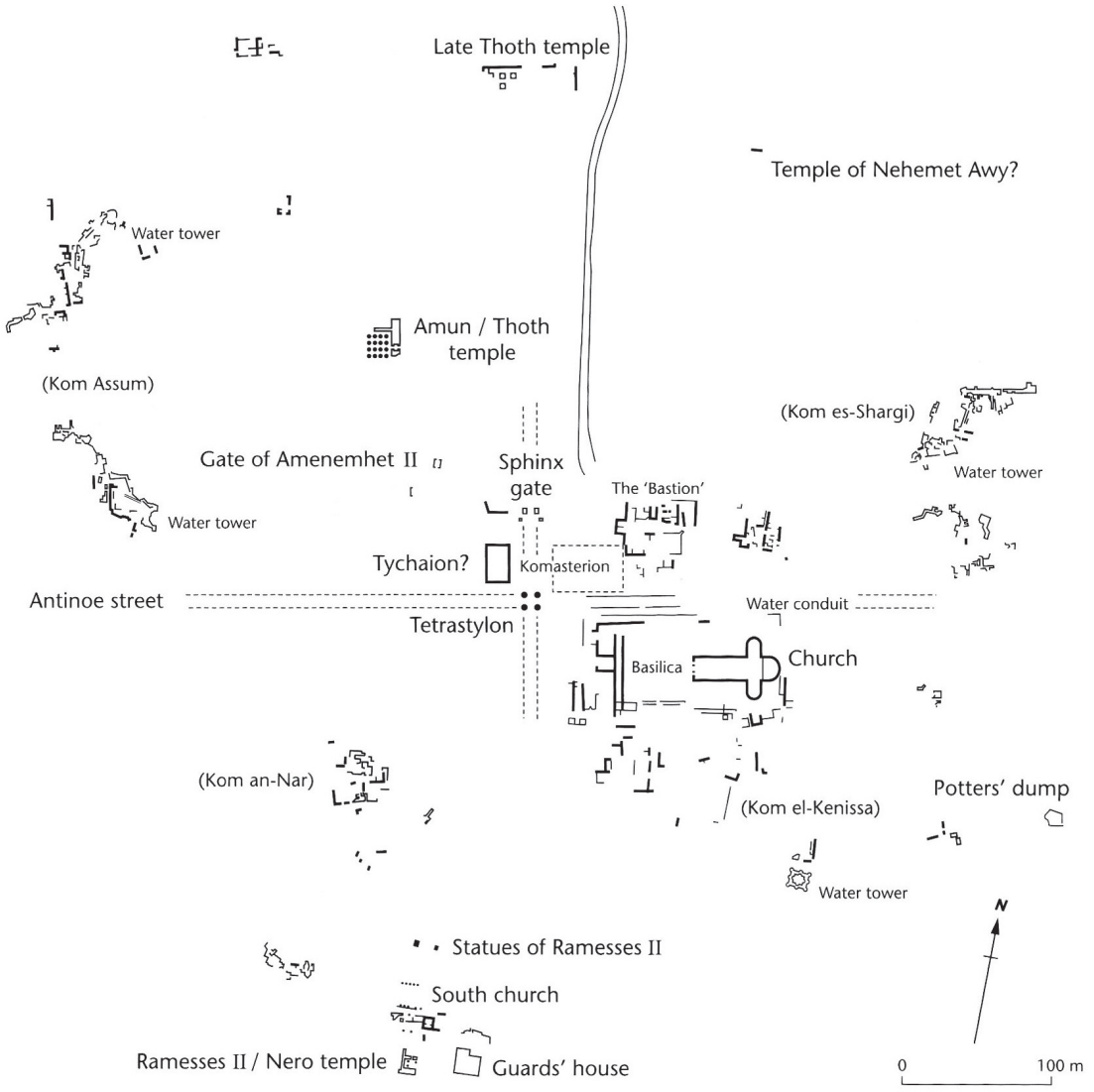

Fig. 3: The new map of the site after Spencer *1983: 163, Fig. 6.3.1.*

French Expedition in 1798 no village existed at this point.[7] The Egyptian name Khemenu means „(The Town of) the Eight (Gods)", alluding to the eight primordial creatures (four snakes and four frogs) born from the original waters of Nun.

Under the Ptolemaic rulers, Hermopolis became the capital of the 15th nome of Middle Egypt, due to its hinge position between Upper and Lower Egypt and to its river harbour. It was the cult centre of the god Thot and Philip III Arrhidaeus (323–317 BC) had a sanctuary consecrated to this god built; Thoth was assimilated by the Greeks to Hermes (Figs. 4–5). It was during the 2nd century AD that Hermopolis reached its economic and cultural peak.[8]

7 Spencer 1983: 3.

8 See the recent essay Medini 2012, with earlier preceding bibliography.

Fig. 4: The Ptolemaic temple of Thoth; slide no. C00952 (© Archivio Museo Egizio, Turin).

Fig. 5: A stela consecrated to Thoth in his temple; slide no. C00953 (© Archivio Museo Egizio, Turin).

The Greek town was built according to the Hyppodamian architectural plan. It was divided into quarters by two long and wide main streets, crossing in the middle. The secondary streets developed parallel with the main ones. Besides the main temple of Thoth, several other sanctuaries are attested: two consecrated to Serapis; one each to Augustus, Hadrian, and to Antinous, a temple to the Nile; one to Aphrodite, and another dedicated to Athena.[9]

According to Mohammed Kamal, who worked on the site of Ashmunein for several months in 1942, "*one of our most precious sources* [about Hermopolis in Ptolemaic age, M.T.] *is the P. Hermitage 127, v°* [= P. Vindob., gr. 12565, I

9 Breccia 1957: 109. For a general description of Hermopolis in the Roman period, see Bailey 1991.

fragm. Cod. 2, line 173, M.T.], *which informs us about a street running from the East to the West traversing the town from one part to the other. This document is an account made by Aurelius Appianus in which he gives a detail of the expenses necessary for the creation of a double system of porticoes running along this street which runs from the gate of the Moon (West) to the gate of the Sun (East)*".[10] Aurelius Appianus was a Roman estate owner who lived in Egypt in the middle of the 3rd century AD. He left an extensive archive of letters and documents concerning his property which can be considered as the largest single collection of papyri from Roman Egypt. It seems that the archive was discovered at the end of the 1898–1899 digging season at Kasr Harit in the Egyptian desert by Bernard Grenfell and Arthur Hunt, when workmen in their employ decided to carry on digging, and came upon a box full of papers. The archive was broken up in the early 20th century, and sold to dealers.

From the same papyrus P. Vindob., gr. 12565, we learn some important details about the several buildings in Hermopolis, both private and public (niches, fountains, tetrastyles and temples) which were erected on both sides of this main street, starting from East to West with the temple of Antinous and that of Hadrian.[11]

Kamal says in his report about the excavations in Ashmunein: "*Breccia*[12] *presumed that the granite columns which lie about or are still standing near the modern road belong to the Graeco-Roman market place, i.e. the Agora. (…) Since then the place marked by the granite columns was supposed to be the famous Agora of Hermopolis, so brilliantly illustrated and described by the papyri*".[13]

This building later revealed itself as a Christian basilica, thanks to the results of the later excavations conducted by the archaeologists of the British Museum (Fig. 6).[14]

From a letter by Breccia to Domenico Comparetti, dating to May 28th 1903, now kept at Pisa University, we learn that the first campaign to Ashmunein was carried out at a rapid pace and with satisfying results, so that the archaeologist asserts: "*I Tedeschi hanno trovato assai meno di noi*" (The Germans found much less than us).[15] The large number of workers active on the site shows that the excavation involved intensive removal of earth (Fig. 7). Breccia chose to prioritize the search for papyri and this influenced the work. Moreover, the remaining material was not the subject of a detailed analysis.[16] He himself records that, during the 1903 campaign, 200 meters to the East of Kôm Qassum had stood a hill of remarkable height, and that, after the Italian and German works, this high ground did not exist anymore (Fig. 8).

In his report to the Accademia dei Lincei in 1903, the Italian archaeologist does not give any precise information about the investigated area, so it is difficult to identify the context where the objects were found. He probably searched in a zone of the settlement where, between the 15th and 16th centuries, an Arabic community had lived.

In Kôm Qassum there were four water towers, dating back to the late Roman period, perhaps to provide the numerous houses of the city with water.[17] Breccia decided to explore these houses because he thought he could discover some intact papyri there; he had indeed learnt from his workers that many papyri from Ashmunein circulating in the antiquities market had been

10 Kamal 1946: 289.

11 Kamal 1946: 290. See also Bailey 2012: 196–198.

12 Breccia 1905: 36.

13 Kamal 1946: 292.

14 See below, fn. 22.

15 Moiso 2008: 207.

16 Ghiringhello 2008–2009: 85. See also Breccia 1936.

17 Bailey 2012: 195.

Fig. 6: The Christian basilica previously considered as the Agora; slide no. C 00957 (© Archivio Museo Egizio, Turin).

Fig. 7: Intensive excavations on the site; slide no. B 00923 (© Archivio Museo Egizio, Turin).

Fig. 8: The hill near Kôm Qassum after the excavations by the German and Italian missions; slide no. C 00959 (© Archivio Museo Egizio, Turin).

found exactly inside these dwellings.[18] The digging area appeared already disturbed by clandestine excavations, so that it was possible to find artefacts of different ages shuffled together. In addition to materials of the Coptic and Islamic epoch coming from the upper layers of the hill, some objects of Roman age came to the light, as well as Greek papyri of the 3rd century AD, ostraca, oil-lamps with human masks and sculpture fragments. Among the most valuable fragments, Breccia mentions a head of Alexander and one of Zeus Serapis.[19]

A German expedition led by Günther Roeder later carried out the regular excavation in the area of Ashmunein in the 1930ies.[20] As mentioned above, the Egyptian Antiquities Service worked there with Mohammed Kamal in 1942, especially in the town centre.[21] Since the 1980ies a British Museum mission has been working on the site, expanding our knowledge of the urban layout of Ashmunein.[22]

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18 Breccia 1905: 25, mentioned in Ghiringhello 2008–2009: 82.

19 Ghiringhello 2008–2009: 82.

20 Roeder 1959.

21 Kamal 1946: 291–295.

22 Spencer 1983; Spencer/Bailey 1982–86; Bailey 2012.

2 Bone and ivory carvings in the Museo Egizio: physical, typological and stylistic analysis

The cataloguing project of the objects kept in the Museo Egizio's deposits which was started in 2008 by the Ministero per i Beni e le Attività culturali e per il Turismo provided the occasion to conduct research on various materials and origin contexts.

Object of our study is an unpublished corpus of 193 bone and ivory objects, dating between the Roman and early Islamic period, preserved at the Museo Egizio in Turin. The batch includes different groups of artefacts (Fig. 9): objects carved in the round, appliques with figurative and vegetal reliefs, elements for the decoration of cases and furniture (tubular appliques and patches, shaped frames and strips with spiral, string and astragalus decorations), everyday objects (gaming pawns and counters, dice, hairpins, styluses, pendants, combs, cosmetic palettes, spools, spinning implements, rattles, handles, tools and knobs). A separate group consists of unfinished objects, raw material and processing waste.

Only a minimal part of these objects was displayed in the Museum, the majority of them was kept in the storage room. Today the finds are kept in the Material Culture Section of the Museo Egizio.

2.1 Research objectives

The approach adopted for the analysis of the finds has been interdisciplinary in an attempt to obtain as much information as possible. We did not stop at a typological or iconographical study, an approach that has often been reserved for this kind of material,[23] but we also analysed physical and morphological characteristics of the raw material to determine, when possible, the section of the bone or tusk used.

Since a large number of finds came from the Ashmunein excavations (1903–1904), the reconstruction of the find context of the materials has been fundamental for the research. In this regard, the archival work carried out by Marcella Trapani was very important. In fact, the examination of the archive's written and photographic documentation and the compara-tive study of the materials, aimed at reconstructing the "biography of the archaeological find", provided important information not only on the place of discovery, but also on the nature of the material itself and on the methods of production.

The study of the artefacts was carried out using a methodology that ensured efficient analysis and recording of the essential data. All the finds of the batch are accompanied by technical files, drawings and photos. Tables with graphs in

23 Regarding the bone and ivory finds from the Hellenistic, Roman and Byzantine periods found in Egypt, the publications of the early 20th century show a purely descriptive approach, often due to the lack of excavation data. These studies, in fact, favor the method of formal and stylistic analogy for dating, in terms of greater or lesser adherence to the artistic canons of Hellenistic art. Little attention is given to questions concerning the nature and sourcing of raw materials, the location of production centres and the circulation in the Mediterranean area of artefacts and raw materials; also the technological aspects, extremely important for the definition and understanding of specialized craft practices, have been scarcely considered. For the Egyptian ivories of the Hellenistic and Roman periods see Botti 1900 (the first cataloguing of the ivories and bones from Alexandria and the surrounding area); Strzygowski 1902; Strzygowski 1904; Wulff 1911; Breccia 1912; Petrie 1927.

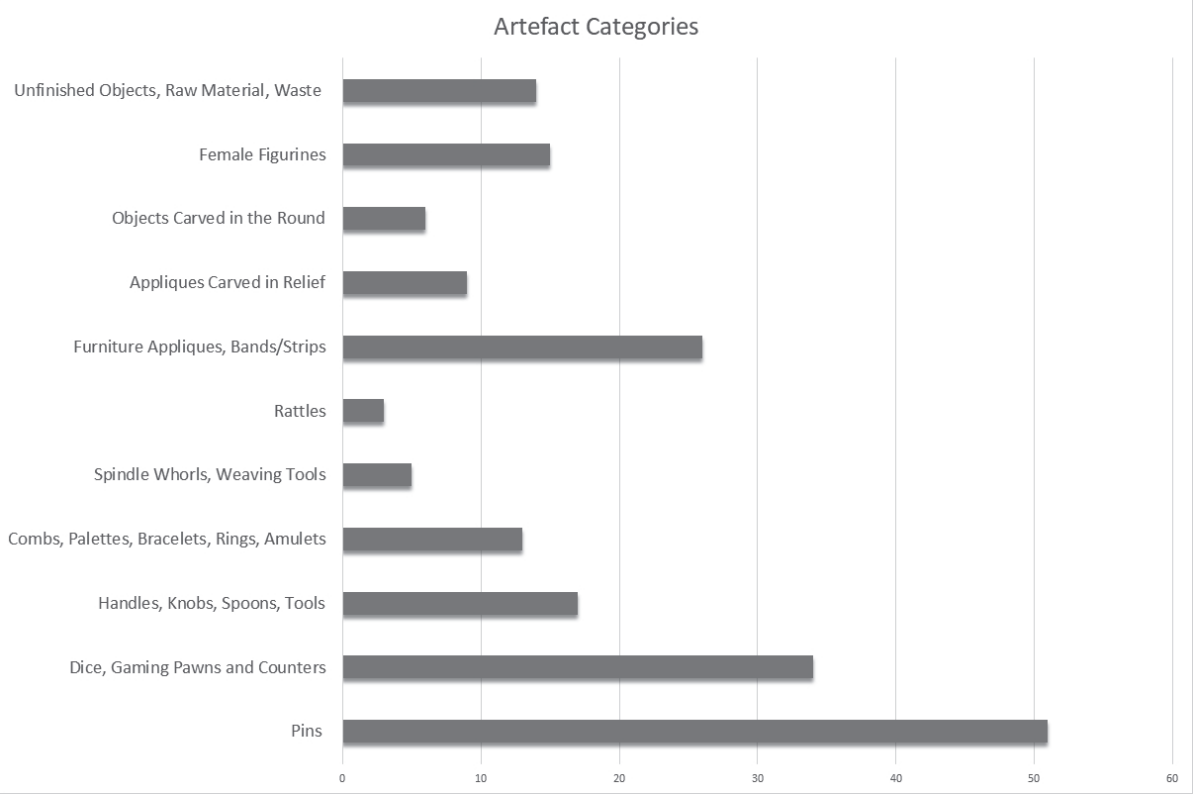

Fig. 9: Quantification of bone and ivory object groups dating between the Roman and early Islamic periods kept in the Museo Egizio, Turin.

the annexes have been developed to better visualize the categories of the artefacts. In addition, typological tables have been developed for the most numerically relevant groups of artefacts, such as furniture framings, gaming dice, hairpins and female figurines.

Each typological series was filed according to morphological, iconographic and stylistic affinities, trying to respect, when possible, the progressive order of the Inventory, which distinguishes the various acquisitions of the Museum (excavation/purchase). The comparative examination of the inventory numbers allowed us to find mistakes and duplications in the inventory numbering of the findings, making it easier, in some cases, to read correctly low visibility numbers (vanished numbers).

2.2 Reconstruction of the excavation context and chronology

The comparison between the objects found in the area involved in the Breccia excavations at Ashmunein, in particular the figurative ones, and the materials from sites excavated during the second half of the last century with stratigraphic methods, have allowed to remedy the shortage of data regarding the context and to reconstruct stratigraphically the phases of the site.

The multilayer stratigraphy of Kôm Qassum (habitation quarter with levels from the Hellenistic, Roman and Byzantine age, on which a Muslim cemetery was later established) was similar to the one found in some sites in Alexandria which have returned materials of the same kind, in particular in the Roman-

Byzantine quarter of Kôm el-Dikka[24] and in Diana's theatre area.[25] In these sites, nearby public buildings – like theatres and bath houses – and along Via Canopica (L1), many shops specialized in the processing of bone and glass (luxury craftwork) were found. These shop activities are dated, thanks to the association with ceramic material, between the 3rd and the 9th century AD, confirming the continuity of the bone carving in Alexandria until the Islamic period, particularly in the quarter of Kôm el-Dikka and near the main urban road axis; in fact, these sites had good sales opportunities.

Many objects carved in the round, appliques with figurative and vegetal reliefs, elements for the decoration of cases from Kôm Qassum to Ashmunein are very similar to those found in the Alexandrian contexts and can be dated between the 4th and the 9th century AD.[26] In particular, the unfinished plaques S. 2133 (Fig. 10) and S. 2479 are very interesting, since these show two different stages in the manufacturing process. The plaque S. 2479 (Fig. 11) shows a more advanced stage of manufacturing: it depicts a flared stem at the base, at the top of which opens a bud, perhaps of lotus. These finds are similar to appliques with floral reliefs found in the Diana area and in the site known as Lux during emergency excavations[27] in Alexandria and to some preserved in the Benaki Museum in Athens[28] dated between the 3rd and 4th century AD (Fig. 12).

Therefore, the discovery of semiprocessed bones and unfinished plaques suggests the presence of bone/ivory carving ateliers in Ashmunein, thus confirming the vitality of manufacturing of such materials in provincial areas. This activity has often been considered a prerogative only of the Alexandrian workshops.

Three bone female figurines[29] (S. 2137, S. 2139, S. 2457) dating between the 7th–9th century AD were found by Breccia in Ashmunein in the higher layers of the Kôm Qassum; perhaps these finds come from the early Islamic necropolis. The acephalous figurine S. 2457 (Fig. 13) belongs to a well-attested typology (8th century AD): the figurine, accidentally broken off at the head, has short perforated stumps to allow the fixing of the arms which are, in this case, lost.[30]

The function and use of these figurines, often referred to as "Coptic dolls", is controversial: in the absence of a reliable context of discovery it is difficult to establish the functional and semantic value of dolls or votive objects. Their frequent

24 The area has been excavated by the Polish mission led by Elzbieta Rodziewicz since the 1960ies. Excavations have focused on the area between the ancient streets named 3–R5 and L1 (Via Canopica) and L2, south of the Roman theatre, in the map drawn by El Falaki (see Shenouda 1973). See Rodziewicz 1969:148–152; 1978: 317–336; 1995: 405–411; 1998: 135–158; 2007: passim.

25 The site was identified during emergency excavations carried out by the Centre d'Étude Alexandrines in the 1990ies, under the direction of J.Y. Empereur, at the northern end of the street R4 (Fig. 13, no. 5), near the royal Ptolemaic district. See Empereur 1995; Empereur 2002.

26 Rodziewicz 2007. Appliques with Dionysian and Marine *thiasos* scenes (late 3rd–4th century AD) and plaques with vegetal reliefs (7th–9th century AD).

27 Rodziewicz 2007: 10–11, Pl. 100.4, 5, cat. ns. 53, 52.

28 Marangou 1976: Pl. 70, n. 246 (Inv. 18734). On the Coptic dolls see also Woolley 1907: 218–220.

29 In this group of artefacts, there are also ten female figurines, purchased by Schiaparelli on the antiquities market between 1900 and 1901 in Egypt. These figurines have been dated between the 8th and 10th centuries AD.

30 See Petrie 1927: Pl. 55, no. 596; Elderkin 1930: 477, Fig. 29, Török 1993: Pl. 91, P5, Pl. 113, P11, von Falck 1996: 202, no. 203.

Fig. 10: Unfinished plaque (S. 2133), bone, 3rd–4th c. AD, Museo Egizio, Turin (photo: C. Ghiringhello).

Fig. 11: Unfinished plaque (S. 2479), bone, 3rd–4th c. AD, Museo Egizio, Turin (photo: C. Ghiringhello).

Fig. 12: Floral relief, bone, Byzantine period, Benaki Museum, Athens (after Marangou 1976: Pl. 70, no. 246).

Fig. 13: Female figurine (S. 2457), bone, 8th c. AD, Museo Egizio, Turin (photo: C. Ghiringhello).

discovery in women's tombs[31] and the fact that some of them have truncated limbs or are just simple carved heads and, especially, their small dimensions that make it difficult for children to manipulate them, make us think that they are offerings (*pars pro toto*) for the protection of the growth of girls, icons of female values or evocative of the virginity of the dead.[32]

2.3 Identification of the raw material

One of the difficulties encountered in the study of the ivory and bone artefacts was the distinction between the two types of material: the first, precious and rare, was often replaced and used in parallel with the less expensive bone. In fact, some finds reported as ivories in files, after being studied, turned out to be made of bone.[33]

The identification of the material starting from the finished object was not easy, since the craftsmen often removed and erased the morphological and structural elements useful to recognize the bone or tusk segment used (for example, the articular ends and the spongy tissue for the bone) and they submitted the artefacts to an intense polishing.

Generally, bones from cattle (Fig. 14), goats, equines and camelids were used to make bone objects. We are talking about waste products coming from slaughtering for food purposes, but they were probably not the only raw material sources, since horses and donkeys were not part of this time's normal diet.[34]

By analyzing finished bone objects, we observed both the use of the diaphysis of long bones (mostly *metapodials*, *radii* and *tibiae*) and that of flat bones (ribs and shoulder blades/*scapulae*) of medium and big-sized mammal.

For the long bone segments, the presence of morphological and structural elements in the finished objects (as *epiphysis*, cancellous tissue, the natural longitudinal depression of the external surface of *metapodials*) and the measurements, enabled us, in some cases, to identify the elements of the bone segment used.

Many artefacts in the batch were carved from horizontal section of *metapodials*,[35] which being upright, thick and very robust, were ideal to make convex objects with vertical orientation: like furniture appliques, pyxides, handles and sculptures carved in the round.

The handle Cat. 6447 (Fig. 15) is shaped from a distal bone segment. In fact, the cancellous tissue and also the foramen for the passage of nerves and blood vessels is visible, which appears as black hole on its worked surface. These characteristics as well as the size of the finished object and the thickness of the bone compact tissue (13.6x2.1x0.4 cm) suggest that the find is shaped from the *metatarsal/tibia* of a medium-sized animal.

Some objects, carved from longitudinal sections of long bone, retain traces of the central medullary cavity on the back surface; in these cases, the progressive narrowing of this cavity

31 Wooden and bone dolls were found in tombs from the Byzantine era in Antinoë (Gayet 1902a: Pl. VIII; Gayet 1902b: 46); in Hawara and Lahun some dolls come from Roman and Coptic women's tombs (Petrie 1904: 61–62).

32 For bone figurines of the early Islamic period from Egypt see Shatil 2016: 296–314.

33 The structural and mechanical properties of bone have been analysed in several studies, see MacGregor 1985: 1–9, 23–29; Cutler 1985: 17–19; St. Clair 2003: 1–4.

34 MacGregor 1985: 30–32; Rodziewicz 1995: 406; St. Clair 2003: 2.

35 Parts of the limbs of vertebrate tetrapods belonging to the distal segment which includes *metacarpus* and *metatarsus*. For a discussion on animal anatomy see e. g. Barone 2003; MacGregor 1985: 23–32.

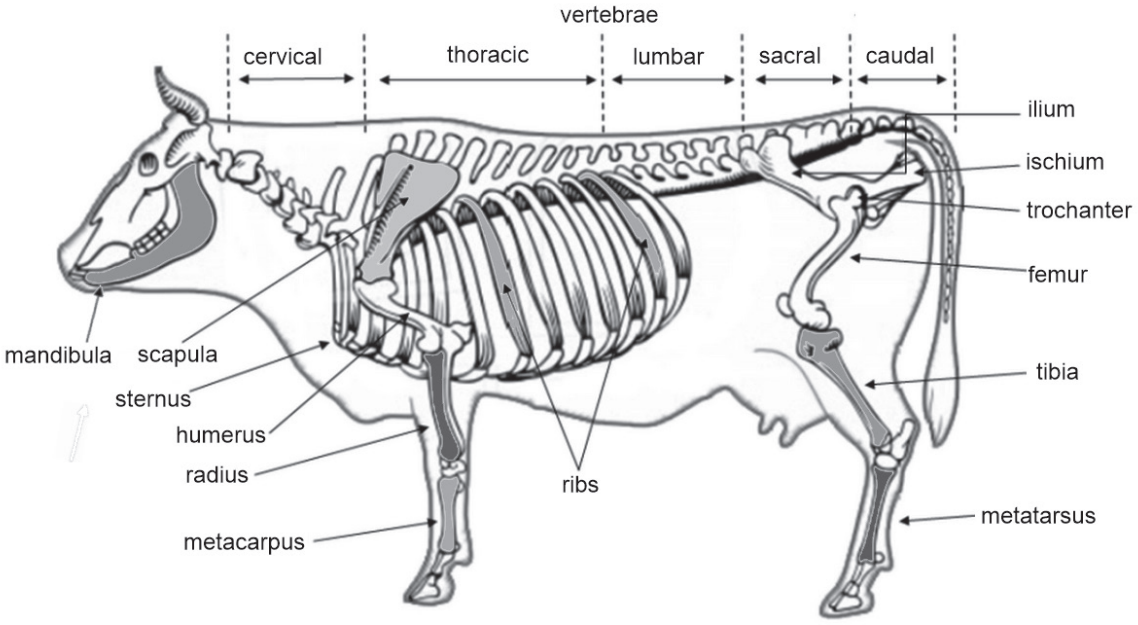

Fig. 14: Bovine skeleton (drawing: C. Ghiringhello).

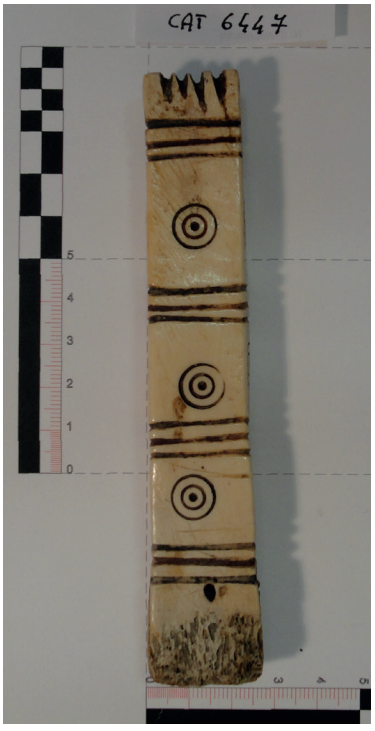

Fig. 15: Handle (Cat. 6447), bone, Byzantine period, Museo Egizio, Turin (photo: C. Ghiringhello).

Fig. 16: Female figurine (S. 1174), painted bone, 7th–8th c. AD, Museo Egizio, Turin (photo: C. Ghiringhello).

and the thickness of the compact bone layer can be useful to understand which part of the bone segment has been used. For example, the diaphyseal end, recognizable from the presence of the *trabeculae* typical of the spongy tissue of the *epiphysis*, has been used to make legs of the female figurine S. 1174 (Fig. 16).[36]

Among flat bones, the scapulae are the most versatile, because it is possible to obtain a flat area of approximately 12x15 cm. This part is optimal for combs or covering plaques. Their sandwich-like structure of cancellous tissue between thin layers of compact bone can be recognized in finished objects on the back surface, even when it is smoothed.

For ivory objects, it is necessary to emphasize that in Egypt, ivory was derived either from elephant tusks or hippopotamus canines and incisors (used from prehistory to the New Kingdom). Ancient sources say that in the Hellenistic Age hippos had disappeared along the course of the high and middle Nile, while they survived in small herds in the marshy areas of the Delta for many centuries to be extinct in the seventeenth century.[37]

From the 3rd century BC, the Ptolemies increased the elephant ivory trade from Africa and Asia Minor to meet the growing demand for this precious merchandise.[38] These two types of ivory are difficult to distinguish in finished objects, especially if they are small, unless they are subjected to microscopic examination.[39] As far as the objects we analysed were concerned, they seem to be made of elephant ivory.

The criteria used to recognize ivory objects were the texture (Fig. 17) and the colour of the material. For example, in a group of ivory gaming pieces and in some furniture appliques from Ashmunein it was possible to spot tusks' growth lines (*Owen's lines*); these are recognizable by a darker colour, visible on the cross and longitudinal section of the tusk. Besides it is possible to see on the cross-sections a grid of curve lines (*Retzius's*

36 For bovine long bones, once the articular extremities are removed, it remains a workable length of 16 cm for the *metatarsus* and about 13 cm for the *metacarpus*: the finished objects obtained from these bone segments generally do not exceed 10–11 cm.

37 Nonnos of Panopoli (5th century AD) and the papyrus of Oxyrynkhos indicate the presence of the hippopotamus in 400 AD. During the Crusades and at the time of pilgrimages to the Holy Land, the hippopotamus is mentioned for the hardness of the leather, suitable for making comfortable and sturdy shoes. Hunters and naturalists saw the animal in the Damietta marshes during the 17th century. Goyon 2000: 149–153.

38 Strabo (Gheographikà 16. 769, 770) mentions the sending of an expedition to the shores of the Red Sea during the reign of Ptolemy II in 270 BC to evaluate the possibilities of undertaking elephant hunts. The abundance of animals was such that it was decided to found the city of Philotera as a base for hunting, and a few years after Tolemaide Theròn. Casson 1993: 247–260; Scullard 1974: 126–137; Barnett 1982: 65–66.

39 Elephant tusks and hippopotamus teeth are composed of dentin, a substance composed of calcium and magnesium phosphates. These are teeth of continuous growth and therefore devoid of roots. For this reason, the dentin is presented in a series of layers called *lamellae*. The ivory of the hippopotamus differs from the elephant one for the different structure and the different appearance of the *lamellae*, which determine a finer and more compact stratification that makes this material suitable to be cut into thin plates. Reference here be made to significant works by Penniman 1952: 23–24, Pl. 20; Ritchie 1969: 25–48, Fig. 5; Barnett 1982: 8; MacGregor 1985: 14–19; Cutler 1985: 1–19; Caubet/Poplin 1987: 273–306; Krzyszkowska 1988: 209–234; Bass/Pulak 1990: 1–29; Wilkens 2002: 82; Krzyszkowska/Morkot 2000: 320–331; Goyon 2000: 147–156; St. Clair 2003: 4–6.

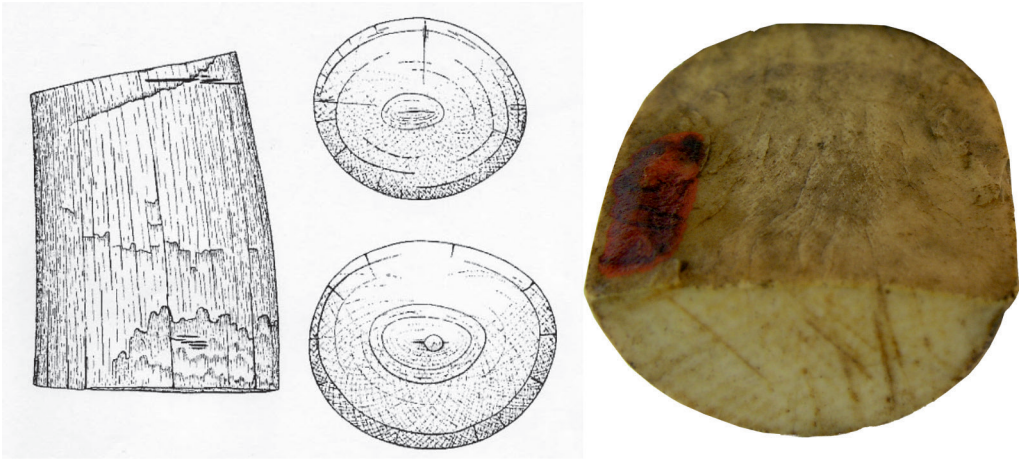

Fig. 17: Ivory texture (drawing: Bass/Pulak 1990: 284, Fig. 18), gaming pawn (S. 2504), ivory, Museo Egizio, Turin (photo: C. Ghiringhello).

lines). The lines radiate from the pulp cavity, parallel among themselves, forming a small rhombus shaped grid (Fig. 18).

Even the state of preservation can help to recognize the material: the ivory is vulnerable to changes of temperature, which affect colour (from white to yellow-brownish shades when exposed to highest temperature) and chemical composition.

The elephant tusks have the tendency to delaminate and to crack along the growth rings (cone into cone). The knob S. 2159 (Fig. 19) provides an excellent example of the ivory tendency to crack and delaminate.[40]

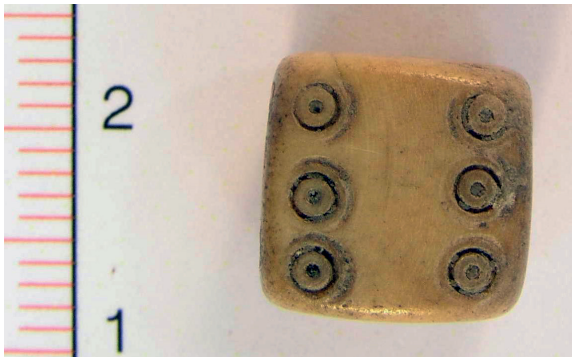

Fig. 18: Ivory texture, die (S. 2473), 3rd–8th c. AD, Museo Egizio, Turin (photo: C. Ghiringhello).

2.4 Technology: *modus operandi*

The examination of bone finds has, in some cases, allowed us to recognize the working procedures of the craftsmen and the tools used in the processing of the raw material. It can be seen how the craftsman determined his *modus operandi*, according to the shape, the dimensions and the physical properties of the raw material. For example, the natural holes (*foramina*) near the proximal and distal *epiphyses* on long bones could be used to introduce the fixing rivet in the handles and furniture appliques (Fig. 20). Some of the artefacts show the usage of bone segments in which the natural longitudinal depression on the external surface of the *metapodials* is present (Fig. 21). First phases of manufacture of raw material can only be hypothetically reconstructed.

40 The layers of dentine (*lamellae*) cannot be seen in fresh ivory, but when the material begins to decay, it will usually exfoliate as concentric layers. Krzyszkowska 1988: 211.

Fig. 19: Cap/knob (S. 2159), ivory, Byzantine period. Cracks along the growth rings, Museo Egizio, Turin (photo: C. Ghiringhello).

Fig. 20: Foramen *preserved in an applique carved as a theatrical mask (S. 1185), bone, 3rd–4th c. AD, Museo Egizio, Turin (photo: C. Ghiringhello).*

After slaughter, the bones had to be cleaned of tendon and meat residues, and the *periosteum* sheath also had to be removed. These operations could be long and complex: the bones were probably placed under the sand to let the parasites clean them; moreover, heat favoured the ageing of the bones and determined their whitening. For the elimination of the membrane (*periosteum*) perhaps the bones were soaked or boiled for a long time.

To try to understand the preliminary procedures for cleaning and seasoning the bone we performed an experimental test, using fresh bovine bones. In our experiment, the boiling operation to facilitate the elimination of organic matter took several hours, after which the membranes were mechanically removed (not without difficulty). After this stage, the bone material was soaked in cold water for 48 hours. The process softened the raw material, so it could be processed more easily with a knife and it was also more flexible.[41]

The material was then selected according to the size and shape, sawn, engraved and subjected to a further smoothing to eliminate residual stains. Sometimes economic reasons led to the utilization of the primary production scrap pieces.

The analysis of tool marks, with the help of magnifications, allowed the identification of the used instruments. The backs of the plates often show parallel or slanted marks left by different shapes of chisels, and gouges that were used to even out the surface (Fig. 22). Dice and gaming

41 See MacGregor 1985: 51–64.

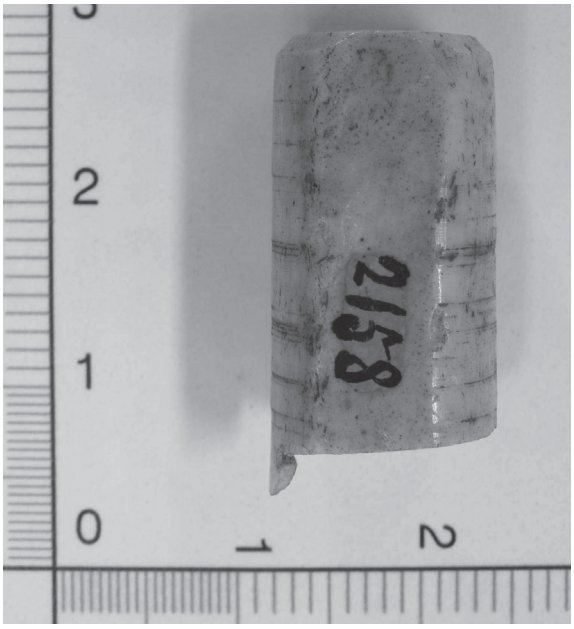

Fig. 21: Natural depression preserved on the surface of a handle/applique (S. 2158), bone, Byzantine period, Museo Egizio, Turin (photo: C. Ghiringhello).

Fig. 22: Tool marks on the back surface of flat bone plaque (S. 2480), Museo Egizio, Turin (photo: C. Ghiringhello).

pieces show the usage of lathes and compasses to engrave dotted circles. Probably the tools used were similar to those used by the craftsmen who worked on the wooden objects.

Some finds show second thoughts or errors made by the craftsman. For examples, in the figurative relief plaques, the craftsman was often forced to compel the figure on just one plaque or to develop it on two adjacent plaques. In the plaque S. 2131 (Fig. 23), the strong inclination of the figure has not allowed the realisation of the legs on the plaque, which is only 3.2 cm large; the legs were probably realized on the adjacent one. A slight circular depression can be seen on the left side of the vegetal relief plaque S. 2483 (Fig. 24). This depression is probably the trace of a not completed hole, intended for the insertion of the fixing rivet; the hole was probably realized a bit further up.

The colour of the material ranges from yellow to reddish-brown; the dark colour can be caused

Fig. 23: Plaque (S. 2131) carved in relief with a male figure (Cistophoros/Askophoros), bone, 3rd–4th c. AD, Museo Egizio, Turin (photo: C. Ghiringhello).

Fig. 24: Circular depression (unfinished hole) on the vegetal relief plaque (S. 2483), ivory (?), 4th–5th c. AD, Museo Egizio, Turin (photo: C. Ghiringhello).

by the laying conditions in the finding context (natural processes within soil), but we cannot exclude the presence of a treatment carried out by immersion in herbal teas rich in tannins or in a brine with mineral pigments for some of the finds.

In the assemblage, one female figurine shows a brown glossy and uniform "patina" throughout its entire surface and a small head (perhaps an idol) was carved on a bone with shades from dark brown to dark purple (Fig. 25).[42] In both finds, the colouration is uniform and the colour was absorbed by the layers of bone tissue: these observations allowed us to make assumptions about the colouration process.[43] Such practices are still used by craftsmen to colour this kind of objects.[44]

42 Female figurine S. 1178, purchased by Schiaparelli in Egypt; idol S. 158, Kircher Collection. For comparison Török 1993: Pl. 93, P11; Pl. 94, P14, P15; two dolls (bone dark brown) kept in Petrie Museum in London: UC25347, UC25394. UCL Museums & Collections, Petrie Museum Catalogue http://petriecat.museums.ucl.ac.uk/. See also Shatil 2016: 305–307.

43 Recent finds in the city of Reims have led to the discovery of manufactured bone objects coloured in green. Ferrand/Rossano 2013: 1024–1040.

44 I saw this technique used by bone craftsmen in Gaziantep in Turkey.

Four coloured bone plaquettes, found in Ashmunein, belong to a very specific category of engraved appliques: they are cut in *intaglio* and combined with coloured fillings made of resin and wax (S. 2134, S. 2135, S. 2480, S. 2481). The image and the details were etched with thin tips, while the surface that had to be filled with coloured resin was carved with a slightly rounded chisel: in these plaques traces of red and green resin are still visible (Fig. 26). The technique suggests a connection with the jewellery technique of *cloisonné*. This elegant category of appliques is quite rare; besides decorating so-called bridal caskets made of wood,[45] they could be used as book covers.[46]

2.5 Objects carved in the round, figurative and vegetal appliques: aspects of the iconographic repertoire

The iconographic themes present on the figured artefacts (carved appliques with vegetal and figurative motifs, plaquettes cut in *intaglio* and the appliques carved in the round) testify to the persistence, until late antiquity, of a taste for iconographic themes typical of the Hellenistic repertoire. The figurative motifs were chosen according to the function of the objects that the plaques were to embellish and also with attention to the symbolic meaning associated with these iconographies.

Fig. 25: Coloured female figurines (S. 158, S. 1178), bone, 7th–8th c. AD, Museo Egizio, Turin (photo: C. Ghiringhello).

The scenes depicted on three incised plaques with coloured fillings (S. 2134, S. 2135, S. 2481) present in our assemblage evoke the landscape of the Nile inspired by the Alexandrine style and follow probably pictorial prototypes adequate to bridal/toilette caskets: common moorhens (S. 2134)[47] and ducks (*Anas clypeata*) with colorful plumage (Fig. 26) gliding through canes and *nelumbos* (water lilies).[48]

45 To this group belongs the casket of the British Museum (Inv. no. 5555) and another one from the Walters Art Gallery in Baltimore. Randall 1985: Cat. no. 135, Pl. 44. Many wooden boxes and chests decorated with painted bone plaques have been found in the Nubian necropolis of Karanog, Gebel Adda and Qustul (tomb 14); they can be dated to the 4th century AD. Woolley/Randall-MacIver 1910: 69, Pls. 21–22, 24.

46 Rodziewicz 2007: 55.

47 The plaque S. 2134 is similar to a small plaque kept in the Graeco-Roman Museum in Alexandria. For comparison see Bonacasa Carra 2000: 354, Fig. 3, Inv. 13353.

48 The popularity of the floral landscape scenes animated by birds and erotes is attested mostly by mosaics from Palestine, North Africa, Italy, and Galia etc. until the 6th century AD. An interesting study on Nilotic subjects in the mosaic and their meaning in Balty 1984: 827–834.

Fig. 26: Incised plaque with Nilotic landscape (S. 2481), bone, coloured wax, 3rd–4th c. AD, Museo Egizio, Turin (photo: C. Ghiringhello).

Fig. 27: Incised circular plaque with young man and feline (S. 2135), depicted bone, resin, 3rd–5th c. AD, Museo Egizio, Turin (photo: C. Ghiringhello).

Often this landscape is animated by young men or erotes as, for example, on the plaque with curvilinear profile S. 2135 (Fig. 27); here a young man is depicted holding out his hand towards an animal that is not easily recognizable (feline/volatile).

These plaques have many comparative objects: plaques housed in the Graeco-Roman Museum at Alexandria;[49] bone panels from Saqqara in the Coptic Museum, Cairo;[50] a plaque from the Roman necropolis of Kôm el-Nigili in the Nile Delta (Fig. 28)[51] and a triangular plaque in the Mediterranean Archaeology Museum of Marseilles.[52]

The iconographic comparison with the material coming from proven contexts allowed to obtain a precise dating of the plaques carved with vegetal and figurative motifs and of the appliques carved in the round present in our batch. It was possible to reconstruct the compositional scheme of these plaques on wooden boxes (bridal boxes) and furniture to which they were destined.[53] The plaques are "the frames" of a larger composition: mythological scenes in which perhaps Dionysus,

49 Botti 1900: 113, Cat. nos. 2016, 2074; Rodziewicz 2007: 56.

50 Strygowsky 1904: 178–179, nos. 7065–7067, Abb. 233, 234.

51 Rodziewicz compares this scene with a similar one present on one plaque purchased on the antiquities market in Cairo and published by Strzygowski (see Strzygowski 1902: 14, Abb. 12). Rodziewicz 1995: Pl. LXXV, figs. 2 (plaque from Kôm el-Nigili) and 3 (drawing from Strzygowski 1902: 14).

52 Marseille 1997: 104–105, cat. 105, Inv. 2439.1.

53 For a reconstructive hypothesis see Elderkin 1926: 155, figs. 1–4. The scholar reconstructs the original position of six carvings with figures of Nereids preserved in the Princeton Museum, pertinent to the same box. Elderkin also considers two fragments of Pittsfield's Berkshire Athenaeum to be pertinent to the same box. In this way the approximate dimensions and the shape of the box that these plaques adorned can be determined.

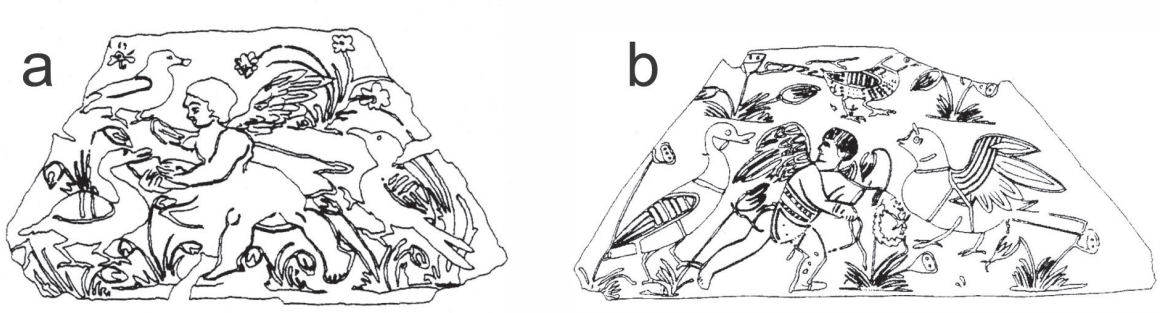

Fig. 28: Appliques from antiquities market (a) and Kôm el-Nigili (b) (drawings: Rodziewicz 1995: Pl. LXXV, figs. 2, 3, in: Bonacasa, N. (ed.), Alessandria e il mondo ellenistico romano, Atti del II Congresso Internazionale Italo-Egiziano, Alessandria 23–27 novembre 1992, L'Erma di Bretschneider, Rome 1995).

accompanied by a festive suite of Satyrs and Maenads, or Aphrodite were also present. They recall mythological scenes of Dionysian and Marine's *thiasos* according to the schemes of the Neo-Attic reliefs on sarcophagi or Roman mosaics of imperial age.[54]

The caskets were often parallelepiped in shape with a truncated cone-shaped lid: the slides could have been embedded or just glued in separate compartments creating complex scenes.

In plaque S. 2472 from Ashmunein, dated to end of the 3rd century AD, a scene of marine *thiasos* can be recognized: a reclining Nereid (Fig. 29) leans with her right arm on a rock/body of a Triton (?), while the other hand is holding a piece of the *himation*.[55] In this case, the trapezoidal shape of the plaque allows us to deduce its position on the original support: probably a panel placed on the top of the casket.[56] The subject of the *thiasos* recalls the wedding and so it is underlining the function of bridal boxes (Fig. 30).[57] In fact, the Nereids, being related to water, are part of Aphrodite's world and they have a strong erotic value. These scenes are also present on Coptic tissues and funerary reliefs.

The iconographic comparison made it possible to identify the themes carved on two more plaques found in Ashmunein as scenes related to Dionysian *thiasos*. In plaque S. 2131 it is possible to recognize a Cistophoros/Askophoros: he is a young man of the Dionysian *cortège* carrying the equipment for the celebration of the banquet (Fig. 23). The iconographical comparisons allow

54 Rodziewicz 2007: Pl. 100.4, 100.5. In the vast literature on roman sarcophagi see e.g. Zanker/Ewald 2008: 117–134, 323–331.

55 About the iconography of the Nereids in the Archaic and Classical ages see Becatti 1971: 15–59; Marangou 1976: 42–44, n. 215; Bonacasa Carra 1995: 280. A broad discussion on the subject is found in Barringer 1991; Barringer 1995: 387–388.

56 The caskets preserved in the British Museum, at the Walters Art Gallery in Baltimore, and at the Coptic Museum in Cairo are decorated according to this scheme, to mention only some of the best-known examples (supra fn. 45). Strzygowski 1904; Randall 1985: cat. 135, Pl. 44; Engelbach 1915; Woolley/Randall-MacIver 1910.

57 The nuptial casket of Projecta and Secundus of the Esquilino's treasure, 2nd half of the 4th century AD, London, British Museum, is similar in shape and function to the caskets in bone and wood. See Shelton 1981: 72–75.

Fig. 29: Plaque with reclining Nerid (S. 2472), bone, 4th c. AD, Museo Egizio, Turin (photo: C. Ghiringhello).

to reconstruct his posture: his head was turned three quarters; his right arm was lowered, probably he carried a cist (basket) which is sometimes full of grapes. The type is usually represented with his left arm bent above his head or while carrying a leather goatskin on his shoulders.

The plaque of the Museo Egizio is similar to two plaques preserved in the Greco-Roman Museum of Alexandria dated by Bonacasa Carra between the 3rd–4th century AD and finds exact comparisons in coeval plaques of the Benaki Museum in Athens.[58]

The Dancing Satyr S. 2478 (Fig. 31) is recognizable by the goat-like attributes. The compositional scheme is well known: the torsion of the body, the head facing down and the position of the raised left leg indicate that the figure is dancing (dancing Pan). The piece is unfinished perhaps because of an executional mistake: in fact, the right leg is too long and therefore it was not possible to make the hoof.

Two small plaques with vegetal motifs (Fig. 24) from Ashmunein are dated between the late Byzantine and the early Ummayad period.[59] In the late Byzantine and early Islamic periods, the reliefs with vegetable motifs replace figurative reliefs in the decoration of boxes and luxury furniture. These motifs have their direct comparison in the ornamentation of civil, religious and funerary architecture,[60] and also in clothes between 5th–8th century AD.[61]

In the Coptic decorations the motifs of acanthus and ivy leaves and vine scrolls are predominant, because of their symbolic meaning. To the original funerary meaning of the acanthus is added the evocation of the Passion of Christ (because of its thorny shape). In the vine scroll there is a convergence of meanings present both in the Osirian belief and in the Dionysian cult, passed then to the Christian religion, for which every Christian is like a vine shoot.

58 Alexandria, Graeco-Roman Museum, Inv. 13242, 12109 (Bonacasa Carra 1995: 280–281, Pl. XXXV, 2). Athens, Benaki Museum, n. 21876 (Marangou 1976: 33, Cat. 50, Pl. 15d).

59 Strzygowsky 1904: 193, 197; Randall 1985: 149–151, nos. 117a, b, c; Shahin 1998: 371–376; Rodziewicz 2007: Pl. 101.8., Pl. 102, n. 3.

60 See portal of St. Barbara Church, Cairo, Museum of Coptic Art, 5th–6th AD, architectonic decoration from White Convent, Sohag, Deir el-Abiad, 440 AD, frontons of funeral grave stones (1a 5831), Moscow, The Pushkin State Museum of Fine Arts, limestone, 4th century AD.

61 See plaques from the Roman-Byzantine district of Kôm el-Dikka in layers of the 7th–9th century AD. Rodziewicz 2007: 27–28, 55, Pl. 102, n. 3.

Fig. 30: Jewellery box with Dancers and Faun (Acc. no. 70.41), wood, bone, coloured wax, 4th–6th c. AD (photo: The Walters Art Museum, Baltimore).

Fig. 31: Plaque with Dancing Satyr (S. 2478), bone, 4th c. AD, Museo Egizio, Turin (photo: C. Ghiringhello).

Fig. 32: Theatrical mask (Cat. 6449), bone, 1st–2nd c. AD, Museo Egizio, Turin (photo: C. Ghiringhello).

A theatrical mask (C. 6494)[62] of characters from the New Comedy (Fig. 32), an applique with an acephalous male figure, maybe a resting Heracles, and an applique carved in the round at the top with the figure of a charioteer driving a chariot are stupendous rediscoveries of manufactures from the Roman period that have been made by inspecting warehouses; they could be furniture appliques.

2.6 Miscellanea

Inside our heterogeneous batch we can find also objects of everyday use, like gaming pieces, pins, writing implements, cosmetic palettes, spindle whorls, tools, ornamental band/strips for decoration of cases and furniture and semi-finished products.

Part of these finds come from Ashmunein and some of them were purchased by Schiaparelli in Egypt, confirming thus his further attention for Late Antiquity daily use objects.

In this paper, we present a preliminary report on some of the most interesting finds within the different categories of artefacts.[63]

In the group of gaming pieces there are 20 dice. The dice have a fairly regular shape and the value on each side is engraved in the form of single or double concentric circles, from one to six, so that the sum of the opposite faces gives 7 (6-1, 4-3, 5-2). Some dice show traces of a coloured substance in the engraved circles.

The fragmentary die S. 2475 was made from a transverse section of long bone; originally the medullary cavity was closed with a bone plug to reproduce a solid cube. This die shows a rare type of display of values, since the value of 7 is incised on its side. There are dice with 7, but normally, this value replaces the value of 6; in this case, instead, the value of 7 is on the side next to the one where the value of 6 is engraved, rather than replacing it. The dice is missing two sides, however, if we assume that the values on the cube are in the normal position (6-1, 4-3, 5-2), the value 7 should probably replace the value 5 or the value 2, usually engraved on the sides adjacent to the side on which the value 6 is engraved.

A flat fish-shaped plaque (S. 2482) could be classified as game *tessera* (gaming counter) or theatre admission ticket (Fig. 33): a few similar specimens of this type are known, and one of these is kept at the Graeco-Roman Museum of Alexandria.[64]

The game pawns are dated between the 3rd and the second half of the 5th century AD. These have a flat base with a diameter ranging from

62 Theatrical mask C. 6494 (6x4 cm), bleached, carved, engraved and polished bone, 1st–2nd century AD. The mask is carved in the round, obtained from a rather thick tubular bone segment (0.3 <0.6 cm). The external surface has been carefully smoothed and polished, the internal one also smoothed, and it shows grooves with oblique course performed with a thin point to eliminate the spongy tissue, of which traces remain. The mask probably depicts a character from the New Comedy, perhaps an old man (*pappos therapon*) or a curly servant (*oulos therapon*). The type is well attested also in Pompeian fictile *oscilla*, in configured oil lamps and in luxury dwelling mosaic apparatuses, above all in the African provinces, datable between the beginning of the 2nd and 3rd century AD. Bernabó Brea 2001: 172–177, 220–228.

63 We are working on the publication of these categories of artefacts.

64 Alexandria, Graeco-Roman Museum, Inv. 26877 (Riad 1966: Pl. IV.6.). On the discussion see Rostovtzew 1905: 110–124.

0.6 cm to 2.5 cm and the top is convex.[65] Two of these "dome" pieces are made of ivory (S. 2503, S. 2507), while S. 2489 was made from a cross section of a long bone. This gaming piece is cylindrical, slightly rounded on top and flat on bottom. Sunken bone plugs fill up the empty space, created by the removal of the marrow, from the top and bottom. At the bottom, the plug has an irregular shape and exposes slots around; plug at the top is decorated with shallow groove around the central point which shows a slight depression (Fig. 34). Thus the carvers filled the medullary cavity when it was necessary to create a solid object.[66]

The largest group in the batch consists of 51 pins.[67] They belong to mass products that are found in all excavated sites of Graeco-Roman and Byzantine periods in Egypt.[68]

The pins were used, since ancient times, for ornamental purposes in clothes or hairstyles, but since the mode of use varies with time and place, it is not always possible to distinguish between real hairpins and dress-pins. However, in the Roman and Byzantine periods bone and ivory pins are supposed to have been worn mainly to adorn and support the hair, while the dress pins were made mostly of metal.[69]

In regard to the various forms of their heads, our pins can be divided into several types with their numerous variations:

- **Knobbed head**: spherical, oval and cylindrical heads of different sizes; the pinheads were made separately and attached to the shaft. This group of pins have a smooth or grooved "neck" and a different thickness of barb
- **Pear-shaped** or **pine-cone head**: used especially from the middle of the 3rd century AD onwards
- **Pomegranate heads**
- **Baluster head**: head shaped as combinations of beads and reels. The type is common in the Roman layers of the 3rd–4th century AD
- **Head with a human bust/female figures and with animals** (S. 2459 cock-head)

Among the everyday objects, related probably to the feminine world, there are a delightful comb (S. 2141) with an engraved figurine, two cosmetic palettes (S. 2508, S. 2509) and two spindle-whorls, one of these with convex disc (S. 2155) that is decorated with engraved concentric circles, filled with coloured resin.

Many ornamental, shaped frames and strips with spiral, string and astragalus decoration, some carved with great care and painted (S. 2524) for boxes or furniture decorations, are also present.

One group consists of edges with spiral or cord/braid decorations (S. 2160–2163, S. 2519, S. 2520). Generally, we accept the hypothesis that these plait decorations did not enter into common use until the 5th century AD although, sporadically, they appear in earlier times.[70]

65 This type has often the top furrowed by two concentric circles made with a compass.

66 St. Clair 2003: 3; Rodziewicz 2007: Pl. 64, cat. 532, 534.

67 Fifteen pins come from the excavations of Ashmunein, five from Hammamiya, three from the Valley of the Queens, seven have been purchased on the antiquities market in Egypt. Twenty-one of these have a temporary inventory number, so it is impossible to identify their site of origin.

68 Some of the types in our batch correspond to types found in several sites throughout the Greco-Roman world. For references to comparative material see Béal 1983: 183–219; id. 1984: 1984: 49–59. See also St. Clair 2003: 80–98.

69 Rodziewicz 2007: 29.

70 Rodziewicz 2007: 33, p. 30, nos. 114, 116, 117, 120.

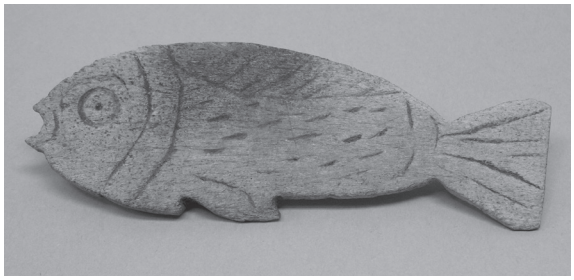

Fig. 33: Flat fish-shaped tessera *(S. 2482), bone, Byzantine period, Museo Egizio, Turin (photo: C. Ghiringhello).*

Fig. 34: Game pawn (S. 2489), bone, second half of the 5th c. AD, Museo Egizio, Turin (photo: C. Ghiringhello).

A second group includes fragments of bone rods with so-called pearl or astragal ornaments (S. 2493/3); similar objects were found in large numbers by W. M. F. Petrie in a pile of burnt debris in Scenas Mandras.[71]

Finally, the batch includes: six bone tools, some semi-finished bone segments and raw material. Most of these finds were purchased by Ernesto Schiaparelli on the antiquities market in Egypt, while a small group of unfinished objects (S. 2524/01-04) comes from Evaristo Breccia's excavations at Ashmunein (1903–1904).

Among the tools, five belong to the category of awls with one pointed end, in a variety of sizes.

They have been shaped from long bones of medium and big-sized animals. In this category of tools, a tendency can be observed to use the distal portion of *tibiae*, *ulnae*, *radii* and *metapodials*, more as a handling base.

Three of these (S. 1101, S. 1102, Provv. 5746) were shaped on whole bones that retain one *epiphysis*, which was used as a handle (Fig. 35), while only one bone end was sawn sideway. The tip of the active end of these tools is more or less pointed depending on the degree of wear of the tool.

The external surface is carefully smoothed and polished, but there are also traces of horizontal incisions (traces of processing). The medullary cavity of the bone has been emptied of the sponge tissue, which is preserved only near the *epiphysis*.

Two more long and narrow tools with pointed end (S. 1106, S. 1125) were obtained from portions of long bone sawn lengthwise from small-sized animals. The external surface has been carefully polished, and the porous material has been removed from inside, probably to facilitate the use of the tool, ensuring better handling.

Such tools were widely used by all kinds of craftsmen in their daily activities. These awls would probably have been used to punch holes in leather or cloth and its highly polished surface suggests that it was well used. The narrow tools with one end pointed could have been used as weaving tools.

We also mention a long, flat tool (Fig. 36) tapering toward the rounded end (Provv. 5735). It is shaped from a distal portion of bone (probably a *tibia* of a middle-sized mammal) sawn in longitudinal section. The carver left the distal *epiphysis*, which he modelled and smoothed, on both sides, in order to eliminate roughness and to produce a flat base on the internal surface; in fact, on this side, the edges of the compact tissue are perfectly smooth. The internal surface of the bone preserves the spongy tissue in the *epiphysis*, while the cancellous tissue has been removed from medullary cavity, in order to create a sort of "spatula" or spoon.

71 Engelbach 1915: Pl. XLIX.

Fig. 35: Pointed tool (S. 1101), bone, Museo Egizio, Turin (photo: Cristina Ghiringhello).

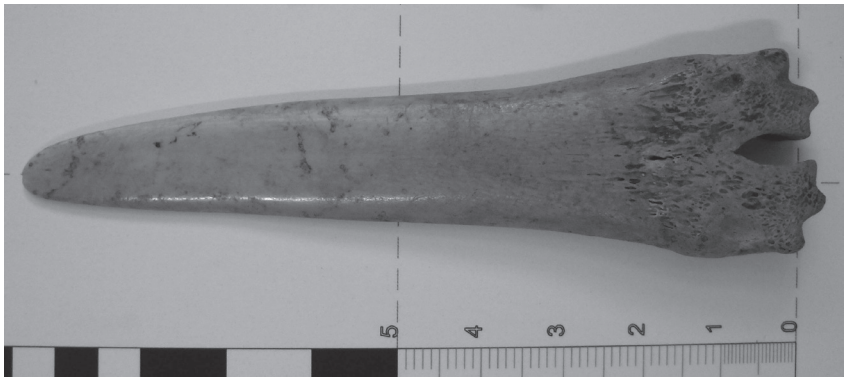

Fig. 36: Tool/spatula (Provv. 5735), bone, Museo Egizio, Turin (photo: Cristina Ghiringhello).

These categories of artefacts belong to the oldest tool types. Similar pieces can be found as early as prehistoric times.[72] Since their shape, working and function remained the same from prehistoric times up to the medieval period, in the absence of a reliable context of discovery, it is hard to date them.

The group of half-products of our assemblage consists of transverse sections of long bones which show various stages of production. Some semi-finished segments still show traces of the central membrane or of the trabeculae of the spongy tissue. Their surface shows manufacturing evidence of preliminary working (cutting and shaping): uniform traces of cutting tools are visible, such as blades, knives, and gouges.

Their preliminary shape is generic and could serve for a variety of objects such as pins, veneers or mounts. Some of these, in a more advanced processing stage, can be identified as furniture elements (bands, strips), since holes for attachment were drilled near edges on their surface.

2.7 Conclusions

The study of this corpus of heterogeneous artefacts offered the opportunity to shed new light on the context of problematic excavations such as that of Ashmunein and to make a contribution to the methods and technologies which the

72 For comparison see prehistoric bone tools, dated to the Badarian Period, kept in the Petrie Museum, London: UC9339, UC9346, UC9379, UC9382, UC9383, UC9384 (from Badari) and UC27777. UCL Museums & Collections, Petrie Museum Catalogue, London 2019: http://petriecat.museums.ucl.ac.uk/.

craftsmen of bone and ivory used in Egypt in the Roman and Byzantine periods.

Comparisons with objects from bone and ivory found in the contexts excavated with stratigraphic methods, above all the Roman quartier of Kôm el-Dikka in Alexandria, have made it possible to provide a convincing dating for many of the pieces examined and also to clarify the cultural scope of production. The wide chronological range of these finds seems to confirm the information provided by Breccia on the excavation of multilayered settlements in the NW area of the city of Hermopolis Magna dating between the Roman and early Islamic period.

Furthermore, the iconographic and stylistic analysis of representative finds gives us a better chance to identify the features of continuity and change in this category of artefacts. The appliques with figurative or vegetal motifs and the objects carved in the round from Ashmunein are very similar to contemporary finds from other sites, in the iconographic choices, in the decorative motifs and in their stylistic rendering.[73]

The figurative motifs exploit an Hellenistic iconographical repertoire (scenes of Dionysian and Marine *thiasos*, Nilotic landscape etc.) and show an artistic level, sometimes high, sometimes simplified in their execution. These examples are proof of how iconographic subjects can survive until late antiquity, often emptied of any allegorical or symbolic meaning and reduced to simple decorative motifs. In particular, the vegetal reliefs show changes that mark the shift from Graeco-Roman prototypes towards greater stylisation, typical of the Byzantine period.[74] Furthermore, their finding in the site (as well as that of the "Coptic dolls") could confirm the presence of active bone and ivory carving ateliers in Ashmunein as late as the early Ummayad period.

The high quality of many of these finds confirms the evidence that is emerging in recent years thanks to the discovery of objects in bone and ivory from the Roman and Byzantine period in numerous Egyptians sites, namely that the works of excellent quality must not be ascribed solely to Alexandrian craftsmen.

Therefore, the work in museum warehouses, as this case demonstrates, can be profitable not only for the purpose of dissemination and knowledge of what the museum holds, but also as a stimulus for new research and in-depth studies on a small but "extra-ordinary" and so far almost unknown heritage.

Cristina Ghiringhello

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73 Bonacasa Carra 2000: 357; Rodziewicz 2007: 14–16.

74 These reliefs attest their role as widely accepted replacement in the 8th to 10th centuries AD of previously favoured figurative reliefs. Rodziewicz 2007: 27.

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